Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
22886 SUNCREST 230 22832 SYCAMORE 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL23055_Line SCR-SX 230kV ck 2	P6	N-1-1	118.3	125.9	< 100	145.8	< 100	< 100	< 100	< 100	130.2	115.0	127.1	On the short and medium terms, rely on the existing TL23054/ TL23055 RAS, along with the 30-minute short-term emergency ratings of the 230 kV lines (30% higher than their continuous ratings), to allow the market and operators to bring down the overloads that do not exceed 130% for the P6 contingencies within the continuous ratings in 30 minutes as operational mitigation measures. These could involve system adjustments, such as reducing generation output in the greater Imperial Valley area, dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area, adjusting the Imperial Valley phase shifting transformers, and bypassing the series capacitor banks in the 500 kV transmission lines between Hassayampa and North Gila as needed. The use of energy storage is marginally adequate to mitigate the reliability concern in the ten-year horizon, as there would be sufficient energy capability (MWh) and could be fully charged to serve the peak load which lasts around four hours. For the 2025 Spring-Off Peak Sensitivity Case, charging of the battery energy storage in the San Diego area would need to be curtailed for P6 contingencies. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term.
	TL50001_Line ECO-ML 500kV ck 1 AND TL23055+RAS_Line SCR-SX 230kV ck 2 + RAS	P6	N-1-1	< 100	106.3	< 100	118.4	< 100	< 100	< 100	< 100	< 100	< 100	107.4	
22886 SUNCREST 230 22832 SYCAMORE 230 2 1	TL50001_Line ECO-ML 500kV ck 1 AND TL23054_Line SCR-SX 230kV ck 1	P6	N-1-1	118.3	126.0	< 100	145.8	< 100	< 100	< 100	< 100	130.2	115.0	127.1	
	TL50001_Line ECO-ML 500kV ck 1 AND TL23054+RAS_Line SCR-SX 230kV ck 1 + RAS	P6	N-1-1	< 100	106.3	< 100	118.4	< 100	< 100	< 100	< 100	< 100	< 100	107.4	
22886 SUNCREST 230 22888 SNCRSMP1 500 1 1	SCR_BK81_Tran SCR 500/230kV ck 2 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	109.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	On the short and medium terms, rely on the 24-hr emergency ratings of the Suncrest banks (if necessary, the 30-min emergency rating may also be utilized). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 Suncrest – Sycamore Canyon overload issues. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Suncrest 500/230 kV bank.
22886 SUNCREST 230 22889 SNCRSMP2 500 1 1	SCR_BK80_Tran SCR 500/230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	109.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22464 MIGUEL 230 22468 MIGUEL 500 2 1	ML_BK80_Tran ML 500/230kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	101.0	107.4	< 100	127.1	< 100	< 100	< 100	< 100	114.9	< 100	108.4	On the short and medium terms, rely on the existing Miguel BK 80/81 RAS, along with the use of the 24-hr emergency ratings of the Miguel banks (if necessary, the 30-min emergency rating may also be utilized). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 overload issues. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Miguel 500/230 kV bank.
	ML_BK80+RAS_Tran ML 500/230kV ck 1 + RAS AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22464 MIGUEL 230 22472 MIGUELMP 500 1 1	ML_BK81_Tran ML 500/230kV ck 2 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	101.8	108.9	< 100	128.6	< 100	< 100	< 100	< 100	116.0	< 100	109.9	
	ML_BK81+RAS_Tran ML 500/230kV ck 2 + RAS AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22356 IMPRLVLY 230 22357 IV PFC1 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	100.2	106.1	< 100	118.0	< 100	< 100	< 100	< 100	110.1	< 100	107.2	On the short and medium terms, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 overload issues. The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term.
