



Report on

GEN-2025-SR8 Modification Request Impact Study

Revision R1 September 9, 2026

Submitted to
SPP



anedenconsulting.com

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Revision History

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
9/9/2026	Aneden Consulting	Initial Report Issued

Executive Summary

Aneden Consulting (Aneden) was retained by SPP to perform a Modification Request Impact Study (Study) for the GEN-2025-SR8 project, an active Generation Interconnection Request (GIR) with a Point of Interconnection (POI) at the White Tail 345 kV Substation.

The GEN-2025-SR8 project interconnects in the Oklahoma Gas & Electric (OG&E) transmission system with a capacity of 219.96 MW. This Study has been requested to evaluate the modification of the GEN-2025-SR8 project to change the configuration to 67 x Power Electronics FP4200M Battery Energy Storage System (BESS) inverters operating at 3.3 MW for a total assumed dispatch of 221.1 MW. The inverters are rated at 4.2 MVA, thus the generating capability exceeds its Generator Interconnection Agreement (GIA) Interconnection Service amount. The injection amount must be limited to 219.96 MW at the POI as listed in Appendix A of the Generator Interconnection Agreement (GIA). The GEN-2025-SR8 project is the Surplus Generating Facility (SGF) attached to the Existing Generating Facility (EGF) GEN-2015-066. The combined generation from both the SGF and the EGF may not exceed 219.96 MW at the POI. As a result, the customer must ensure that the amount of power injected at the POI does not exceed the Interconnection Service amount listed in its GIA. The requested modification includes the use of a Power Plant Controller (PPC) to limit the total power injected into the POI.

In addition to the inverter count change, the modification request included changes to the collection system and generator step-up transformers. Both the existing and the modified configurations for GEN-2025-SR8 are shown in Table ES-1 below.

Table ES-1: GEN-2025-SR8 Modification Request

Facility	GEN-2025-SR8 Existing Configuration		GEN-2025-SR8 Modified Configuration	
Point of Interconnection	White Tail 345 kV (560056)		White Tail 345 kV (560056)	
Configuration/Capacity	61 x Power Electronics (PE) FP4200M Inverters 3.65 MW (Battery/Storage) = 222.955 MW [dispatch] Units are rated at 4.2 MVA, GEN-2025-SR8 limited to 219.96 MW at the POI and total POI injection w/ GEN-2015-066 limited to 219.96 MW		67 x Power Electronics (PE) FP4200M Inverters 3.3 MW (Battery/Storage) = 221.1 MW [dispatch] Units are rated at 4.2 MVA, GEN-2025-SR8 limited to 219.96 MW at the POI and total POI injection w/ GEN-2015-066 limited to 219.96 MW	
Generation Interconnection Line (Shared with the EGF and unchanged from the previous GEN-2015-066 Modification configuration)	Length = 3.04 miles R = 0.000165 pu X = 0.001453 pu B = 0.026970 pu Rating MVA = 531.8 MVA		Length = 3.04 miles R = 0.000165 pu X = 0.001453 pu B = 0.026970 pu Rating MVA = 531.8 MVA	
Main Substation Transformer ¹ (Shared with the EGF and unchanged from the previous GEN-2015-066 Modification configuration)	X12 = 8.4973% R12 = 0.2124%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 135 MVA, Winding 1, 2, & 3 Rating MVA = 225/225/225 MVA	X12 = 7.8975% R12 = 0.1974%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 51 MVA, Winding 1, 2, & 3 Rating MVA = 85/85/85 MVA	X12 = 8.4973% R12 = 0.2124%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 135 MVA, Winding 1, 2, & 3 Rating MVA = 225/225/225 MVA	X12 = 7.8975% R12 = 0.1974%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 51 MVA, Winding 1, 2, & 3 Rating MVA = 85/85/85 MVA

Table ES-1 Continued

Facility	Existing Configuration		Modified Configuration	
Equivalent GSU Transformer ¹	Gen 1 Equivalent Qty: 43 X = 8.958%, R = 0.87%, Winding MVA = 180.6 MVA, Rating MVA = 180.9 MVA,	Gen 2 Equivalent Qty: 18 X = 8.958%, R = 0.87%, Winding MVA = 75.6 MVA, Rating MVA = 75.7 MVA	Gen 1 Equivalent Qty: 47 X = 8.9579%, R = 0.8697%, Winding MVA = 197.4 MVA, Rating MVA = 197.4 MVA	Gen 2 Equivalent Qty: 20 X = 8.9579%, R = 0.8697%, Winding MVA = 84 MVA, Rating MVA = 84 MVA
Equivalent Collector Line ²	R = 0.000306 pu X = 0.000359 pu B = 0.001930 pu	R = 0.000969 pu X = 0.001094 pu B = 0.001070 pu	R = 0.000410 pu X = 0.000741 pu B = 0.004051 pu	R = 0.001184 pu X = 0.002113 pu B = 0.002890 pu
Generator Dynamic Model ³ & Power Factor	43 x PE 3.65 MW (REGCAU1) ⁴ Leading: 0.87 Lagging: 0.87	18 x PE 3.65 MW (REGCAU1) ⁴ Leading: 0.87 Lagging: 0.87	47 x PE 3.3 MW (REGCAU1) ⁴ Leading: 0.785714 Lagging: 0.785714	20 x PE 3.3 MW (REGCAU1) ⁴ Leading: 0.785714 Lagging: 0.785714

1) X and R based on Winding MVA, 2) All pu are on 100 MVA Base 3) DYN stability model name

SPP determined that steady-state analysis was not required because the modifications to the project were not significant enough to change the previously studied steady-state conclusions. However, SPP determined that the modification to the GEN-2025-SR8 surplus project such as the change of number of inverters and GSUs required short circuit and dynamic stability analyses.

The scope of this study included reactive power analysis, short circuit analysis, and dynamic stability analysis.

Aneden performed the analyses using the modification request data and the DISIS-2022-001-1 stability study models:

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

Aneden reviewed Generation Interconnection Requests (GIRs) that shared the same POI, the White Tail 345 kV substation, and updated their models as applicable based on SPP's confirmation of the latest project configurations. The modification under study, GEN-2025-SR8, is the Surplus Generating Facility (SGF) for the GEN-2015-066 Existing Generating Facility (EGF) project. As a result, Aneden updated the GEN-2015-066 project with the most recently accepted configuration in the base models and created two stability scenarios to evaluate the impact of GEN-2025-SR8.

All analyses were performed using the Siemens PTI PSS/E¹ version 34 software and the results are summarized below.

The results of the reactive power analysis using the 25SP model showed that the GEN-2025-SR8 project needed a 0.7 MVAR shunt reactor on the 34.5 kV bus of the project substation with the modifications in place, a change from the 0.38 MVAR shunt capacitor found in the previous study². 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

¹ Power System Simulator for Engineering

² GEN-2025-SR8 Surplus Impact Study - September 26, 2025

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 with the updated topology showed that the maximum GEN-2025-SR8 contribution to three-phase fault currents in the immediate transmission systems at or near the GEN-2025-SR8 POI was 0.34 kA. The maximum three-phase fault current level within 5 buses of the POI was 52.9 kA for the 25SP model. There were several buses with a maximum three-phase fault current over 40 kA for both of the cases. These buses are highlighted in Appendix B.

The dynamic stability analysis was performed using Siemens PTI PSS/E version 34.8.1 software for the two modified study models: 25SP and 25WP, each with two dispatch scenarios to ensure all reliability conditions were studied. 117 fault events were simulated, which included three-phase faults and single-line-to-ground stuck breaker faults.

- Scenario 1: GEN-2025-SR8 at maximum assumed dispatch, 221.1 MW, and the corresponding EGF, GEN-2015-066, disconnected.
- Scenario 2: Aneden and SPP selected the second scenario based on a combination of SGF and EGF dispatch scenarios with the project dispatches varied by 20% increments of the total capacity. The resulting selected worst-case scenario included a combination of GEN-2025-SR8 dispatched to 180.708 MW, and GEN-2015-066 dispatched with the remaining 40.392 MW for a total combination of 221.1 MW.

The results of the dynamic stability analysis showed several existing base case issues that were found in both the original DISIS-2022-001-1 models and in the models with the GEN-2025-SR8 modification (and GEN-2015-066 modification) included. These issues were not attributed to the GEN-2025-SR8 modification request and are detailed in Appendix C.

There were no damping or voltage recovery violations attributed to the GEN-2025-SR8 modification 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.

Based on the results of the study, SPP determined that the requested modification is **not a Material Modification**. The requested modification does not have a material adverse impact on the cost or timing of any other Interconnection Request with a later Queue priority date. As the requested modification places the generating capacity of the Interconnection Request at a higher amount than its Interconnection Service, the customer must install monitoring and control equipment as needed to ensure that the amount of power injected at the POI does not exceed the Interconnection Service amount listed in its GIA.

In accordance with FERC Order No. 827, the generating facility 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 SPP's OASIS by the customer.

