

Study Area: San Diego Main  
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % ** (Baseline Scenarios)					Loading % ** (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
22886 SUNCREST 230 228860 SUNCREST TP1 230 1 1 and 22886 SUNCREST 230 228861 SUNCREST TP2 230 2 1	P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1	P1	L-1	<90	99.0	<90	<90	<90	99.2	105.1	127.4	Existing TL23040 IV 500 kV N-1 RAS would eliminate the P1 and the P3 overload concerns along with system adjustment after the G-1 event. The 30-minute short-term emergency ratings of the 230 kV lines (130% higher than their continuous ratings) 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. The remaining P6 overloads that exceed 130% can be eliminated by additional system adjustment between the overlapping P1 events. Either the operational mitigations or the system adjustment could involve operational actions, such as reducing generation output in the greater IV area, dispatching convention gas generation, preferred resources, and/or energy storage in the San Diego area, and adjusting the IV phase shifting transformers as needed
	P1G_OT_OTAY MESA Plant G-1 -AND- 'P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1	P3***	G-1/L-1	<90	108.0	96.1	<90	<90	108.2	118.9	131.7	
	P1L-TIE35_22609 OTAYMESA-20149 TJI-230 230 1 -AND- 'P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1	P6***	L-1-1	<90	111.8	103.9	95.3	<90	112.1	130.8	134.1	
22886 SUNCREST 230 228861 SUNCREST TP2 230 2 1	P1L-23054RAS0_22886 SUNCREST-22832 SYCAMORE TP1 230KV 1 1 -AND- 'P1L-50001RAS2-P6-P_22930 ECO-22468 MIGUEL 500KV &1	P6***	L-1-1	117.7	152.2	127.0	141.3	<90	152.3	154.2	204.3	The 30-minute ratings allow the market and operators to eliminate the P6 overloads that do not exceed 130%, within 30 minutes as post-contingency operational mitigations, along with existing TL23054/23055 RAS. The remaining P6 overloads that exceed 130% can be addressed by additional system adjustment between the overlapping P1 events. The system adjustments could involve operational actions, such as reducing generation in the greater IV area while dispatching conventional gas units, preferred resources, and energy storage in the San Diego and SCE areas, curtailing the ISO import, adjusting the IV phase shifting transformers, and bypassing the series capacitor banks in the 500 kV lines between Hassavamna and North
	P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1 -AND- 'P1L-23054RAS2-P1P6-P_22886 SUNCREST-22832 SYCAMORE TP1 230KV 1 1	P6***	L-1-1	130.4	170.4	139.9	138.2	<90	170.9	149.7	229.1	

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				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
	P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1 -AND- 'P1L-23054RAS2-P1P6-P_22886 SUNCREST-22832 SYCAMORE TP1 230KV 1 1 WITH system adjustment between two overlapping P1 events along with adjustment of the IV phase shifters after the 2nd contingency of P6 event	P6***	L-1-1	98.8	96.7	97.4	<90	<90	100.0	<90	94.9	banks in the 500 kV lines between Hassayampa and North Gila as needed. The results with the system adjustments along with adjustment of the IV phase shifters after the P6 contingency are shown for the worst P6 contingency.
22930 ECO 500 22468 MIGUEL 500 1 2	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	P1	L-1	<90	<90	<90	<90	<90	<90	<90	106.4	Existing TL23040 IV 500 kV N-1 RAS would eliminate the P1, P3, P4, and P7 overload concerns along with system adjustment after the G-1 event as needed. The P6 overload can be eliminated by the system adjustment between the overlapping P1 events.
	P1G_OT_OTAY MESA Plant G-1 -AND- 'P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	P3***	G-1/L-1	<90	<90	<90	<90	<90	90.1	91.1	110.1	
	P4-SCR-500-2T_CB SUNCREST 500KV 2T	P4	Fault+Stuck Breaker	<90	<90	<90	<90	<90	<90	<90	106.3	
	P4-OCO-500-1E_CB OCOTILLO 500KV 1E	P4	Fault+Stuck Breaker	<90	<90	<90	<90	<90	<90	<90	105.5	
	P1L-TIE34_22358 IV PFC-20118 ROA-230 230 1 -AND- 'P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	<90	125.4	
	P7_TL23054+23055_SCR-SX 230kV ck1 + SCR-SX 230kV ck2	P7	L-2	<90	<90	<90	<90	<90	<90	<90	105.9	
	P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1 -AND- 'P1T-50022RAS0_22885 SUNCREST BK81 500/230KV	P6***	T-1/L-1	113.4	141.3	118.8	124.5	<90	141.3	145.3	164.3	The 30-minute short-term emergency ratings of the Suncrest banks (125% of their long-term emergency ratings) should be utilized for the market and operators to eliminate the P6 overloads that do not exceed 125% in 30 minutes by performing post-contingency operational mitigation measures. The remaining P6 overloads that exceed 125% can be eliminated by additional system