22357 IV PFC1 230 22358 IV PFC 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	115.1	122.5	< 100	135.7	< 100	< 100	< 100	< 100	124.0	112.2	123.7	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	< 100	100.4	
22357 IV PFC1 230 22358 IV PFC 230 2 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	115.1	122.5	< 100	135.7	< 100	< 100	< 100	< 100	124.0	112.2	123.7	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	< 100	100.4	
22358 IV PFC 230 20118 ROA-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	100.2	106.1	< 100	118.0	< 100	< 100	< 100	< 100	110.1	< 100	107.2	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
22609 OTAYMESA 230 20149 TJI-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	128.2	134.9	< 100	149.0	< 100	< 100	< 100	< 100	138.2	125.6	136.2	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	103.2	110.5	< 100	115.6	< 100	< 100	< 100	< 100	100.1	< 100	111.8	
	TL23042_Line BB-OM-ML 230kV ck 1 AND TL23041_Line SX-OM-ML 230kV ck 1	P6	N-1-1	104.4	103.8	103.9	< 100	103.5	104.0	< 100	< 100	< 100	< 100	103.8	Rely on existing 230 kV Otay Mesa Gen Drop RAS or congestion management after the first contingency for the P6 events.
	TL23041+23042_Lines SX-OM-ML 230kV ck 1 + BB-OM-ML 230kV ck 1	P7	DCTL	104.4	103.8	103.9	< 100	103.6	104.0	< 100	< 100	< 100	< 100	103.8	
22464 MIGUEL 230 22467 MLSXTAP 230 1 1	TL23042_Line BB-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	118.2	121.1	101.8	< 100	< 100	104.8	< 100	< 100	< 100	< 100	121.8	Rely on existing TL23041/TL23042 RAS. The 30-min emergency rating (6.8% higher than their normal rating) may also be utilized when RAS is not sufficient to mitigate the overloads, giving the market and operators enough time to eliminate the identified thermal overloads. The system adjustment that can be implemented is to reduce remaining generation output in Otay Mesa.
22609 OTAYMESA 230 22467 MLSXTAP 230 1 1	TL23042_Line BB-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	119.8	121.9	100.8	< 100	< 100	108.4	< 100	< 100	< 100	< 100	122.5	
	TL23042+RAS_Line BB-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	< 100	101.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	
22609 OTAYMESA 230 22466 MLMS3TAP 230 1 1	TL23041_Line SX-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	120.7	122.9	102.0	< 100	< 100	109.1	< 100	< 100	< 100	< 100	123.5	
	TL23041+RAS_Line SX-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	101.0	103.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.6	
22430 SILVERGT 230 22596 OLD TOWN 230 1 1	TL23028_Line SG-MS-OT 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	101.9	102.5	< 100	< 100	< 100	< 100	< 100	< 100	106.1	< 100	102.6	Rely on 2-hr short-term emergency ratings for TL23028A and TL23029 (29% higher than their normal ratings), giving the market and operators enough time to eliminate the identified thermal overloads. The system adjustments that can be implemented are to reduce generation output in Otay Mesa, Otay, and/or Border substations.
22430 SILVERGT 230 22597 OLDTWNTP 230 1 1	TL23029_Line SG-OT 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	100.3	100.7	< 100	< 100	< 100	< 100	< 100	< 100	104.8	< 100	100.8	
22227 ENCINATP 230 22716 SANLUSRY 230 1 1	TL23003_Line SA-EA 230kV ck 1 AND TL23030_Line ES-TA-CP 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.2	< 100	< 100	Rely on system adjustments after the first contingency for the P6 event, such as reducing generation output at Palomar Energy Center.
22592 OLD TOWN 69.0 22596 OLD TOWN 230 1 1	OT_BK71_Tran OT 230/69kV ck 2	P1	N-1	< 100	< 100	108.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Add a third 230/69 kV transformer in Old Town substation or install battery energy storage in the 69 kV load pocket area if there is space available.
	OT-230-1S_CB OLD TOWN 230KV 1S	P4	Fault + Stuck Breaker	< 100	< 100	107.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OT-230-2S_CB OLD TOWN 230KV 2S	P4	Fault + Stuck Breaker	< 100	< 100	108.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22592 OLD TOWN 69.0 22596 OLD TOWN 230 2 1	OT_BK70_Tran OT 230/69kV ck 1	P1	N-1	< 100	< 100	108.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OT-230-1N_CB OLD TOWN 230KV 1N	P4	Fault + Stuck Breaker	< 100	< 100	107.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OT-230-2N_CB OLD TOWN 230KV 2N	P4	Fault + Stuck Breaker	< 100	< 100	107.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22112 CAPSTRNO 138 22860 TRABUCO 138 1 1	TL13830_Line MAR-TB 138kV ck 1 AND TL13833_Loop-in1_Line CP-Q1806 138kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.7	< 100	< 100	< 100	Continue to monitor the 138 kV thermal overload concerns identified in the 2035 Spring Off-Peak case and discuss with the PTO the potential for cost effective upgrade solutions.