1.0 Scope of Study

Aneden Consulting (Aneden) was retained by the SPP (SPP) to perform a Modification Request Impact Study (Study) for the GEN-2025-SR8 project. A Modification Request Impact Study is a generation interconnection study performed to evaluate the impacts of modifying the DISIS study assumptions. The determination of the required scope of the study is dependent upon the specific modification requested and how it may impact the results of the DISIS study. Impacting the DISIS results could potentially affect the cost or timing of any Interconnection Request with a later Queue priority date, deeming the requested modification a Material Modification. The criteria sections below include reasoning as to why an analysis was either included or excluded from the scope of study.

All analyses were performed using the Siemens PTI PSS/E version 34 software. The results of each analysis are presented in the following sections.

1.1 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 capacitive effect at the POI caused by the project's collection system and transmission line's capacitance. A shunt reactor size was determined to offset the capacitive effect and maintain zero (0) MVar injection at the POI while the plant's generators and capacitors were offline.

1.2 Short Circuit Analysis & Stability Analysis

To determine whether stability and short circuit analyses are required, SPP evaluates the difference between the stability models, the stability model parameters and, if needed, the equivalent collector system impedance between the existing configuration and the requested modification. Dynamic stability analysis and short circuit analysis would be required if the differences listed above were determined to have a significant impact on the most recently performed DISIS stability analysis.

1.3 Steady-State Analysis

Steady-state analysis is performed if SPP deems it necessary based on the nature of the requested change. SPP determined that steady-state analysis was not required because the modifications to the project were not significant enough to change the previously studied steady-state conclusions.

1.4 Study Limitations

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

2.0 Project and Modification Request

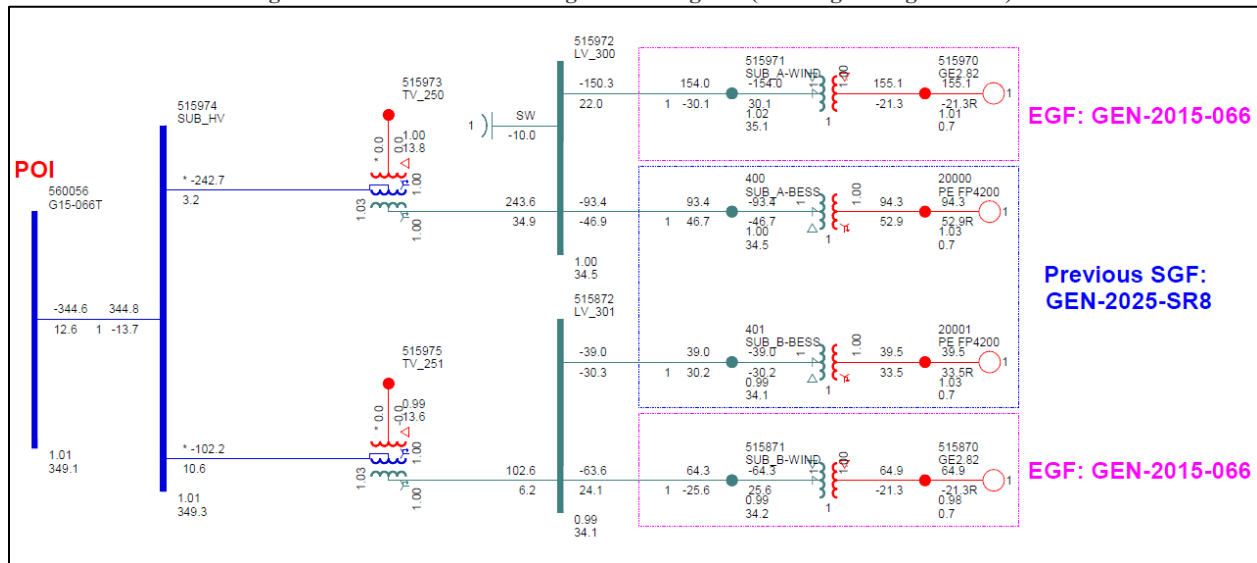
The GEN-2025-SR8 Interconnection Customer requested a modification to its Generation Interconnection Request (GIR) with a Point of Interconnection (POI) at the White Tail 345 kV substation in the Oklahoma Gas & Electric (OG&E) transmission system.

At the time of report posting, the GEN-2025-SR8 project is an active surplus Interconnection Request with a queue status of “IA FULLY EXECUTED/ON SCHEDULE.” GEN-2025-SR8 is a Battery Energy Storage System (BESS) facility with a maximum summer and winter queue capacity of 219.96 MW with Energy Resource Interconnection Service (ERIS).

Aneden reviewed Generation Interconnection Requests (GIRs) that shared the same POI, the White Tail 345 kV substation, and updated their models as applicable based on SPP’s confirmation of the latest project configurations. The modification under study, GEN-2025-SR8, is the Surplus Generating Facility (SGF) for the GEN-2015-066, Existing Generating Facility (EGF), project. As a result, Aneden included the most recently accepted GEN-2015-066 project configuration in the base models and created two stability scenarios to evaluate the impact of GEN-2025-SR8.

Figure 2-1 shows the power flow model single line diagram for the existing GEN-2025-SR8 configuration modeled in the DISIS-2022-001-1 25SP stability model with the GEN-2015-066 EGF project updates included.

Figure 2-1: GEN-2025-SR8 Single Line Diagram (Existing Configuration*)



*Based on the existing GEN-2025-SR8 configuration with the GEN-2015-066 EGF project updates included

This Study has been requested to evaluate the modification of GEN-2025-SR8 to change the configuration to 67 x Power Electronics FP4200M Battery Energy Storage System (BESS) inverters operating at 3.3 MW for a total assumed dispatch of 221.1 MW. The inverters are rated at 4.2 MVA, thus the generating capability exceeds its Generator Interconnection Agreement (GIA) Interconnection Service amount. The injection amount must be limited to 219.96 MW at the POI as listed in Appendix A of the GIA. Also, GEN-2025-SR8 is the Surplus Generating Facility (SGF) attached to the Existing Generating Facility (EGF) GEN-2015-066. The combined generation from both the SGF and the EGF may not exceed 219.96 MW at the POI. As a result, the customer must ensure that the amount of power injected at the POI does not exceed

the Interconnection Service amount listed in its GIA. The requested modification includes the use of a Power Plant Controller (PPC) to limit the total power injected into the POI.

In addition, the modification request included changes to the collection system and generator step-up transformers. Figure 2-2 shows the power flow model single line diagram for the GEN-2025-SR8 modification with the GEN-2015-066 EGF project updates included. Both the existing and the modified configurations for GEN-2025-SR8 are shown in Table 2-1 below.

Figure 2-2: GEN-2025-SR8 Single Line Diagram (Modification Configuration)