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % ** (Baseline Scenarios)					Loading % ** (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
22885 SUNCREST 500 22888 SNCRSMP1 500/230 1 1	P1T-50022RAS0_22885 SUNCREST BK81 500/230KV -AND- 'P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1 WITH system adjustment between two overlapping P1 events and adjustment of the IV phase shifters after the 2nd contingency of P6 event as needed	P6***	T-1/L-1	<90	<90	<90	<90	<90	<90	<90	<90	adjustment between the overlapping P1 events. Either the operational mitigations or the system adjustment would be similar to the actions addressing the TL23054/23055 overload issues described above, but the scope of these operation actions tends to be relatively smaller. The results with the system adjustments along with adjustment of the IV phase shifters after the P6 contingency are shown for the P6 contingency.
22464 MIGUEL 230 22472 MIGUELMP 500 1 1 AND 22468 MIGUEL 500 22472 MIGUELMP 500 1 1	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	P1	L-1	<90	<90	<90	<90	<90	<90	<90	105.9	The 30-minute short-term emergency ratings of the Miguel banks (125% higher than their long-term emergency ratings) should be utilized for the market and operators to bring down the P1 and P3 overloads within the long-term emergency ratings within 30 minutes by performing post-contingency operational mitigation measures
	P1G_OT_OTAY MESA Plant G-1 -AND- 'P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	P3***	G-1/L-1	<90	<90	<90	<90	<90	<90	92.6	108.6	
22464 MIGUEL 230 22468 MIGUEL 500 2 1	P1T-50012RAS2-P1P6-P_22464 MIGUEL BK80 500/230KV	P1	T-1	<90	<90	<90	<90	<90	<90	<90	119.5	Similarly, as discussed above, the 30-minute short-term emergency ratings of the Miguel banks should be utilized for the market and operators to eliminate the P1, P3, and P6 overloads that do not exceed 125% in 30 minutes as post-contingency operational mitigation measures, along with the existing Miguel BK 80/81 RAS. The loading level that exceeds 125% for the remaining P6 contingency can be eliminated by additional system adjustments between the overlapping P1 events. These system adjustments would be similar to the actions addressing above for the TL23054/23055 overload issues, but the scope of these operation actions tends to be relatively smaller. The results with the system adjustments along with adjustment of the IV phase shifters after the P6 contingency are shown for the P6 contingency.
	P1G_OT_OTAY MESA Plant G-1 -AND- 'P1T-50012RAS2-P1P6-P_22464 MIGUEL BK80 500/230KV	P3***	G-1/L-1	<90	100.5	<90	<90	<90	100.7	95.5	123.4	
	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- 'P1T-50012RAS2-P1P6-P_22464 MIGUEL BK80 500/230KV	P6***	T-1/L-1	105.0	133.7	109.2	124.9	<90	133.9	131.0	179.8	
	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- 'P1T-50012RAS2-P1P6-P_22464 MIGUEL BK80 500/230KV WITH system adjustment between two overlapping P1 events and adjustment of the IV phase shifters after the 2nd contingency of P6 event as needed	P6***	T-1/L-1	97.7	93.7	94.4	<90	<90	95.7	<90	94.9	