22112 CAPSTRNO 138 22895 Q1806_POI 138 2 1	TB-138-S_Bus TRABUCO 138kV S	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.2	< 100	< 100	< 100	
	TL13830_Line MAR-TB 138kV ck 1 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.2	< 100	< 100	< 100	
22432 MARGARTA 138 22860 TRABUCO 138 1 1	Bus-CP138-ALL_CAPISTRANO 138 kV ALL BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.7	< 100	< 100	< 100	
	TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.4	< 100	< 100	< 100	
	TL13833_Loop-in1+13834_Lines CP-Q1806 138kV ck 2 + CP-TB 138kV ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.4	< 100	< 100	< 100	
	Bus-CP138-ALL_CAPISTRANO 138 kV ALL BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.7	< 100	< 100	< 100	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
22678 R.MSNVJO 138 22432 MARGARTA 138 1 1	TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	< 100	< 100	< 100	
	TL13833_Loop-in1+13834_Lines CP-Q1806 138kV ck 2 + CP-TB 138kV ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	< 100	< 100	< 100	
22840 TALEGA 138 22678 R.MSNVJO 138 1 1	Bus-CP138-ALL_CAPISTRANO 138 kV ALL BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.2	< 100	< 100	< 100	
	TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.9	< 100	< 100	< 100	
	TL13833_Loop-in1+13834_Lines CP-Q1806 138kV ck 2 + CP-TB 138kV ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.9	< 100	< 100	< 100	
22124 CHCARITA 138 22578 NRTHCTYMTRTP 138 1 1	TL13822_Line MS-CH 138kV ck 1 AND SX_BK60_Tran SX 230/138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.8	< 100	Rely on battery energy storage charging curtailment, at Sycamore Canyon connected to the 138 kV bus, after the first contingency for the P6 events.
22500 MISSION 138 22120 CARLTNHS 138 1 1	TL13811_Line SH-NCM-CC 138kV ck 1 AND SX_BK60_Tran SX 230/138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.8	< 100	
22024 B 69.0 22420 SILVERGT 69.0 1 1	Bus-OT230-NS_OLD TOWN 230 kV N+S BUS	P5	Non-Redundant Relay	102.3	107.4	127.6	107.9	107.5	< 100	< 100	< 100	< 100	< 100	108.4	
22024 B 69.0 22420 SILVERGT 69.0 2 1	Bus-OT230-NS_OLD TOWN 230 kV N+S BUS	P5	Non-Redundant Relay	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22380 KETTNER 69.0 22024 B 69.0 1 1	Bus-OT230-NS_OLD TOWN 230 kV N+S BUS	P5	Non-Redundant Relay	104.4	114.6	136.5	107.1	118.3	< 100	< 100	< 100	< 100	< 100	115.6	Addition of the Old Town 230 kV Redundant Bus Differential Relay proposed by SDG&E (ISD Q3 2024).
22420 SILVERGT 69.0 22144 CORONADO 69.0 1 1	Bus-OT230-NS_OLD TOWN 230 kV N+S BUS	P5	Non-Redundant Relay	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22420 SILVERGT 69.0 22868 URBAN 69.0 1 1	Bus-OT230-NS_OLD TOWN 230 kV N+S BUS	P5	Non-Redundant Relay	103.1	108.7	129.9	112.0	108.5	< 100	< 100	< 100	< 100	< 100	109.7	
22592 OLD TOWN 69.0 22871 VINE SUB 69.0 1 1	Bus-SG230-EW_SILVERGATE 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	106.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22556 NAVSTMTR 69.0 22820 SWEETWTR 69.0 1 1	Bus-SG230-EW_SILVERGATE 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	105.6	115.1	107.2	< 100	< 100	< 100	< 100	< 100	< 100	106.2	Addition of the Silvergate 230 kV Redundant Bus Differential Relay proposed by SDG&E (ISD Q3 2024).
