Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-1	22610 OTAYME&1 230 20149 TJI-230 230 1	MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1	B	L-1	114%			Prior to the PST at IV in service, as interim solution, develop best practices to address the reliability concerns in the southern California region, such as OP with higher emergency rating, congestion management, bypassing the series cap banks on the NG-IV 500 kV line, SPS including gen tripping at ECO/IV, and/or coordinate with CFE to enable Otay Mesa–Tijuana 230 kV SPS as needed
SD-SP-T-2	22610 OTAYME&1 230 20149 TJI-230 230 1	SL-5011_ 22360 IMPRLVLY 500 22930 ECO 500 1	B	L-1	113%			
SD-SP-T-3	22610 OTAYME&1 230 20149 TJI-230 230 1	SPS1-50185_Line ECO-MIGUEL 500 kV & GenTrip@IV	B	L-1	104%			
SD-SP-T-4	22610 OTAYME&1 230 20149 TJI-230 230 1	'G1-5054_PALOMAR ENERGY CENTER 565 MW' -AND- 'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1'	B	G-1/L-1	112%			
SD-SP-T-5	22610 OTAYME&1 230 20149 TJI-230 230 1	'G1-5055_OTAY MESA Power PLANT 615MW' -AND- 'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1'	B	G-1/L-1	118%			
SD-SP-T-6	22360 IMPRLVLY 500 22930 ECO 500 1	'G1-5055_OTAY MESA Power PLANT 615MW' -AND- 'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1'	B	G-1/L-1			108%	preferred resources, bypass the series cap banks on Sunrise and Southwest Powerlink (SWPL) 500 kV lines by the completion of the PST at IV, and/or OP for the IV phase shifter with adequate coordination in the region
SD-SP-T-7	23310 OCOTILLO 500 23315 OCOTIL&1 500 1	'G1-5055_OTAY MESA Power PLANT 615MW' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	B	G-1/L-1			102%	
SD-SP-T-8	22464 MIGUEL 230 22468 MIGUEL 500 2	T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1	B	T-1		109%	113%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-9	22464 MIGUEL 230 22472 MIGUELMP 500 1	T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2	B	T-1		110%	113%	OP with higher emergency rating, SPS to protect 500/230 kV banks at Miguel, SPS to trip generation at IV/ECO, instant back-up bank switched in after contingency, and/or 3rd Bank at Miguel 500/230kV sub,
SD-SP-T-10	22464 MIGUEL 230 22472 MIGUELMP 500 1	'G1-5054_PALOMAR ENERGY CENTER 565 MW' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	B	G-1/T-1		109%	122%	
SD-SP-T-11	22464 MIGUEL 230 22472 MIGUELMP 500 1	'G1-5055_OTAY MESA Power PLANT 615MW' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	B	G-1/T-1		118%	130%	
SD-SP-T-12	22668 POWAY 69.0 22664 POMERADO 69.0 1	G1-5054_PALOMAR ENERGY CENTER 565 MW' -AND- 'SL-5063_ 22010 ARTESN 230 22832 SYCAMORE 230 1'	B	G-1/L-1	115%	109%	117%	preferred resources, load shedding, and/or build 2nd Poway-Pomerado 69 kV line
SD-SP-T-13	22356 IMPRLVLY 230 22911 IV MP 500 1	IV-8022_IV 8022 50002 & BK81 CB	C1/C2/C5	Breaker		100%	103%	Modify the existing SPS to protect IV 500/230 kV Banks, OP with higher emergency rating, Swap 500 kV bay position between IV BK #80 and #81, and/or upgrade the smaller Bank #80 at IV
SD-SP-T-14	22356 IMPRLVLY 230 22360 IMPRLVLY 500 2	IV-8022_IV 8022 50002 & BK81 CB	C1/C2/C5	Breaker		112%	115%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-15	22468 MIGUEL 500 22472 MIGUELMP 500 1	ML-2T_MIGUEL 230 kV 2T CB	C1/C2/C5	Breaker		111%	114%	OP with higher emergency rating, SPS to protect 500/230 kV banks at Miguel, SPS to trip generation at IV/ECO, instant back-up bank switched in after contingency, and/or 3rd Bank at Miguel 500/230kV sub,