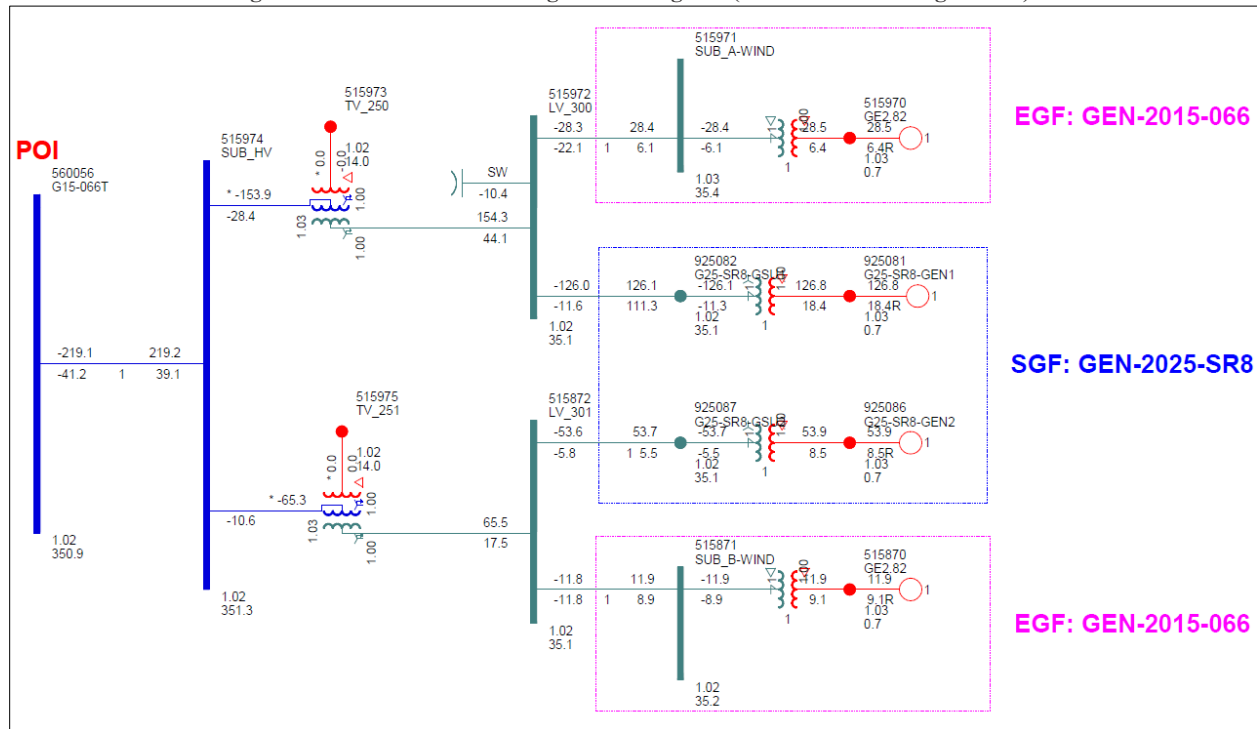


Table 2-1: GEN-2025-SR8 Modification Request

Facility	GEN-2025-SR8 Existing Configuration		GEN-2025-SR8 Modified Configuration	
Point of Interconnection	White Tail 345 kV (560056)		White Tail 345 kV (560056)	
Configuration/Capacity	61 x Power Electronics (PE) FP4200M Inverters 3.65 MW (Battery/Storage) = 222.955 MW [dispatch] Units are rated at 4.2 MVA, GEN-2025-SR8 limited to 219.96 MW at the POI and total POI injection w/ GEN-2015-066 limited to 219.96 MW		67 x Power Electronics (PE) FP4200M Inverters 3.3 MW (Battery/Storage) = 221.1 MW [dispatch] Units are rated at 4.2 MVA, GEN-2025-SR8 limited to 219.96 MW at the POI and total POI injection w/ GEN-2015-066 limited to 219.96 MW	
Generation Interconnection Line (Shared with the EGF and unchanged from the previous GEN-2015-066 Modification configuration)	Length = 3.04 miles R = 0.000165 pu X = 0.001453 pu B = 0.026970 pu Rating MVA = 531.8 MVA		Length = 3.04 miles R = 0.000165 pu X = 0.001453 pu B = 0.026970 pu Rating MVA = 531.8 MVA	
Main Substation Transformer ¹ (Shared with the EGF and unchanged from the previous GEN-2015-066 Modification configuration)	X12 = 8.4973% R12 = 0.2124%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 135 MVA, Winding 1, 2, & 3 Rating MVA = 225/225/225 MVA	X12 = 7.8975% R12 = 0.1974%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 51 MVA, Winding 1, 2, & 3 Rating MVA = 85/85/85 MVA	X12 = 8.4973% R12 = 0.2124%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 135 MVA, Winding 1, 2, & 3 Rating MVA = 225/225/225 MVA	X12 = 7.8975% R12 = 0.1974%, X23 = 3.9988% R23 = 0.1%, X13 = 11.9963% R13 = 0.2999%, Winding MVA = 51 MVA, Winding 1, 2, & 3 Rating MVA = 85/85/85 MVA
Equivalent GSU Transformer ¹	Gen 1 Equivalent Qty: 43 X = 8.958%, R = 0.87%, Winding MVA = 180.6 MVA, Rating MVA = 180.9 MVA,	Gen 2 Equivalent Qty: 18 X = 8.958%, R = 0.87%, Winding MVA = 75.6 MVA, Rating MVA = 75.7 MVA	Gen 1 Equivalent Qty: 47 X = 8.9579%, R = 0.8697%, Winding MVA = 197.4 MVA, Rating MVA = 197.4 MVA	Gen 2 Equivalent Qty: 20 X = 8.9579%, R = 0.8697%, Winding MVA = 84 MVA, Rating MVA = 84 MVA
Equivalent Collector Line ²	R = 0.000306 pu X = 0.000359 pu B = 0.001930 pu	R = 0.000969 pu X = 0.001094 pu B = 0.001070 pu	R = 0.000410 pu X = 0.000741 pu B = 0.004051 pu	R = 0.001184 pu X = 0.002113 pu B = 0.002890 pu
Generator Dynamic Model ³ & Power Factor	43 x PE 3.65 MW (REGCAU1) ⁴ Leading: 0.87 Lagging: 0.87	18 x PE 3.65 MW (REGCAU1) ⁴ Leading: 0.87 Lagging: 0.87	47 x PE 3.3 MW (REGCAU1) ⁴ Leading: 0.785714 Lagging: 0.785714	20 x PE 3.3 MW (REGCAU1) ⁴ Leading: 0.785714 Lagging: 0.785714

1) X and R based on Winding MVA, 2) All pu are on 100 MVA Base 3) DYN stability model name

3.0 Existing vs Modification Comparison

To determine which analyses are required for the Study, the differences between the previously accepted configuration and the requested modification were evaluated. Aneden performed this comparison and the resulting analyses using a set of modified study models developed based on the modification request data and the DISIS-2022-001-1 stability study models. The analysis was completed using PSS/E version 34 software.

The methodology and results of the comparisons are described below.

3.1 Stability Model Parameters Comparison

SPP determined that short circuit and dynamic stability analyses were required due to the change in the inverter dispatch amount, unit count, equivalent collector system, and GSU. This is because the short circuit contribution and dynamic stability responses of the existing configuration and the requested modification's configuration may differ due to the change in unit quantity, individual unit output, and impedance of collector system/GSU.

As short circuit and dynamic stability analyses were already deemed required, a stability model parameters comparison was not needed for the determination of the scope of the study.

3.2 Equivalent Impedance Comparison Calculation

As the change in inverter dispatch amount and unit quantity determined that short circuit and dynamic stability analyses were required, an equivalent impedance comparison was not needed for the determination of the scope of the study.

4.0 Reactive Power Analysis

The reactive power analysis was performed for GEN-2025-SR8 to determine the capacitive charging effects 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.

4.1 Methodology and Criteria

To determine the shunt reactor size required to compensate for the current charging attributed to the modification request, the shunt reactor size required from the EGF project GEN-2015-066 was calculated first. Once the shunt size for the EGF was placed, the SGF GEN-2025-SR8 incremental shunt reactor size was then calculated.

For each of the shunt reactor sizes calculated, all project generators and capacitors were switched offline while other collector system elements remained in-service. For the SGF GEN-2025-SR8 reactor size calculation, the EGF generators were also switched offline. Two shunt reactors were tested at the project's collection substation 34.5 kV bus to determine the MVar injection needed to achieve zero MVar at the POI. The total size of the shunt reactors 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).

Aneden performed the reactive power analysis using the modification request data based on the 25SP DISIS-2022-001-1 stability study model.

4.2 Results

Per the methodology described above, the shunt size was determined first for the EGF prior to calculating the shunt reactor size for the SGF. The shunt size was found to be a 21.4 MVar for the EGF to reduce the MVar injection at the POI to zero. Note that the EGF shunt value is for the SGF reactive size determination only and not for sizing the predetermined EGF reactive requirements.

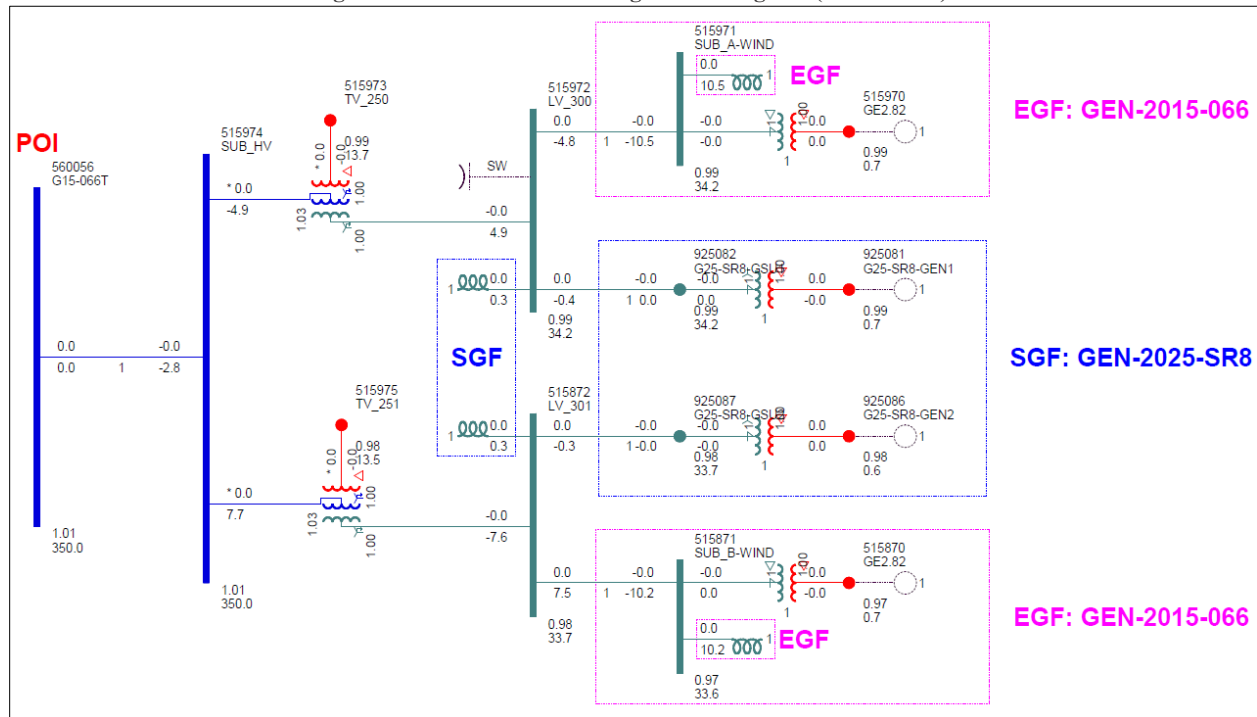
The results from the analysis showed that the SGF needed an approximately 0.7 MVar shunt reactor at the SGF substation to reduce the MVar injection at the POI to zero with the pre-determined shunt for the EGF in-service. The final shunt reactor requirements are shown in Table 4-1. Figure 4-1 illustrates the shunt reactor size needed to reduce the POI MVar to approximately zero with the updated topology.