22556 NAVSTMTR 69.0 22824 SWTWTRTP 69.0 1 1	Bus-SG230-EW_SILVERGATE 230 kV E+W BUS	P5	Non-Redundant Relay	103.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22820 SWEETWTR 69.0 22824 SWTWTRTP 69.0 1 1	Bus-SG230-EW_SILVERGATE 230 kV E+W BUS	P5	Non-Redundant Relay	109.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22440 MELROSE 69.0 22708 SANLUSRY 69.0 1 1	PA_GEN1_Gen PA GEN1 ID 1 AND TL6966_Line OR-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.9	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6966_Line OR-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.7	< 100	
22708 SANLUSRY 69.0 22582 OCEAN RANCH 69.0 1 1	TL680_Line SA-ME-SM 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.3	< 100	
	TL6912_Line PN-SA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.7	< 100	
	TL693_Line ME-SA 69kV ck 1	P1	N-1	< 100	< 100	110.7	< 100	108.5	< 100	< 100	< 100	< 100	115.7	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL680_Line SA-ME-SM 69kV ck 1	P3	G-1/N-1	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	111.3	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.0	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	104.3	< 100	< 100	< 100	< 100	< 100	< 100	110.9	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	118.1	< 100	< 100	< 100	< 100	< 100	< 100	123.3	< 100	For the 2035 Summer Peak and Winter Peak cases, rely on pre-contingency congestion management to protect against the P1 outage by dispatching Melrose battery energy storage. Furthermore, for P3 events, rely on additional Melrose battery energy storage after the first contingency. The use of Melrose energy storage marginally solves the P3 concerns in the 2035 cases, thus there is a need to discuss potential upgrade alternatives with the PTO. For the 2025 Spring Off-Peak sensitivity case, rely on pre-contingency congestion management to protect against the P1 outages by limiting the charging of Melrose battery energy storage. Furthermore, for P3 events, rely on additional Melrose battery energy storage charging curtailment after the first contingency
	PA_GEN2_Gen PA GEN2 ID 1 AND TL680_Line SA-ME-SM 69kV ck 1	P3	G-1/N-1	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PA_GEN2_Gen PA GEN2 ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	104.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PA_GEN2_Gen PA GEN2 ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	118.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL680_Line SA-ME-SM 69kV ck 1	P3	G-1/N-1	< 100	< 100	100.9	< 100	< 100	< 100	< 100	< 100	< 100	106.4	< 100	~~battery energy storage charging curtailment after the first contingency.~~ Continue to monitor the P5 concern in the sensitivity case.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	101.1	< 100	< 100	< 100	< 100	103.7	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	101.4	< 100	105.2	< 100	< 100	< 100	< 100	108.0	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	118.1	< 100	116.3	< 100	< 100	< 100	< 100	123.1	< 100	
	PEC_CT1_Gen PEN_CT1 ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	112.8	< 100	110.7	< 100	< 100	< 100	< 100	117.8	< 100	
	PEC_CT2_Gen PEN_CT2 ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	112.8	< 100	110.7	< 100	< 100	< 100	< 100	117.8	< 100	
	PEC_ST_Gen PEN_ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	101.2	< 100	< 100	< 100	< 100	104.1	< 100	
	PEC_ST_Gen PEN_ST ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	113.7	< 100	111.6	< 100	< 100	< 100	< 100	118.6	< 100	
	Bus-PEN230-EW_PALOMAR ENERGY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.3	< 100	
22046 BASILONE 69.0 22368 JAP MESA 69.0 1 1	TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	131.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	131.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22046 BASILONE 69.0 22848 TALEGATP 69.0 1 1	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	< 100	Rely on existing TL695 at TA overload scheme in the short-term. TL695B Japanese Mesa-Talega Tap Reconductor project (ISD August 2026) mitigates the overload in the long-term.