SD-SP-T-16	22464 MIGUEL 230 22472 MIGUELMP 500 1	ML-2T_MIGUEL 230 kV 2T CB	C1/C2/C5	Breaker		109%	112%	
SD-SP-T-17	22464 MIGUEL 230 22461 MIGUEL60 138 1	ML-7T-AB_MIGUEL 230 kV 7T AB CB	C1/C2/C5	Breaker			103%	Preferred Resources, and/or re-arrange 230 kV bay position of Miguel BK80 or TL23042 when necessary
SD-SP-T-18	22500 MISSION 138 22496 MISSION 69.0 3	Bus_MS69S_Mission 69kV S Bus	C1/C2/C5	Bus Section	103%			interim SPS or higher emergency rating allowed to shed load until the new Mission 230/69 kv bank in service
SD-SP-T-19	22841 TA TAP 138 22396 LAGNA NL 138 1	13836/13846_TA- PICO CK 1 & 2	C1/C2/C5	Common Structure	117%			Modify TL13835 SPS to cover the N2 outage until SOCRE project in service
SD-SP-T-20	22400 LASPULGS 69.0 22368 JAP MESA 69.0 1	23007OH1/52OH2_SOMSA-SO 1 + 2 230 kV	C1/C2/C5	Common Structure	101%	150%	109%	Reconductor TL692 to achieve 102MVA, or SPS with dynamic VAR support
SD-SP-T-21	22400 LASPULGS 69.0 22368 JAP MESA 69.0 1	23007OH2/52OH2_SMESA-TA+SMESA-CAP 230	C1/C2/C5	Common Structure		150%	110%	Reconductor TL692 to achieve 102MVA, or SPS with dynamic VAR support
SD-SP-T-22	22668 POWAY 69.0 22664 POMERADO 69.0 1	23051/6920_SX-AR 230 kV + SX-AR 69 kV	C1/C2/C5	Common Structure	109%		103%	Build 2nd Poway-Pomerado 69 kV line, load shedding, and/or prefered resources

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Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-23	22668 POWAY 69.0 22664 POMERADO 69.0 1	6939/6974_AR - BE ckt 1 & 2	C1/C2/C5	Common Structure	106%		101%	preferred resources, load shedding, or build 2nd Poway-Pomerado 69 kV line
SD-SP-T-24	22668 POWAY 69.0 22664 POMERADO 69.0 1	SX-PQ/23051_SX-AR + SX-PEN 230 kV	C1/C2/C5	Breaker		101%	109%	
SD-SP-T-25	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	662/6905_PQ-TP + PQ-GE	C1/C2/C5	Common Structure	102%	109%	109%	prefered resources, operation procedure with higher emergency rating
SD-SP-T-26	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	662/6905_PQ-TP + PQ-GE	C1/C2/C5	Common Structure	102%	109%	109%	
SD-SP-T-27	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	662/6905_PQ-TP + PQ-GE	C1/C2/C5	Common Structure		109%	109%	
SD-SP-T-28	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	662/6905_PQ-TP + PQ-GE	C1/C2/C5	Common Structure	108%	115%	115%	
SD-SP-T-29	22306 GARFIELD 69.0 22208 EL CAJON 69.0 1	Bus_MS69S_Mission 69kV S Bus	C1/C2/C5	Bus Section		113%	120%	prefered resources, operation procedure with higher emergency rating
SD-SP-T-30	22420 SILVERGT 69.0 22868 URBAN 69.0 1	655/699_SG-CR + SG-B	C1/C2/C5	Common Structure		102%	106%	prefered resources, operation procedure with higher emergency rating,
SD-SP-T-31	22356 IMPRLVLY 230 20118 ROA-230 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1'	C3	L-1-1	128%			

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-32	22356 IMPRLVLY 230 20118 ROA-230 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'SPS2-50186_Line OCO-SUNCREST 500 kV & ALL-GenTrip@IV'	C3	L-1-1	115%			Prior to the Phase Shifter Transformers in service at IV, as interim solution, develop best practices to address the reliability concerns in the southern California region along with the existing and proposed SPS gen tripping at IV/ECO/OCC, such as Operation Procedure with higher emergency rating on Otay Mesa-Tijuana 230 kV tie, congestion management process, bypassing the series cap banks on the NG-IV 500 kV line, and/or coordinate with CFE to enable Otay Mesa–Tijuana 230 kV SPS as needed