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				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
22360 IMPRLVLY 500 22361 IV BK80 MP 500 1 1	P1T-50032_22356 IMPRLVLY BK81 500/230 1 -AND- 'P1T-50033_22356 IMPRLVLY BK82 500/230 1	P6***	T-1-1	<90	<90	<90	<90	<90	<90	136.1	134.5	Curtail the generation that are delivered to the Imperial Valley 230 kV substation after the 1st contingency as System adjustment
22357 IV PFC1 230 22358 IV PFC 230 2 1	P1T-IVPST1_22357 IV PFC1-22358 IV PFC 230 1 1 -AND- 'P1L-TIE35_22609 OTAYMESA-20149 TJI-230 230 1	P6***	T-1/L-1	119.8	<90	<90	<90	<90	<90	<90	121.0	Curtail the path 45 flow southbound flow from SDGE to CENACE after the first contingency as system adjustment
22356 IMPRLVLY 230 22357 IV PFC1 230 1 1	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- 'P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	<90	117.3	The P6 overloads can be eliminated by the system adjustments described above for the same P6 contingency between the overlapping P1 events, such as reducing generation output in the greater IV area while dispatching conventional gas unit, preferred resources, and energy storage in the San Diego area, and adjusting the IV phase shifting transformers if needed
22358 IV PFC 230 20118 ROA-230 230 1 1	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- 'P1L-50001RAS2-P6-P_22930 ECO-22468 MIGUEL 500KV &1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	<90	106.0	
22609 OTAYMESA 230 20149 TJI-230 230 1 1	P1L-50003RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- 'P1L-50001RAS2-P6-P_22930 ECO-22468 MIGUEL 500KV &1	P6***	L-1-1	<90	<90	98.0	<90	<90	<90	125.6	<90	
	P1L-50001RAS0_22930 ECO-22468 MIGUEL 500KV &1 -AND- 'P1L-50003RAS2-P6-P_23310 OCOTILLO-22885 SUNCREST 500KV &1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	113.4	<90	
22227 ENCINATP 230 22716 SANLUSRY 230 1 1	P1L-23058_22710 SANLUSRY SC-22504 MISSION 230 2 -AND- 'P1L-23027_22716 SANLUSRY-22232 ENCINA 230 1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	110.6	<90	Curtail the heavy flow from SDGE to LA Basin via the north of SONGS 230 kV path after the first contingency as system adjustment
	P1L-23057_22710 SANLUSRY SC-22504 MISSION 230 1 -AND- 'P1L-23027_22716 SANLUSRY-22232 ENCINA 230 1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	110.3	<90	
	P1L-23027_22716 SANLUSRY-22232 ENCINA 230 1 -AND- 'P1L-ST6909_22256 ESCNDIDO-22724 SANMRCOS 69.0 1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	101.1	<90	
22430 SILVERGT 230 22596 OLD TOWN 230 1 1	P1ML-23019_22596 MISSION-OLD TOWN-SILVERGT 3T 230 1	P1	L-1	<90	<90	91.5	<90	<90	<90	108.4	<90	
	P2.1-TL23028A_TL23028A SILVERGT-OLDTWNTP TAP A	P2	line section opened w/o a fault	<90	<90	92.5	<90	<90	<90	110.2	<90	
	P4-MS-230-1T_CB MISSION 230KV 1T	P4	Fault+Stuck Breaker	<90	<90	90.6	<90	<90	<90	108.0	<90	
	P5_MS-230_MISSION 230kV	P5	Non-Redundant Relay	<90	91.5	110.3	<90	<90	90.5	127.1	<90	
	P1ML-23019_22596 MISSION-OLD TOWN-SILVERGT 3T 230 1 -AND- 'P1L-23033_22832 SYCAMORE-22652 PENSQTOS 230 1	P6***	L-1-1	<90	108.5	123.7	<90	<90	107.3	151.4	104.0	