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.3	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.5	< 100	
	SA-230-1T_CB SAN LUIS REY 230KV 1T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	< 100	< 100	
	TL23002_Line SA-SO 230kV ck 2 AND TL23006_Line SA-SO 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	< 100	< 100	
	TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	164.9	< 100	< 100	< 100	< 100	117.0	< 100	< 100	< 100	116.9	< 100	
	TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	164.9	< 100	< 100	< 100	< 100	117.0	< 100	< 100	< 100	116.9	< 100	
22808 STUARTTP 69.0 22400 LASPULGS 69.0 1 1	TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	148.3	< 100	< 100	< 100	< 100	108.0	< 100	< 100	< 100	107.5	< 100	Rely on existing TL695 at TA overload scheme in the short-term. TL690E Stuart Tap-Las Pulgas 69 kV Reconductor project (ISD March 2028) mitigates the overload in the long-term.
	TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	148.3	< 100	< 100	< 100	< 100	108.0	< 100	< 100	< 100	107.5	< 100	
22136 CLAIRMNT 69.0 22140 CLARMTTP 69.0 1 1	TL670_Line MS-CM 69kV ck 1	P1	N-1	< 100	< 100	106.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Discuss potential upgrade alternatives with the PTO or install additional battery energy storage at Clairemont substation.
22208 EL CAJON 69.0 22408 LOSCOCHS 69.0 1 1	TL632_Line GR-LC-ML 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.8	< 100	< 100	Rely on pre-contingency congestion management by dispatching an El Cajon gas fired unit.
	KU_GEN_Gen KUMEYAAY ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.9	< 100	< 100	
	EC GEN1_Gen EC GEN1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	103.6	< 100	< 100	< 100	< 100	100.2	< 100	< 100	< 100	< 100	< 100	Rely on system adjustments after the first contingency for the P3 events by dispatching El Cajon, Paradise, Kearny, and/or Clairemont battery energy storage. The use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed.
	EC GEN2_Gen EC GEN2 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	104.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL6964_Line ML-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.0	< 100	< 100	Rely on pre-contingency congestion management by dispatching a Border gas fired unit.
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	172.5	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	131.7	< 100	< 100	< 100	< 100	< 100	< 100	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
22604 OTAY 69.0 22616 OTAYLKTP 69.0 1 1	BD_GEN3_Gen CALPK_BD ID 1 AND TL623_Line OY-IB-SYO 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	129.2	< 100	< 100	< 100	< 100	< 100	< 100	Rely on system adjustments after the first contingency for the P3 events by dispatching additional Border gas fired generation.
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	133.5	< 100	< 100	< 100	132.6	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL623_Line OY-IB-SYO 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	102.2	< 100	< 100	< 100	101.8	< 100	
22768 BAY BLVD 69.0 22352 IMPRLBCH 69.0 1 1	BD_GEN3_Gen CALPK_BD ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	< 100	< 100	< 100	
22740 SANYSDRO 69.0 22608 OTAY TP 69.0 1 1	TL649_Line OY-OL-SYO-BD 69kV ck 1	P1	N-1	103.7	102.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.3	TL623C Reconductor (San Ysidro - Otay Tap) project (ISD September 2029) mitigates the overload in the long-term.
22664 POMERADO 69.0 22828 SYCAMORE 69.0 1 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6924_Line POM-SX 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	Rely on battery energy storage charging curtailment, at Pomerado connected to the 69 kV bus, after the first contingency for the P3 events.
22664 POMERADO 69.0 22828 SYCAMORE 69.0 2 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6915_Line POM-SX 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	
22884 WARNERS 69.0 22688 RINCON 69.0 1 1	TL637_Line ST-CRE 69kV ck 1	P1	N-1	< 100	< 100	101.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Change Current Transformer at Warners substation.
	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	135.3	138.4	< 100	< 100	< 100	Limiting the charging of Valley Center battery energy storage, to protect against the overloading of TL682 Warners - Rincon which currently is not monitored by the existing Valley Center RAS. Discuss potential upgrade alternatives with the PTO.