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.

Table 4-1: Shunt Reactor Size for Reactive Power Analysis

Machine	POI Bus Number	POI Bus Name	Reactor Size (MVar)
			25SP
GEN-2025-SR8 (SGF)	560056	G15-066T 345 kV	0.7

Figure 4-1: GEN-2025-SR8 Single Line Diagram (Shunt Sizes)



5.0 Short Circuit Analysis

Aneden performed a short circuit study using the 25SP model for GEN-2025-SR8 to determine the maximum fault current requiring interruption by protective equipment for each bus in the relevant subsystem. The detailed results of the short circuit analysis are provided in Appendix B.

5.1 Methodology

The short circuit analysis included applying a 3-phase fault on buses up to 5 levels away from the 345 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 GEN-2025-SR8 online. The EGF, GEN-2015-066, was left online for this analysis.

Aneden created a short circuit model using the 25SP DISIS-2022-001-1 stability study model by adjusting the GEN-2025-SR8 short circuit parameters consistent with the submitted data. The adjusted parameters used in the short circuit analysis are shown in Table 5-1 below. No other changes were made to the model.

Table 5-1: Short Circuit Model Parameters*

Parameter	Value by Generator Bus#	Value by Generator Bus#
	925081	925086
Machine MVA Base	197.4	84
R (pu)	0.0	0.0
X'' (pu)	0.893	0.893

*pu values based on Machine MVA Base

5.2 Results

The results of the short circuit analysis compared the 25SP model with GEN-2025-SR8 online and offline. The GEN-2025-SR8 POI bus (White Tail 345 kV) fault current magnitudes provided in Table 5-2 shows a fault current impact of 0.34 kA due to the GEN-2025-SR8 project. Table 5-3 shows the maximum fault current magnitudes and fault current increases with the GEN-2025-SR8 project online.

The maximum fault current calculated within 5 buses of the POI was 52.9 kA for the 25SP model. There were several buses with a maximum three-phase fault current over 40 kA. These buses are highlighted in Appendix B. The maximum GEN-2025-SR8 contribution to three-phase fault currents was about 1.7% and 0.34 kA.

Table 5-2: POI Short Circuit Comparison Results

Case	EGF Only Current (kA)	SGF & EGF Current (kA)	kA Change	%Change
25SP	19.84	20.18	0.34	1.7%

Table 5-3: 25SP Short Circuit Comparison Results

Voltage (kV)	Max. Current (EGF & SGF) (kA)	Max kA Change	Max %Change
69	16.9	0.00	0.0%
138	52.9	0.03	0.1%
161	16.9	0.00	0.0%
345	36.3	0.34	1.7%
Max	52.9	0.34	1.7%

6.0 Dynamic Stability Analysis

Aneden performed a dynamic stability analysis to identify the impact of the modifications to GEN-2025-SR8. The analysis was performed according to SPP's Disturbance Performance Requirements³. The modification details are described in Section 2.0 above and the dynamic modeling data is provided in Appendix A. The existing base case issues and simulation plots can be found in Appendix C.

6.1 Methodology and Criteria

The dynamic stability analysis was performed using models developed with the requested GEN-2025-SR8 configuration of 67 x Power Electronics FP4200M inverters operating at 3.3 MW (REGCAU1). This stability analysis was performed using Siemens PTI's PSS/E version 34.8.1 software.

The modifications requested for the GEN-2025-SR8 project were used to create modified stability models for this impact study based on the DISIS-2022-001-1 stability study models:

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

Aneden reviewed GIRs that shared the same POI, the White Tail 345 kV substation, and updated their models as applicable based on SPP's confirmation of the latest project configurations. The modification under study, GEN-2025-SR8, is the SGF for the GEN-2015-066 EGF project. As a result, Aneden included the most recently accepted GEN-2015-066 project configuration in the base models and created two stability scenarios to evaluate the impact of GEN-2025-SR8.

Two stability model scenarios were developed using these models to ensure different reliability conditions were studied. The first scenario (Scenario 1) was comprised of GEN-2025-SR8 online at 100% of the assumed dispatch (221.1 MW) while the GEN-2015-066 generator was offline and disconnected.

In order to determine the appropriate EGF/SGF dispatch combination for the second scenario (Scenario 2), dispatch models in 20% increments of the total capacity were created and simulated with a POI fault. The dispatch scenarios tested are shown in Table 6-1. The nearby synchronous machine angle deviation and POI bus voltage deviation results were used to select the worst-case dispatch combination with both the EGF and SGF online for this impact study. The worst-case scenario selected is highlighted in green in the table.

Table 6-1: Scenario 2 Dispatch Tests

Dispatch Scenarios		
GEN-2015-066 EGF (MW)	GEN-2025-SR8 SGF (MW)	EGF + SGF (MW)
40.392	180.708	221.1
80.784	140.316	221.1
121.176	99.924	221.1
161.568	59.532	221.1

³ SPP Disturbance Performance Requirements:

[https://www.spp.org/documents/28859/spp%20disturbance%20performance%20requirements%20\(twg%20approved\).pdf](https://www.spp.org/documents/28859/spp%20disturbance%20performance%20requirements%20(twg%20approved).pdf)

The study scenarios are shown in Table 6-2.

Table 6-2: Study Scenarios (Generator Dispatch MW)

Scenario	GEN-2015-066 EGF (MW)	GEN-2025-SR8 SGF (MW)	EGF + SGF (MW)
1	0 (Offline)	221.1	221.1
2	40.392	180.708	221.1

The dynamic model data for the GEN-2025-SR8 project is provided in Appendix A. 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 modification request:

- The simulation acceleration factor was reduced, and the iteration limit was increased as needed to resolve stability simulation crashes.
- Voltage protective relays were disabled to avoid generator trips due to temporary over voltage after fault cleared for generators on bus 762639, 587953 and 587958.
- Frequency protective relays were disabled to avoid generator trips due to PSSE bus frequency calculation deficiencies for the generators on bus 587953 and 587958.
- The WTDTA1 drive train model was disabled at bus 515886, 515887, 516013, 516014, 587953, 515651, 515652, 516060, 516061, and 587958 to mitigate PSSE crashing.
- The acceleration factor for REGCA1 model at buses 515886, 515887, 516013, 516014, 587953, 765472, 765482, 925111, 515651, 515652, 516060, 516061, 587958, 762324, 762345, 763068, and 763079 was changed to 0.01 to help mitigate PSSE crashing.

During the fault simulations, the active power (PELEC), reactive power (QELEC), and terminal voltage (ETERM) were monitored for GEN-2025-SR8 and other current and prior queued projects in Group 4. In addition, voltages of five (5) buses away from the POI of the GEN-2025-SR8 were monitored and plotted. The machine rotor angle for synchronous machines and speed for asynchronous machines within the study areas including 327 (EES-EAI), 330 (AECI), 351 (EES), 356 (AMMO), 502 (CLEC), 515 (SWPA), 520 (AEPW), 523 (GRDA), 524 (OKGE), 525 (WFEC), 526 (SPS), 527 (OMPA), 534 (SUNC), 536 (WERE), 544 (EMDE), and 546 (SPRM) were monitored. The voltages of all 100 kV and above buses within the study area were monitored as well.

6.2 Fault Definitions

Aneden developed fault events as required to study the modification. The new set of faults was simulated using the modified 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. The simulated faults are listed and described in Table 6-3 below. These contingencies were applied to the modified 25SP and 25WP models.