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				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
	P1ML-23019_22596 MISSION-OLD TOWN-SILVERGT 3T 230 1 -AND- 'P1L-50003RASO_23310 OCOTILLO-22885 SUNCREST 500KV &1	P6***	L-1-1	<90	107.3	119.8	<90	<90	106.3	144.3	108.9	The 2-hour short-term emergency ratings of TL23036, TL23028A, and TL23029 (129~143% higher than their normal ratings) would give the market and operators enough time to eliminate the P1, P2, P4, P5, P7, and most of the P6 overloads as post-contingency operational mitigation measures. The remaining P6 overloads over 143% of the normal ratings for the heavy northbound flow from SDGE to LA Basin via the north of SONGS 230 kV path could be eliminated by reducing generation, charging energy storage in the Otay Mesa area, and/or curtailing import from CENACE after the first contingency while dispatching the generation resources in the northern San Diego area and/or the SCE LA Basin
	P1L-23015_22464 MIGUEL-22504 MISSION 230 2 -AND- 'P1ML-23019_22596 MISSION-OLD TOWN-SILVERGT 3T 230 1	P6***	L-1-1	<90	91.4	110.9	<90	<90	90.3	128.9	<90	
22430 SILVERGT 230 22597 OLDTWNT 230 1 1	P1L-23011_22430 SILVERGT-22596 OLD TOWN 230 1	P1	L-1	<90	<90	91.9	<90	<90	<90	109.6	<90	
	P4-SG2-2T_SILVERGT 230 2T	P4	Fault+Stuck Breaker	<90	<90	102.7	<90	<90	<90	117.2	<90	
	P1L-23011_22430 SILVERGT-22596 OLD TOWN 230 1 -AND- 'P1L-23033_22832 SYCAMORE-22652 PENSQTOS 230 1	P6***	L-1-1	<90	106.6	122.3	<90	<90	105.4	150.3	102.0	
	P1L-23011_22430 SILVERGT-22596 OLD TOWN 230 1 -AND- 'P1L-50003RASO_23310 OCOTILLO-22885 SUNCREST 500KV &1	P6***	L-1-1	<90	106.4	119.4	<90	<90	105.4	144.6	107.7	
	P1L-23015_22464 MIGUEL-22504 MISSION 230 2 -AND- 'P1L-23011_22430 SILVERGT-22596 OLD TOWN 230 1	P6***	L-1-1	<90	92.7	112.7	<90	<90	91.6	131.4	<90	
	P1L-23014_22464 MIGUEL-22504 MISSION 230 1 -AND- 'P1L-23011_22430 SILVERGT-22596 OLD TOWN 230 1	P6***	L-1-1	<90	92.2	112.1	<90	<90	91.1	130.7	<90	
22430 SILVERGT 230 22771 BAY BLVD 230 1 1	P1L-23033_22832 SYCAMORE-22652 PENSQTOS 230 1	P1	L-1	<90	<90	96.2	<90	<90	<90	103.3	<90	
	P4-MS-230-5T_CB MISSION 230KV 5T	P4	Fault+Stuck Breaker	<90	91.4	105.7	<90	<90	91.3	108.0	<90	
	P7_TL23022+23023_ML-MS 230kV ck1 + ML-MS 230kV ck2	P7	L-2	<90	91.4	105.7	<90	<90	91.3	108.0	<90	
22716 SANLUSRY 230 24131 S.ONOFRE 230 3 1	P4-SA-230-1T_CB SAN LUIS REY 230KV 1T	P4	Fault+Stuck Breaker	<90	<90	<90	<90	<90	<90	101.0	<90	The overloads for the heavy northbound flow from SDGE to LA Basin via the north of SONGS 230 kV path could be eliminated by reducing generation and charging energy storage in the San Diego area, and curtailing import from CENACE
	P1L-TIE24_22716 SANLUSRY-24131 S.ONOFRE 230 1 -AND- 'P1L-TIE25_22716 SANLUSRY-24131 S.ONOFRE 230 2	P6***	L-1-1	<90	<90	<90	<90	<90	<90	101.2	<90	
	P1L-TIE25_22716 SANLUSRY-24131 S.ONOFRE 230 2 -AND- 'P1L-TIE24_22716 SANLUSRY-24131 S.ONOFRE 230 1	P6***	L-1-1	<90	<90	<90	<90	<90	<90	101.2	<90	