	VC_U1_Gen VALLEY CENTER ID 28 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	141.0	143.8	< 100	< 100	< 100	
	VC_U2_Gen VALLEY CENTER ID 59 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	137.1	140.0	< 100	< 100	< 100	
	Q1673_Gen Q1673 GEN1 ID 1 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	138.0	140.9	< 100	< 100	< 100	
	GR1192_Gen GR1192 ID VP AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	141.3	< 100	< 100	< 100	
	Q1531_Gen Q1531 GEN1 ID 1 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	136.7	139.1	< 100	< 100	< 100	
22688 RINCON 69.0 22404 LILAC 69.0 1 1	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	108.8	109.7	< 100	118.8	< 100	Limiting the charging of Valley Center battery energy storage, to protect against the overloading of TL683 Rincon - Lilac which currently is not monitored by the existing Valley Center RAS. Discuss potential upgrade alternatives with the PTO.
	VC_U1_Gen VALLEY CENTER ID 28 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	115.7	116.6	< 100	< 100	< 100	
	VC_U2_Gen VALLEY CENTER ID 59 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	110.9	111.8	< 100	< 100	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.6	< 100	
22688 RINCON 69.0 22870 VALCNTR 69.0 1 1	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	129.2	131.7	< 100	104.2	< 100	
	VC_U1_Gen VALLEY CENTER ID 28 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	136.6	138.5	< 100	< 100	< 100	
	VC_U2_Gen VALLEY CENTER ID 59 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	131.4	133.3	< 100	< 100	< 100	
	TL637_Line ST-CRE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	< 100	
	TL683_Line RIN-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	107.4	107.8	< 100	118.3	< 100	
	TL685_Line WR-ST 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.7	< 100	
	TL688_Line ES-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.8	< 100	
	TL6926_Line RIN-VC 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	139.7	141.1	< 100	111.9	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL635_Line CRE-LC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
22870 VALCNTR 69.0 22012 ASH TP 69.0 1 1	PA_GEN1_Gen PA GEN1 ID 1 AND TL637_Line ST-CRE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.4	< 100	For the 2025 Spring Off-Peak sensitivity case, limiting the charging of Valley Center battery energy storage was required to mitigate the P0 overload of TL681B Valley Center - Ash Tap. Additionally, rely on the existing Valley Center RAS to trip the battery energy storage (under charging mode) at Valley Center for P1 and P3 outages. Discuss potential upgrade alternatives with the PTO.
	PA_GEN1_Gen PA GEN1 ID 1 AND TL685_Line WR-ST 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.7	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL688_Line ES-LI 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.6	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.9	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.0	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL6917_Line CRE-SX 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.7	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL694_Line MN-MH-ME 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.3	< 100	
	VC_U1_Gen VALLEY CENTER ID 28 AND TL6926_Line RIN-VC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	147.0	148.1	< 100	< 100	< 100	
	VC_U2_Gen VALLEY CENTER ID 59 AND TL6926_Line RIN-VC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	141.9	143.3	< 100	< 100	< 100	
	VC_U1_Gen VALLEY CENTER ID 28 AND TL683_Line RIN-LI 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	113.6	113.7	< 100	< 100	< 100	
	VC_U2_Gen VALLEY CENTER ID 59 AND TL683_Line RIN-LI 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	109.3	109.6	< 100	< 100	< 100	
	TL688_Line ES-LI 69kV ck 1 AND TL6932_Line LI-PA 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.5	< 100	
22008 ASH 69.0 22012 ASH TP 69.0 1 1	TL6926_Line RIN-VC 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	103.1	104.5	< 100	< 100	< 100	Limiting the charging of Valley Center battery energy storage, to protect against the overloading of TL681A Ash - Ash Tap which currently is not monitored by the existing Valley Center RAS. Discuss potential upgrade alternatives with the PTO.