SD-SP-T-33	22610 OTAYME&1 230 20149 TJI-230 230 1	'SL-5031_ 22832 SYCAMORE 230 22464 MIGUEL 230 2' -AND- 'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1'	C3	L-1-1	106%			
SD-SP-T-34	22610 OTAYME&1 230 20149 TJI-230 230 1	'OP1-50185_Line ECO-MIG 500 kV & ALL-Gen Curtailed@IV' -AND- 'G1-5055_OTAY MESA Power PLANT 615MW'	C3	G-1/L-1	106%			
SD-SP-T-35	22610 OTAYME&1 230 20149 TJI-230 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'L_40084_Line S.ONOFRE 230.0 to SERRANO 230.0 Ckt 1'	C3	L-1-1	107%			
SD-SP-T-36	22610 OTAYME&1 230 20149 TJI-230 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'L_40106_Line VIEJOSC 230.0 to CHINO 230.0 Ckt 1'	C3	L-1-1	108%			
SD-SP-T-37	22610 OTAYME&1 230 20149 TJI-230 230 1	'L_4502_Line PALOVRDE 500.0 to COLRIVER 500.0 Ckt 1' -AND- 'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1'	C3	L-1-1	111%			
SD-SP-T-38	22610 OTAYME&1 230 20149 TJI-230 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C'	C3	L-1-1	114%			

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-39	22610 OTAYME&1 230 20149 TJI-230 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'SPS2-50186_Line OCO-SUNCREST 500 kV & ALL-GenTrip@IV'	C3	L-1-1	148%			Prior to the Phase Shifter Transformers in service at IV, bypass the series cap banks on the NG-IV 500 kV line, rely on Operation Procedure and congection management process with higher emergency rating of the Miguel 500/230 kV banks, along with the existing and proposed SPS gen tripping at IV/ECO/OCC
SD-SP-T-40	22610 OTAYME&1 230 20149 TJI-230 230 1	'OP1-50185_Line ECO-MIG 500 kV & ALL-Gen Curtailed@IV' -AND- 'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1'	C3	L-1-1	149%			
SD-SP-T-41	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1' -AND- 'SPS2-50386_Line OCO-SUNCREST 500kV & All-GenTrip@IV+Xtrip'	C3	T-1/L-1	130%	N/A	N/A	
SD-SP-T-42	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5075_ 22468 MIGUEL 500 22472 MIGUELMP 500 1' -AND- 'SPS2-50286_Line OCO-SUNCREST 500kV & Xtrip Only'	C3	T-1/L-1	145%	N/A	N/A	
SD-SP-T-43	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1' -AND- 'SPS2-50286_Line OCO-SUNCREST 500kV & Xtrip Only'	C3	T-1/L-1	145%	N/A	N/A	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-44	22464 MIGUEL 230 22472 MIGUELMP 500 1	'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2' -AND- 'SPS2-50386_Line OCO-SUNCREST 500kV & All-GenTrip@IV+Xtrip'	C3	T-1/L-1	133%	N/A	N/A	Prior to the Phase Shifter Transformers in service at IV, bypass the series cap banks on the NG-IV 500 kV line, rely on Operation Procedure and congection management process along with the existing and proposed SPS gen
SD-SP-T-45	22885 SUNCREST 500 22888 SNCRSMP1 500 1	'T-5077_ 22885 SUNCREST 500 22889 SNCRSMP2 500 1' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C3	T-1/L-1	119%	N/A	N/A	
SD-SP-T-46	22885 SUNCREST 500 22889 SNCRSMP2 500 1	'T-5076_ 22885 SUNCREST 500 22888 SNCRSMP1 500 1' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C3	T-1/L-1	119%	N/A	N/A	
SD-SP-T-47	22886 SUNCREST 230 22888 SNCRSMP1 500 1	'T-5077_ 22885 SUNCREST 500 22889 SNCRSMP2 500 1' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	T-1/L-1	130%	N/A	N/A	