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				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
24044 ELLIS 230 24134 SANTIAGO 230 1 1	P1L-SCE05_ 24044 ELLIS-24072 JOHANNA 230 1 -AND- 'P1L-50002_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6***	L-1-1	90	101.63	<90	113.22	<90	101.91	<90	<90	Rely on the market and operators to dispatch generation resources including preferred resources and energy storage in the San Diego-IV area and southern Orange county after the first contingency as system adjustment
24072 JOHANNA 230 24134 SANTIAGO 230 1 1	P1L-SCE06_ 24044 ELLIS-24134 SANTIAGO 230 1 -AND- 'P1L-50002_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6***	L-1-1	<90	<90	<90	111.02	<90	<90	<90	<90	
20102 RUM-230 230 20118 ROA-230 230 1 1	P7_TL23041+42_SPS_OM-ML 230kV ck1 + ck2 with SPS	P7	L-2	<90	<90	<90	108.47	<90	<90	<90	<90	Rely on modification of the 230kV Otay Mesa gen drop RAS to hook up the energy storage project under charging and discharging modes in the Otay Mesa area, or pre-contingency market congestion management to eliminate the P7 overload concern

Note (\*): The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

(\*\*): The loading level is calculated in percent of long-term emergency rating (four hours or longer) or its normal continuous rating if no long-term emergency rating is available

(\*\*\*): P3 and P6 results are reported without System adjustment between the two single P1 events, unless indicated otherwise in the contingency description

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring High Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
NONE high/low voltage concern												

Note (\*): The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

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Voltage Deviation



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
				B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
NONE voltage deviation concern												

Note (\*): The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.



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Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	
P5-MS230_Mission 230 kV bus fault	P5	SLG Fault+Relay Failure	stable	stable	stable	stable	stable	No violation
P5-SG230_Silvergate 230 kV bus fault	P5	SLG Fault+Relay Failure	stable	stable	stable	stable	stable	No violation
P5-PEN230_Palamar 230 kV bus fault	P5	SLG Fault+Relay Failure	stable	stable	stable	stable	stable	No violation
ECO-MIGUEL 500 kV line (TL50001) out of service followed by the loss of Ocotillo-Suncrest 500 kV line (TL50003) that triggers 500 kV line TL50003 Gen Drop RAS, with system adjustment between the two events	P6	3Ø Fault @ Suncrest 500 kV	stable	stable	stable	stable	stable	No violation
Ocotillo-Suncrest 500 kV line (TL50003) out of service followed by the loss of ECO-Miguel 500 kV line (TL50001) that triggers 500 kV line TL50001 Gen Drop RAS, with system adjustment between the two events	P6	3Ø Fault @ Miguel 500 kV	stable	stable	stable	stable	stable	No violation
ECO-MIGUEL 500 kV line (TL50001) out of service followed by the loss of any of Sycamore-Suncrest 230 kV lines (TL23054 or TL23055) that triggers TL23054/TL23055 RAS, with system adjustment between the two events	P6	3Ø Fault @ Sycamore 230 kV	stable	stable	stable	stable	stable	No violation

Note (\*): The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

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Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)								Potential Mitigation Solutions
			B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
No single contingency resulted in total load drop of more than 250 MW											

Note (\*): The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

Study Area: San Diego Main

Single Source Substation with more than 100 MW Load



Substation	Load Served (MW)										Potential Mitigation Solutions
	Category	Category Description	B1-2022 Summer Peak	B2-2025 Summer Peak	B3-2030 Summer Peak	B4-2022 Spring Off-Peak	B5-2025 Spring Ligh Load	S1-2025 SP High CEC Forecast	S2-2022 SpOP Hi Renewable & Min Gas Gen*	S3-2022 SP Heavy Renewable & Min Gas Gen	
No single source substation with load more than 100 MW											

Note (\*): The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.