Table 6-3: Fault Definitions

Fault ID	Planning Event	Fault Descriptions
FLT1000-SB	P4	Stuck Breaker on G15-066T (560056) 345 kV Bus a. Apply single phase fault at the G15-066T (560056) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the G15-066T (560056) 345 kV to CLEVLND7 (512694) 345 kV line CKT 1. b.2. Trip the G15-066T (560056) 345 kV to SOONER 7 (514803) 345 kV line CKT 1. Trip generator(s) on the Bus GE2.82 (515870) 0.7 kV Trip generator(s) on the Bus GE2.82 (515970) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN1 (925081) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN2 (925086) 0.7 kV
FLT1001-SB	P4	Stuck Breaker on G15-066T (560056) 345 kV Bus a. Apply single phase fault at the G15-066T (560056) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the G15-066T (560056) 345 kV to CLEVLND7 (512694) 345 kV line CKT 1. b.2. Trip the G15-066T (560056) 345 kV to SUB_HV (515974) 345 kV line CKT 1. Trip generator(s) on the Bus GE2.82 (515870) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN2 (925086) 0.7 kV Trip generator(s) on the Bus GE2.82 (515970) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN1 (925081) 0.7 kV
FLT1002-SB	P4	Stuck Breaker on G15-066T (560056) 345 kV Bus a. Apply single phase fault at the G15-066T (560056) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the G15-066T (560056) 345 kV to SUB_HV (515974) 345 kV line CKT 1. b.2. Trip the G15-066T (560056) 345 kV to SOONER 7 (514803) 345 kV line CKT 1. Trip generator(s) on the Bus GE2.82 (515870) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN2 (925086) 0.7 kV Trip generator(s) on the Bus GE2.82 (515970) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN1 (925081) 0.7 kV
FLT1003-SB	P4	Stuck Breaker on CLEVLND7 (512694) 345 kV Bus a. Apply single phase fault at the CLEVLND7 (512694) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip bus CLEVLND7 (512694) 345 kV.
FLT1004-SB	P4	Stuck Breaker on CLEVLND7 (512694) 345 kV Bus a. Apply single phase fault at the CLEVLND7 (512694) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the CLEVLND7 (512694) 345 kV / CLEVLND 4 (512729) 138 kV / CLEVLND1 (512817) 13.8 kV XFMR CKT 1.
FLT1005-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the 4CLEVLND (300138) 138 kV to CLEVLND 4 (512729) 138 kV line CKT Z1.
FLT1006-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the 4CLEVLND (300138) 138 kV to CLEVLND 4 (512729) 138 kV line CKT Z1. b.2. Trip the 4CLEVLND (300138) 138 kV / 2CLEVLND (300927) 69 kV XFMR CKT 2.
FLT1007-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the 4CLEVLND (300138) 138 kV to CLEVLND 4 (512729) 138 kV line CKT Z1. b.2. Trip the 4CLEVLND (300138) 138 kV / 2CLEVLND (300927) 69 kV XFMR CKT 1.
FLT1008-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the 4CLEVLND (300138) 138 kV to PAWNSW4 (512749) 138 kV line CKT 1. b.2. Trip the 4CLEVLND (300138) 138 kV / 2CLEVLND (300927) 69 kV XFMR CKT 2.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT1009-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the 4CLEVLND (300138) 138 kV to PAWNSW4 (512749) 138 kV line CKT 1. b.2.Trip the 4CLEVLND (300138) 138 kV / 2CLEVLND (300927) 69 kV XFMR CKT 1.
FLT1010-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the 4CLEVLND (300138) 138 kV to 4SILVCTY (300140) 138 kV line CKT 1. b.2.Trip the 4CLEVLND (300138) 138 kV / 2CLEVLND (300927) 69 kV XFMR CKT 2.
FLT1011-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the 4CLEVLND (300138) 138 kV to 4SILVCTY (300140) 138 kV line CKT 1. b.2.Trip the 4CLEVLND (300138) 138 kV to 4JAVINE (300996) 138 kV line CKT 1.
FLT1012-SB	P4	Stuck Breaker on 4CLEVLND (300138) 138 kV Bus a. Apply single phase fault at the 4CLEVLND (300138) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the 4CLEVLND (300138) 138 kV to 4JAVINE (300996) 138 kV line CKT 1. b.2.Trip the 4CLEVLND (300138) 138 kV / 2CLEVLND (300927) 69 kV XFMR CKT 1.
FLT1013-SB	P4	Stuck Breaker on SOONER 7 (514803) 345 kV Bus a. Apply single phase fault at the SOONER 7 (514803) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 7 (514803) 345 kV to THUNDER7 (515894) 345 kV line CKT 1. b.2.Trip the SOONER 7 (514803) 345 kV to PINTAIL7 (516010) 345 kV line CKT 1. Trip generator(s) on the Bus THNDRG11 (515886) 0.7 kV Trip generator(s) on the Bus THNDRG21 (515887) 0.7 kV Trip generator(s) on the Bus G21-018-GEN1 (765472) 0.6 kV Trip generator(s) on the Bus G21-019-GEN1 (765482) 0.7 kV
FLT1014-SB	P4	Stuck Breaker on SOONER 7 (514803) 345 kV Bus a. Apply single phase fault at the SOONER 7 (514803) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 7 (514803) 345 kV to RANCHRD7 (515576) 345 kV line CKT 1. b.2.Trip the SOONER 7 (514803) 345 kV to WEKIWA-7 (509755) 345 kV line CKT 1.
FLT1015-SB	P4	Stuck Breaker on SOONER 7 (514803) 345 kV Bus a. Apply single phase fault at the SOONER 7 (514803) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 7 (514803) 345 kV to SOONER2G (514806) 20 kV line CKT 1. b.2.Trip the SOONER 7 (514803) 345 kV to G16-119-TAP (587804) 345 kV line CKT 1. Trip generator(s) on the Bus SOONER2G (514806) 20 kV
FLT1016-SB	P4	Stuck Breaker on SOONER 7 (514803) 345 kV Bus a. Apply single phase fault at the SOONER 7 (514803) 345 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 7 (514803) 345 kV to G15-066T (560056) 345 kV line CKT 1. b.2.Trip the SOONER 7 (514803) 345 kV / SOONER 4 (514802) 138 kV / SOONER 1 (515760) 13.8 kV XFMR CKT 1.
FLT1017-SB	P4	Stuck Breaker on SOONER 4 (514802) 138 kV Bus a. Apply single phase fault at the SOONER 4 (514802) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 4 (514802) 138 kV / SOONER 4 (514802) 138 kV / SOONER 1 (515760) 13.8 kV XFMR CKT 1.
FLT1018-SB	P4	Stuck Breaker on SOONER 4 (514802) 138 kV Bus a. Apply single phase fault at the SOONER 4 (514802) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 4 (514802) 138 kV to SNRPMPT4 (514798) 138 kV line CKT 1. b.2.Trip the SOONER 4 (514802) 138 kV to MILLERT4 (514704) 138 kV line CKT 1.
FLT1019-SB	P4	Stuck Breaker on SOONER 4 (514802) 138 kV Bus a. Apply single phase fault at the SOONER 4 (514802) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1.Trip the SOONER 4 (514802) 138 kV to PERRY 4 (514707) 138 kV line CKT 1.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT1020-SB	P4	Stuck Breaker on SOONER 4 (514802) 138 kV Bus a. Apply single phase fault at the SOONER 4 (514802) 138 kV Bus b. Clear fault after 16 cycles and trip the following elements: b.1. Trip the SOONER 4 (514802) 138 kV / SOONER1G (514805) 22 kV XFMR CKT 1. b.2. Trip the SOONER 4 (514802) 138 kV to MORISNT4 (515447) 138 kV line CKT 1. Trip generator(s) on the Bus SOONER1G (514805) 22 kV
FLT9000-3PH	P1	3 Phase fault on G15-066T (560056) 345 kV to SUB_HV (515974) 345 kV line CKT 1, near G15-066T (560056) 345 kV. a. Apply fault at the G15-066T (560056) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus GE2.82 (515870) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN2 (925086) 0.7 kV Trip generator(s) on the Bus GE2.82 (515970) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN1 (925081) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9001-3PH	P1	3 Phase fault on SUB_HV (515974) 345 kV to G15-066T (560056) 345 kV line CKT 1, near SUB_HV (515974) 345 kV. a. Apply fault at the SUB_HV (515974) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus GE2.82 (515870) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN2 (925086) 0.7 kV Trip generator(s) on the Bus GE2.82 (515970) 0.7 kV Trip generator(s) on the Bus G25-SR8-GEN1 (925081) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9002-3PH	P1	3 Phase fault on G15-066T (560056) 345 kV to CLEVLND7 (512694) 345 kV line CKT 1, near G15-066T (560056) 345 kV. a. Apply fault at the G15-066T (560056) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9003-3PH	P1	3 Phase fault on CLEVLND7 (512694) 345 kV to G15-066T (560056) 345 kV line CKT 1, near CLEVLND7 (512694) 345 kV. a. Apply fault at the CLEVLND7 (512694) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9004-3PH	P1	3 Phase fault on CLEVLND7 (512694) 345 kV to T.NO.--7 (509852) 345 kV line CKT 1, near CLEVLND7 (512694) 345 kV. a. Apply fault at the CLEVLND7 (512694) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9005-3PH	P1	3 Phase fault on T.NO.--7 (509852) 345 kV to CLEVLND7 (512694) 345 kV line CKT 1, near T.NO.--7 (509852) 345 kV. a. Apply fault at the T.NO.--7 (509852) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9006-3PH	P1	3 Phase fault on T.NO.--7 (509852) 345 kV to G21-047-TAP (765721) 345 kV line CKT 1, near T.NO.--7 (509852) 345 kV. a. Apply fault at the T.NO.--7 (509852) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9007-3PH	P1	3 Phase fault on T.NO.--7 (509852) 345 kV / T.NO.2-4 (509895) 138 kV / TNO2-1 (509894) 34.5 kV XFMR CKT 1, near T.NO.--7 (509852) 345 kV. a. Apply fault at the T.NO.--7 (509852) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line.