	VC_U1_Gen VALLEY CENTER ID 28 AND TL6926_Line RIN-VC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	108.5	109.6	< 100	< 100	< 100	
	VC_U2_Gen VALLEY CENTER ID 59 AND TL6926_Line RIN-VC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	104.7	106.0	< 100	< 100	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL688_Line ES-LI 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	
	TL688_Line ES-LI 69kV ck 1 AND TL6932_Line LI-PA 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	< 100	
19020 BLYTHE 161 21731 VEGA_3_SS 161 1 1	S-LINE1_IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	112.5	126.3	< 100	< 100	< 100	
	S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	103.1	117.4	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND CVSUB-MRG_CVSUB230-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	122.4	133.0	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND JHND-MRG_J.HINDS-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	134.1	< 100	< 100	< 100	
21731 VEGA_3_SS 161 21047 NILAND161 161 1 1	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND JHND-MRG_J.HINDS-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	103.0	< 100	< 100	< 100	
21007 CVSUB230 230 21076 RAMON230 230 1 1	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND CVSUB-MRG_CVSUB230-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	108.7	100.6	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	111.4	< 100	138.9	151.7	< 100	< 100	< 100	
	S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	124.5	137.5	< 100	< 100	< 100	
	PV_UNIT1_Gen PALOVRD1 ID 1 AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	113.7	< 100	141.9	151.8	< 100	< 100	< 100	
	PV_UNIT1_Gen PALOVRD1 ID 1 AND S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	127.5	137.6	< 100	< 100	< 100	
	GR1187_Gen GR1187 ID VE AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	148.9	< 100	< 100	< 100	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
21331 EC161_SS 161 21059 PILOT_KNB161 161 1 1	GR1187_Gen GR1187 ID VE AND S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	134.7	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 outage of the S-Line. Additional system adjustments in IID area would be needed for some of the P3 and P6 events. Furthermore, the existing Blythe RAS would operate for the contingencies that include the outage of J. Hinds - Mirage 230 kV transmission line.
	GR1188_Gen GR1188 ID VS AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	156.7	< 100	< 100	< 100	
	GR1188_Gen GR1188 ID VS AND S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	142.5	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND PLV-CLRVR_PALOVRDE-COLRIVER 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	106.1	< 100	140.7	158.2	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND CVSUB-MRG_CVSUB230-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	102.8	116.5	< 100	147.8	157.8	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	116.9	< 100	137.3	150.4	< 100	< 100	< 100	
21072 YUCCA161 161 21059 PILOT_KNB161 161 1 1	GR1188_Gen GR1188 ID VS AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.4	< 100	< 100	< 100	
	GR1190_Gen GR1190 ID VS AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	
	GR1188_Gen GR1188 ID VS AND S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	< 100	< 100	< 100	
	HDW-NG_Line HDW-NG 500kV ck 1 AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.9	< 100	< 100	< 100	
21072 YUCCA161 161 84846 YUCCA W 69.0 1 1	S-LINE1_IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.6	< 100	< 100	< 100	
	PV_UNIT1_Gen PALOVRD1 ID 1 AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	100.5	101.6	< 100	< 100	< 100	
	GR1188_Gen GR1188 ID VS AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.4	< 100	< 100	< 100	
	GR1188_Gen GR1188 ID VS AND S-LINE2_WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.3	< 100	< 100	< 100	
	GR1187_Gen GR1187 ID VE AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.9	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND TL23066_Line IV-DW 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	103.5	111.8	< 100	< 100	< 100	
	S-LINE1_IV-WIXOM_SS 230kV ck 1 AND CVSUB-MRG_CVSUB230-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	102.2	111.2	< 100	< 100	< 100	
	HDW-NG_Line HDW-NG 500kV ck 1 AND S-LINE1_IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	101.8	114.1	< 100	< 100	< 100	
21378 SALTON_CITY 92.0 21379 DSERT_SHORES 92.0 1 1	S-LINE1_IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	101.8	< 100	< 100	< 100	< 100	

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	

No substation with voltages below 0.9 pu or above 1.05 pu

Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
SALT CREEK 69 kV	TL6964_Line ML-SLT 69kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.33	< 8	< 8	Rely on pre-contingency congestion management by dispatching a Border gas fired unit.

Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2028 Summer Peak	2035 Summer Peak	2025 Spring Off-Peak	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
SLO 3PH Fault at DEVERS 500, trip DEVERS - VALLEYSC 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PALO VERDE 500kV, trip PALO VERDE - COLRIVER 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - ECO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - N.GILA 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at HAA 500kV, trip HAA - HDWSH 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at NG 500kV, trip NG - HAA 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at HDWSH 500kV, trip HDWSH - NG 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at ML 500kV, trip MIGUEL - ECO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - OCOTILLO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PEN 230kV, trip PEN - ESCNDIDO 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - OLD TOWN 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at TA 230kV, trip S.ONOFRE - TALEGA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - SYCAMORE 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SG 230kV, trip SILVERGT - BAY BLVD 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY PFC - ROA-230 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at TA 230kV, trip TALEGA - ESCNDIDO - CAPSTRNO 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at ML 230kV, trip MIGUEL - BAY BLVD - OTAY MESA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at OT 230kV, trip OLD TOWN - MISSION - SILVERGT 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SCR 500kV, trip SUNCREST - OCOTILLO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at OM 230kV, trip OTAYMESA - TJI-230 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY - WIXOM_SS 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - NSONGS 500kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
SLO 3PH Fault at NSONGS 500kV, trip NSONGS - SERRANO 500kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
SLO 3PH Fault at NSONGS 230kV, trip NSONGS - VIEJO 230kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
BQ-138 Bus BATIQUITOS 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
BUE-138 BUS BOULEVARD EAST 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
CAN-138 BUS CANNON 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
CP-138 Bus CAPISTRANO 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
ECO-138 BUS EAST COUNTY 138kv E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
FR-138 BUS FRIARS 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
GHL-138 BUS GRANT HILL 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
MS-230 Bus MISSION 230kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
MS-138 Bus MISSION 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PAR-138 BUS PALOMAR AIRPORT 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PEN-230 BUS PALOMAR ENERGY 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PI-138 BUS PICO 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PV-138 BUS PROCTOR VALLEY 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
RMV-138 BUS RANCHO MISSION VIEJO 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SA-230 BUS SAN LUIS REY 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SN-138 BUS SANTEE 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SH-138 BUS SHADOWRIDGE 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SG-230 BUS SILVERGATE 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SX-138 BUS SYCAMORE CANYON 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation

Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2028 Summer Peak	2035 Summer Peak	2025 Spring Off-Peak	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	
TA-138 BUS TALEGA 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
TC-138 BUS TELEGRAPH CANYON 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip both lines MIGUEL - MISSION 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SA 230kV, trip TL23002 and TL23010 SANLUSRY - S.ONOFRE 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SO 230kV, trip both lines S.ONOFRE - SANTIAGO 230kV	P7	DCTL	No issues	-	No issues	No issues	No issues	No violation
DLO 3PH Fault at NSONGS 230kV, trip both lines NSONGS - SANTIAGO 230kV	P7	DCTL	-	No issues	-	-	-	No violation
DLO 3PH Fault at SA 230kV, trip both lines SANLUSRY SC - MISSION 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at OM 230kV, trip MIGUEL - BAY BLVD - OTAYMESA and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SYCAMORE 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	No issues	-	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SUNCREST 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	-	No issues	-	-	-	No violation
DLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV and SANLUSRY - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at PEN 230kV, trip PEN - ARTESN 230kV and PEN - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SCR 230kV, trip both lines SUNCREST - SYCAMORE 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at NSONGS 230kV, trip two lines S.ONOFRE - NSONGS 230kV	P7	DCTL	-	No issues	-	-	-	No violation
DLO 3PH Fault at SO 230kV, trip S.ONOFRE - NSONGS ck 3 230kV and S.ONOFRE - SERRANO 230kV ck 1	P7	DCTL	-	No issues	-	-	-	No violation

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	

No single contingency resulted in total load drop of more than 250 MW

Substation	Load Served (MW)											Potential Mitigation Solutions
	2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2028 Summer Off-Peak	2035 Winter Peak	2025 Spring Off-Peak	2028 Spring Off-Peak	2035 Spring Off-Peak	2025 Summer Peak Heavy Renewable & Minimum Gas Generation	2025 Spring Off-Peak Storage charging in load pockets	2028 Summer Peak 1-in-20 load forecast	

No single source substation with more than 100 MW