FLT9008-3PH	P1	3 Phase fault on T.NO.2-4 (509895) 138 kV / T.NO.--7 (509852) 345 kV / TNO2-1 (509894) 34.5 kV XFMR CKT 1, near T.NO.2-4 (509895) 138 kV. a. Apply fault at the T.NO.2-4 (509895) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9009-3PH	P1	3 Phase fault on T.NO.2-4 (509895) 138 kV to T.NO.--4 (509817) 138 kV line CKT 1, near T.NO.2-4 (509895) 138 kV. a. Apply fault at the T.NO.2-4 (509895) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9010-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to T.NO.2-4 (509895) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9011-3PH	P1	3 Phase fault on T.NO.2-4 (509895) 138 kV to GEN-2018-028 (762636) 138 kV line CKT 1, near T.NO.2-4 (509895) 138 kV. a. Apply fault at the T.NO.2-4 (509895) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. Trip generator(s) on the Bus G18-028GEN1 (762639) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9012-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to OWASOTP4 (509844) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9013-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to 46ST-TP-4 (509900) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9014-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to N.E.S.-4 (510396) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9015-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to CDC-WT 4 (509842) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9016-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to P&P WTP4 (509851) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9017-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to CDC-ET 4 (509839) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9018-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to DENVTAP4 (509746) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9019-3PH	P1	3 Phase fault on T.NO.--4 (509817) 138 kV to SKIATOK4 (509884) 138 kV line CKT 1, near T.NO.--4 (509817) 138 kV. a. Apply fault at the T.NO.--4 (509817) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9020-3PH	P1	3 Phase fault on CLEVLND7 (512694) 345 kV / CLEVLND 4 (512729) 138 kV / CLEVLND1 (512817) 13.8 kV XFMR CKT 1, near CLEVLND7 (512694) 345 kV. a. Apply fault at the CLEVLND7 (512694) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line.
FLT9021-3PH	P1	3 Phase fault on CLEVLND 4 (512729) 138 kV / CLEVLND7 (512694) 345 kV / CLEVLND1 (512817) 13.8 kV XFMR CKT 1, near CLEVLND 4 (512729) 138 kV. a. Apply fault at the CLEVLND 4 (512729) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.
FLT9022-3PH	P1	3 Phase fault on 4CLEVLND (300138) 138 kV to PAWNSW4 (512749) 138 kV line CKT 1, near 4CLEVLND (300138) 138 kV. a. Apply fault at the 4CLEVLND (300138) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9023-3PH	P1	3 Phase fault on PAWNSW4 (512749) 138 kV to 4CLEVLND (300138) 138 kV line CKT 1, near PAWNSW4 (512749) 138 kV. a. Apply fault at the PAWNSW4 (512749) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9024-3PH	P1	3 Phase fault on PAWNSW4 (512749) 138 kV to 4FAIRFAX (300139) 138 kV line CKT 1, near PAWNSW4 (512749) 138 kV. a. Apply fault at the PAWNSW4 (512749) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9025-3PH	P1	3 Phase fault on PAWNSW4 (512749) 138 kV to GLENCOKM 4 (513095) 138 kV line CKT 1, near PAWNSW4 (512749) 138 kV. a. Apply fault at the PAWNSW4 (512749) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9026-3PH	P1	3 Phase fault on 4CLEVLND (300138) 138 kV to GI105_GEN1 (910514) 20 kV XFMR CKT , near 4CLEVLND (300138) 138 kV. a. Apply fault at the 4CLEVLND (300138) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. Trip generator(s) on the Bus GI105_GEN1 (910514) 20 kV
FLT9027-3PH	P1	3 Phase fault on 4CLEVLND (300138) 138 kV to 4SILVCTY (300140) 138 kV line CKT 1, near 4CLEVLND (300138) 138 kV. a. Apply fault at the 4CLEVLND (300138) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9028-3PH	P1	3 Phase fault on 4SILVCTY (300140) 138 kV to 4CLEVLND (300138) 138 kV line CKT 1, near 4SILVCTY (300140) 138 kV. a. Apply fault at the 4SILVCTY (300140) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9029-3PH	P1	3 Phase fault on 4CLEVLND (300138) 138 kV to 2CLEVLND (300927) 69 kV XFMR CKT 2, near 4CLEVLND (300138) 138 kV. a. Apply fault at the 4CLEVLND (300138) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.
FLT9030-3PH	P1	3 Phase fault on 2CLEVLND (300927) 69 kV to 4CLEVLND (300138) 138 kV XFMR CKT 2, near 2CLEVLND (300927) 69 kV. a. Apply fault at the 2CLEVLND (300927) 69 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9031-3PH	P1	3 Phase fault on 2CLEVLND (300927) 69 kV to OSAGEK2 (512876) 69 kV line CKT 1, near 2CLEVLND (300927) 69 kV. a. Apply fault at the 2CLEVLND (300927) 69 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9032-3PH	P1	3 Phase fault on 4CLEVLND (300138) 138 kV to 4JAVINE (300996) 138 kV line CKT 1, near 4CLEVLND (300138) 138 kV. a. Apply fault at the 4CLEVLND (300138) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9033-3PH	P1	3 Phase fault on 4JAVINE (300996) 138 kV to 4CLEVLND (300138) 138 kV line CKT 1, near 4JAVINE (300996) 138 kV. a. Apply fault at the 4JAVINE (300996) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9034-3PH	P1	3 Phase fault on 4JAVINE (300996) 138 kV to 4SFORKKTP (301339) 138 kV line CKT 1, near 4JAVINE (300996) 138 kV. a. Apply fault at the 4JAVINE (300996) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9035-3PH	P1	3 Phase fault on 4SILVCTY (300140) 138 kV to 4BRISTOW (300137) 138 kV line CKT 1, near 4SILVCTY (300140) 138 kV. a. Apply fault at the 4SILVCTY (300140) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9036-3PH	P1	3 Phase fault on 4SILVCTY (300140) 138 kV to 2SILVCTY (300943) 69 kV XFMR CKT 2, near 4SILVCTY (300140) 138 kV. a. Apply fault at the 4SILVCTY (300140) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.
FLT9037-3PH	P1	3 Phase fault on 2SILVCTY (300943) 69 kV to 4SILVCTY (300140) 138 kV XFMR CKT 2, near 2SILVCTY (300943) 69 kV. a. Apply fault at the 2SILVCTY (300943) 69 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.
FLT9038-3PH	P1	3 Phase fault on 4SILVCTY (300140) 138 kV to 4FISHERTP (300131) 138 kV line CKT 1, near 4SILVCTY (300140) 138 kV. a. Apply fault at the 4SILVCTY (300140) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9039-3PH	P1	3 Phase fault on 4SILVCTY (300140) 138 kV to SILVCTYGR4 (512726) 138 kV line CKT 1, near 4SILVCTY (300140) 138 kV. a. Apply fault at the 4SILVCTY (300140) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9040-3PH	P1	3 Phase fault on 4SILVCTY (300140) 138 kV to 4STILWTR (300141) 138 kV line CKT 1, near 4SILVCTY (300140) 138 kV. a. Apply fault at the 4SILVCTY (300140) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9041-3PH	P1	3 Phase fault on T.NO.--7 (509852) 345 kV to N.E.S.-7 (510406) 345 kV line CKT 1, near T.NO.--7 (509852) 345 kV. a. Apply fault at the T.NO.--7 (509852) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9042-3PH	P1	3 Phase fault on T.NO.--7 (509852) 345 kV to WEKIWA-7 (509755) 345 kV line CKT 1, near T.NO.--7 (509852) 345 kV. a. Apply fault at the T.NO.--7 (509852) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9043-3PH	P1	3 Phase fault on WEKIWA-7 (509755) 345 kV to T.NO.--7 (509852) 345 kV line CKT 1, near WEKIWA-7 (509755) 345 kV. a. Apply fault at the WEKIWA-7 (509755) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9044-3PH	P1	3 Phase fault on WEKIWA-7 (509755) 345 kV to SAPLPD7 (509870) 345 kV line CKT 1, near WEKIWA-7 (509755) 345 kV. a. Apply fault at the WEKIWA-7 (509755) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9045-3PH	P1	3 Phase fault on G15-066T (560056) 345 kV to SOONER 7 (514803) 345 kV line CKT 1, near G15-066T (560056) 345 kV. a. Apply fault at the G15-066T (560056) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9046-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to G15-066T (560056) 345 kV line CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9047-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to WEKIWA-7 (509755) 345 kV line CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9048-3PH	P1	3 Phase fault on WEKIWA-7 (509755) 345 kV to SOONER 7 (514803) 345 kV line CKT 1, near WEKIWA-7 (509755) 345 kV. a. Apply fault at the WEKIWA-7 (509755) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9049-3PH	P1	3 Phase fault on WEKIWA-7 (509755) 345 kV / WEKIWA-4 (509757) 138 kV / WEKIWA-1 (509879) 34.5 kV XFMR CKT 1, near WEKIWA-7 (509755) 345 kV. a. Apply fault at the WEKIWA-7 (509755) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line.
FLT9050-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV / WEKIWA-7 (509755) 345 kV / WEKIWA-1 (509879) 34.5 kV XFMR CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.
FLT9051-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV to SHEFFD-4 (509812) 138 kV line CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9052-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV to GEN-2010-055 (560389) 138 kV line CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. Trip generator(s) on the Bus G10-055-GEN1 (560391) 4.2 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9053-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV to WED-TAP4 (509823) 138 kV line CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9054-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV to KEYSTON4 (505610) 138 kV line CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9055-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV to SILVCTYGR4 (512726) 138 kV line CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9056-3PH	P1	3 Phase fault on WEKIWA-4 (509757) 138 kV to P&P WTP4 (509851) 138 kV line CKT 1, near WEKIWA-4 (509757) 138 kV. a. Apply fault at the WEKIWA-4 (509757) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9057-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to G16-119-TAP (587804) 345 kV line CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9058-3PH	P1	3 Phase fault on G16-119-TAP (587804) 345 kV to SOONER 7 (514803) 345 kV line CKT 1, near G16-119-TAP (587804) 345 kV. a. Apply fault at the G16-119-TAP (587804) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9059-3PH	P1	3 Phase fault on G16-119-TAP (587804) 345 kV to SPRNGCK7 (514881) 345 kV line CKT 1, near G16-119-TAP (587804) 345 kV. a. Apply fault at the G16-119-TAP (587804) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9060-3PH	P1	3 Phase fault on G16-119-TAP (587804) 345 kV to GEN-2016-119 (587950) 345 kV line CKT 1, near G16-119-TAP (587804) 345 kV. a. Apply fault at the G16-119-TAP (587804) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus G16-119-GEN1 (587953) 0.7 kV Trip generator(s) on the Bus G16-119-GEN2 (587958) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9061-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to SOONER2G (514806) 20 kV XFMR CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus SOONER2G (514806) 20 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9062-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to RANCHRD7 (515576) 345 kV line CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9063-3PH	P1	3 Phase fault on RANCHRD7 (515576) 345 kV to SOONER 7 (514803) 345 kV line CKT 1, near RANCHRD7 (515576) 345 kV. a. Apply fault at the RANCHRD7 (515576) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9064-3PH	P1	3 Phase fault on RANCHRD7 (515576) 345 kV to FRNTWWD7 (515688) 345 kV line CKT 1, near RANCHRD7 (515576) 345 kV. a. Apply fault at the RANCHRD7 (515576) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus FRNTWDG1 (515691) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9065-3PH	P1	3 Phase fault on RANCHRD7 (515576) 345 kV to G18-071-TAP (763069) 345 kV line CKT 1, near RANCHRD7 (515576) 345 kV. a. Apply fault at the RANCHRD7 (515576) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus FRNT2G11 (516060) 0.7 kV Trip generator(s) on the Bus FRNT2G21 (516061) 0.7 kV Trip generator(s) on the Bus G18-071-GEN1 (763068) 0.6 kV Trip generator(s) on the Bus G18-072-GEN1 (763079) 0.6 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9066-3PH	P1	3 Phase fault on RANCHRD7 (515576) 345 kV to OMCDLEC7 (529200) 345 kV line CKT 1, near RANCHRD7 (515576) 345 kV. a. Apply fault at the RANCHRD7 (515576) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus OMCDLEC1 (529201) 13.8 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9067-3PH	P1	3 Phase fault on RANCHRD7 (515576) 345 kV to OPENSKY7 (515621) 345 kV line CKT 1, near RANCHRD7 (515576) 345 kV. a. Apply fault at the RANCHRD7 (515576) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9068-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to PINTAIL7 (516010) 345 kV line CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9069-3PH	P1	3 Phase fault on PINTAIL7 (516010) 345 kV to SOONER 7 (514803) 345 kV line CKT 1, near PINTAIL7 (516010) 345 kV. a. Apply fault at the PINTAIL7 (516010) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9070-3PH	P1	3 Phase fault on PINTAIL7 (516010) 345 kV to KINGWD 7 (516019) 345 kV line CKT Z1, near PINTAIL7 (516010) 345 kV. a. Apply fault at the PINTAIL7 (516010) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus KNGWDG11 (516013) 0.7 kV Trip generator(s) on the Bus KNGWDG21 (516014) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9071-3PH	P1	3 Phase fault on PINTAIL7 (516010) 345 kV to WOODRNG7 (514715) 345 kV line CKT 1, near PINTAIL7 (516010) 345 kV. a. Apply fault at the PINTAIL7 (516010) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9072-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV to THUNDER7 (515894) 345 kV line CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus THNDRG11 (515886) 0.7 kV Trip generator(s) on the Bus THNDRG21 (515887) 0.7 kV Trip generator(s) on the Bus G21-018-GEN1 (765472) 0.6 kV Trip generator(s) on the Bus G21-019-GEN1 (765482) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9073-3PH	P1	3 Phase fault on THUNDER7 (515894) 345 kV to SOONER 7 (514803) 345 kV line CKT 1, near THUNDER7 (515894) 345 kV. a. Apply fault at the THUNDER7 (515894) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus THNDRG11 (515886) 0.7 kV Trip generator(s) on the Bus THNDRG21 (515887) 0.7 kV Trip generator(s) on the Bus G21-018-GEN1 (765472) 0.6 kV Trip generator(s) on the Bus G21-019-GEN1 (765482) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9074-3PH	P1	3 Phase fault on THUNDER7 (515894) 345 kV to GEN-2021-018 (765470) 345 kV line CKT 1, near THUNDER7 (515894) 345 kV. a. Apply fault at the THUNDER7 (515894) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus G21-018-GEN1 (765472) 0.6 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9075-3PH	P1	3 Phase fault on THUNDER7 (515894) 345 kV to GEN-2021-019 (765480) 345 kV line CKT 1, near THUNDER7 (515894) 345 kV. a. Apply fault at the THUNDER7 (515894) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus G21-019-GEN1 (765482) 0.7 kV c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 6 cycles, then trip the line in (b) and remove fault.
FLT9076-3PH	P1	3 Phase fault on THUNDER7 (515894) 345 kV / THNDR11 (515890) 34.5 kV / THNDR11 (515892) 12.5 kV XFMR CKT 1, near THUNDER7 (515894) 345 kV. a. Apply fault at the THUNDER7 (515894) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus THNDRG11 (515886) 0.7 kV
FLT9077-3PH	P1	3 Phase fault on THUNDER7 (515894) 345 kV / THNDR21 (515891) 34.5 kV / THNDR21 (515893) 12.5 kV XFMR CKT 1, near THUNDER7 (515894) 345 kV. a. Apply fault at the THUNDER7 (515894) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line. Trip generator(s) on the Bus THNDRG21 (515887) 0.7 kV
FLT9078-3PH	P1	3 Phase fault on SOONER 7 (514803) 345 kV / SOONER 4 (514802) 138 kV / SOONER 1 (515760) 13.8 kV XFMR CKT 1, near SOONER 7 (514803) 345 kV. a. Apply fault at the SOONER 7 (514803) 345 kV Bus. b. Clear fault after 6 cycles by tripping the faulted line.
FLT9079-3PH	P1	3 Phase fault on SOONER 4 (514802) 138 kV / SOONER 7 (514803) 345 kV / SOONER 1 (515760) 13.8 kV XFMR CKT 1, near SOONER 4 (514802) 138 kV. a. Apply fault at the SOONER 4 (514802) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line.
FLT9080-3PH	P1	3 Phase fault on SOONER 4 (514802) 138 kV to MORISNT4 (515447) 138 kV line CKT 1, near SOONER 4 (514802) 138 kV. a. Apply fault at the SOONER 4 (514802) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9081-3PH	P1	3 Phase fault on MORISNT4 (515447) 138 kV to SOONER 4 (514802) 138 kV line CKT 1, near MORISNT4 (515447) 138 kV. a. Apply fault at the MORISNT4 (515447) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9082-3PH	P1	3 Phase fault on SOONER 4 (514802) 138 kV to MILLERT4 (514704) 138 kV line CKT 1, near SOONER 4 (514802) 138 kV. a. Apply fault at the SOONER 4 (514802) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9083-3PH	P1	3 Phase fault on MILLERT4 (514704) 138 kV to SOONER 4 (514802) 138 kV line CKT 1, near MILLERT4 (514704) 138 kV. a. Apply fault at the MILLERT4 (514704) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9084-3PH	P1	3 Phase fault on SOONER 4 (514802) 138 kV to PERRY 4 (514707) 138 kV line CKT 1, near SOONER 4 (514802) 138 kV. a. Apply fault at the SOONER 4 (514802) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9085-3PH	P1	3 Phase fault on PERRY 4 (514707) 138 kV to SOONER 4 (514802) 138 kV line CKT 1, near PERRY 4 (514707) 138 kV. a. Apply fault at the PERRY 4 (514707) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9086-3PH	P1	3 Phase fault on SOONER 4 (514802) 138 kV to SNRPMPT4 (514798) 138 kV line CKT 1, near SOONER 4 (514802) 138 kV. a. Apply fault at the SOONER 4 (514802) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9087-3PH	P1	3 Phase fault on SNRPMPT4 (514798) 138 kV to SOONER 4 (514802) 138 kV line CKT 1, near SNRPMPT4 (514798) 138 kV. a. Apply fault at the SNRPMPT4 (514798) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9088-3PH	P1	3 Phase fault on SOONER 4 (514802) 138 kV to SOONER1G (514805) 22 kV XFMR CKT 1, near SOONER 4 (514802) 138 kV. a. Apply fault at the SOONER 4 (514802) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. Trip generator(s) on the Bus SOONER1G (514805) 22 kV
FLT9089-3PH	P1	3 Phase fault on SNRPMPT4 (514798) 138 kV to OSAGE 4 (514743) 138 kV line CKT 1, near SNRPMPT4 (514798) 138 kV. a. Apply fault at the SNRPMPT4 (514798) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9090-3PH	P1	3 Phase fault on SNRPMPT4 (514798) 138 kV to SNRPMP 4 (514799) 138 kV line CKT 1, near SNRPMPT4 (514798) 138 kV. a. Apply fault at the SNRPMPT4 (514798) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9091-3PH	P1	3 Phase fault on MORISNT4 (515447) 138 kV to STILWTR4 (515011) 138 kV line CKT 1, near MORISNT4 (515447) 138 kV. a. Apply fault at the MORISNT4 (515447) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9092-3PH	P1	3 Phase fault on MORISNT4 (515447) 138 kV to MORRISN4 (515006) 138 kV line CKT 1, near MORISNT4 (515447) 138 kV. a. Apply fault at the MORISNT4 (515447) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.

Table 6-3 Continued

Fault ID	Planning Event	Fault Descriptions
FLT9093-3PH	P1	3 Phase fault on MILLERT4 (514704) 138 kV to OTOETAP4 (515978) 138 kV line CKT 1, near MILLERT4 (514704) 138 kV. a. Apply fault at the MILLERT4 (514704) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9094-3PH	P1	3 Phase fault on MILLERT4 (514704) 138 kV to DMNCRKT4 (515412) 138 kV line CKT 1, near MILLERT4 (514704) 138 kV. a. Apply fault at the MILLERT4 (514704) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.
FLT9095-3PH	P1	3 Phase fault on PERRY 4 (514707) 138 kV to COWCRK 4 (514706) 138 kV line CKT 1, near PERRY 4 (514707) 138 kV. a. Apply fault at the PERRY 4 (514707) 138 kV Bus. b. Clear fault after 7 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave Fault on for 7 cycles, then trip the line in (b) and remove fault.

6.3 Scenario 1 Results

Table 6-4 shows the relevant results of the fault events simulated for each of the modified models in Scenario 1. Existing DISIS base case issues are documented separately in Appendix C. The associated stability plots are also provided in Appendix C.

Table 6-4: Scenario 1 Dynamic Stability Results (GEN-2025-SR8 = 221.1, GEN-2015-066 = 0)

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT1000-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1001-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1002-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1003-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1004-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1005-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1006-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1007-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1008-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1009-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1010-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1011-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1012-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1013-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1014-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1015-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1016-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1017-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1018-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1019-SB	Pass	Pass	Stable	Pass	Pass	Stable

Table 6-4 Continued

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT1020-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT9000-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9001-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9002-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9003-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9004-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9005-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9006-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9007-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9008-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9009-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9010-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9011-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9012-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9013-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9014-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9015-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9016-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9017-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9018-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9019-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9020-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9021-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9022-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9023-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9024-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9025-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9026-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9027-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9028-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9029-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9030-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9031-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9032-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9033-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9034-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9035-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9036-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9037-3PH	Pass	Pass	Stable	Pass	Pass	Stable

Table 6-4 Continued

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT9038-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9039-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9040-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9041-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9042-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9043-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9044-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9045-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9046-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9047-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9048-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9049-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9050-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9051-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9052-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9053-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9054-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9055-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9056-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9057-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9058-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9059-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9060-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9061-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9062-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9063-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9064-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9065-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9066-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9067-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9068-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9069-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9070-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9071-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9072-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9073-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9074-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9075-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9076-3PH	Pass	Pass	Stable	Pass	Pass	Stable

Table 6-4 Continued

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT9077-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9078-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9079-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9080-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9081-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9082-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9083-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9084-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9085-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9086-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9087-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9088-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9089-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9090-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9091-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9092-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9093-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9094-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9095-3PH	Pass	Pass	Stable	Pass	Pass	Stable

The results of the Scenario 1 dynamic stability showed several existing base case issues that were found in both the original DISIS-2022-001-1 models and in the models with the GEN-2025-SR8 modification included. These issues were not attributed to the GEN-2025-SR8 modification request and detailed in Appendix C.

There were no damping or voltage recovery violations attributed to the GEN-2025-SR8 modification 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.

6.4 Scenario 2 Results

Table 6-5 shows the relevant results of the fault events simulated for each of the modified models in Scenario 2. Existing DISIS base case issues are documented separately in Appendix C. The associated stability plots are also provided in Appendix C.

Table 6-5: Scenario 2 Dynamic Stability Results (GEN-2015-066 = 40.392, GEN-2025-SR8 = 180.708)

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT1000-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1001-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1002-SB	Pass	Pass	Stable	Pass	Pass	Stable

Table 6-5 Continued

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT1003-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1004-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1005-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1006-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1007-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1008-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1009-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1010-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1011-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1012-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1013-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1014-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1015-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1016-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1017-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1018-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1019-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT1020-SB	Pass	Pass	Stable	Pass	Pass	Stable
FLT9000-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9001-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9002-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9003-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9004-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9005-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9006-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9007-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9008-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9009-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9010-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9011-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9012-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9013-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9014-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9015-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9016-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9017-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9018-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9019-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9020-3PH	Pass	Pass	Stable	Pass	Pass	Stable

Table 6-5 Continued

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT9021-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9022-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9023-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9024-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9025-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9026-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9027-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9028-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9029-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9030-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9031-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9032-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9033-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9034-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9035-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9036-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9037-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9038-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9039-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9040-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9041-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9042-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9043-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9044-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9045-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9046-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9047-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9048-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9049-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9050-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9051-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9052-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9053-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9054-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9055-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9056-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9057-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9058-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9059-3PH	Pass	Pass	Stable	Pass	Pass	Stable

Table 6-5 Continued

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
FLT9060-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9061-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9062-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9063-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9064-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9065-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9066-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9067-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9068-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9069-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9070-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9071-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9072-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9073-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9074-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9075-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9076-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9077-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9078-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9079-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9080-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9081-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9082-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9083-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9084-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9085-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9086-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9087-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9088-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9089-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9090-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9091-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9092-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9093-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9094-3PH	Pass	Pass	Stable	Pass	Pass	Stable
FLT9095-3PH	Pass	Pass	Stable	Pass	Pass	Stable

The results of the Scenario 2 dynamic stability showed several existing base case issues that were found in both the original DISIS-2022-001-1 models and in the models with the GEN-2025-SR8 modification included. These issues were not attributed to the GEN-2025-SR8 modification request and detailed in Appendix C.

There were no damping or voltage recovery violations attributed to the GEN-2025-SR8 modification 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.

7.0 Modified Capacity Exceeds GIA Capacity

Under FERC Order 845, Interconnection Customers are allowed to request Interconnection Service that is lower than the full generating capacity of their planned generating facilities. The Interconnection Customers must install acceptable control and protection devices that prevent the injection above their requested Interconnection Service amount measured at the POI.

As such, Interconnection Customers are allowed to increase the generating capacity of a generating facility without increasing its Interconnection Service amount stated in its GIA. This is allowable as long as they install the proper control and protection devices, and the requested modification is not determined to be a Material Modification.

The modified generating capacity of GEN-2025-SR8 exceeds the GIA Interconnection Service amount, 219.96 MW, as listed in Appendix A of the GIA.

The customer must install monitoring and control equipment as needed to ensure that the amount of power injected at the POI does not exceed the Interconnection Service amount listed in its GIA.

8.0 Material Modification Determination

In accordance with Attachment V of SPP's Open Access Transmission Tariff, for modifications other than those specifically permitted by Attachment V, SPP shall evaluate the proposed modifications prior to making them and inform the Interconnection Customer in writing of whether the modifications would constitute a Material Modification. Material Modification shall mean modification to an Interconnection Request in the queue that has a material adverse impact on the cost or timing of any other Interconnection Request with a later Queue priority date; or planned modification to an Existing Generating Facility that is undergoing evaluation for a Generating Facility Modification or Generating Facility Replacement, and has a material adverse impact on the Transmission System with respect to: i) steady-state thermal or voltage limits, ii) dynamic system stability and response, or iii) short-circuit capability limit; compared to the impacts of the Existing Generating Facility prior to the modification or replacement.

8.1 Results

SPP determined the requested modification is not a Material Modification based on the results of this Modification Request Impact Study performed by Aneden. Aneden evaluated the impact of the requested modification on the prior study results. Aneden determined that the requested modification did not negatively impact the prior study dynamic stability and short circuit results, and the modifications to the project were not significant enough to change the previously studied steady-state conclusions.

This determination implies that any network upgrades already required by GEN-2025-SR8 would not be negatively impacted and that no new upgrades are required due to the requested modification, thus not resulting in a material adverse impact on the cost or timing of any other Interconnection Request with a later Queue priority date.