SD-SP-T-48	22886 SUNCREST 230 22889 SNCRSMP2 500 1	'T-5076_ 22885 SUNCREST 500 22888 SNCRSMP1 500 1' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	T-1/L-1	130%	N/A	N/A	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-49	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	L-1-1	142%	N/A	N/A	tripping at IV/ECO/OCC
SD-SP-T-50	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C3	L-1-1	127%	N/A	N/A	
SD-SP-T-51	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	L-1-1	142%	N/A	N/A	
SD-SP-T-52	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C3	L-1-1	127%	N/A	N/A	
SD-SP-T-53	22930 ECO 500 22935 ECO &1 500 1	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'G1-5055_OTAY MESA Power PLANT 615MW'	C	L-1/G-1			110%	By-passing the series caps on TL50001, Operation Procedure with higher emergency rating of the Miguel 500/230 kV banks and the Phase Shifter Transformers at IV, and/or Congection Management Process

Study Area: **San Diego Area - Summer Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-54	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'G1-5055_OTAY MESA Power PLANT 615MW'	C	L-1/G-1			109%	By-passing the series caps on TL50003, Operation Procedure with the Phase Shifter Transformers at IV, and/or Congection Management Process
SD-SP-T-55	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'G1-5055_OTAY MESA Power PLANT 615MW'	C	L-1/G-1			109%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-56	22464 MIGUEL 230 22472 MIGUELMP 500 1	'SL-5012_ 22360 IMPRLVLY 500 23310 OCOTILLO 500 1' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	C3	T-1/L-1	110%	155%	175%	By-passing series caps on TL50001, SPS to open 500/230 kV bank for the other bank outage at Miguel, instand back-up bank that can be switched in for Miguel T-1 outage quickly in order to minimize generation curtailment at ECO/COC/IV/HDWSH , Operation Procedure with with higher emergency rating of the Miguel 500/230 kV banksand the Phase Shifter Transformers at IV, Congection Management Process, and/or 3rd Bank at Miguel 500/230kV sub
SD-SP-T-57	22468 MIGUEL 500 22472 MIGUELMP 500 1	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	C3	T-1/L-1	111%	156%	173%	
SD-SP-T-58	22464 MIGUEL 230 22472 MIGUELMP 500 1	'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2' -AND- 'SPS2-50186_Line OCO-SUNCREST 500 kV & ALL-GenTrip@IV'	C3	T-1/L-1	100%	140%	156%	
SD-SP-T-59	22464 MIGUEL 230 22468 MIGUEL 500 2	'OP2-50186_Line OCO-SUNCREST 500 kV & ALL-Gen Curtailed@IV' -AND- 'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1'	C3	T-1/L-1		137%	155%	
SD-SP-T-60	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1' -AND- 'SPS2-50186_Line OCO-SUNCREST 500 kV & ALL-GenTrip@IV'	C3	T-1/L-1		137%	154%	
SD-SP-T-61	22464 MIGUEL 230 22472 MIGUELMP 500 1	'OP2-50186_Line OCO-SUNCREST 500 kV & ALL-Gen Curtailed@IV' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	C3	T-1/L-1		139%	158%	
SD-SP-T-62	22885 SUNCREST 500 22888 SNCRSMP1 500 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'T-5077_ 22885 SUNCREST 500 22889 SNCRSMP2 500 1'	C3	T-1/L-1		144%	162%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-63	22885 SUNCREST 500 22889 SNCRSMP2 500 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'T-5076_ 22885 SUNCREST 500 22888 SNCRSMP1 500 1'	C3	T-1/L-1		144%	162%	By-passing series caps on TL50003, SPS to open 500/230 kV bank for the other bank outage at Suncrest, instand back-up bank that can be switched in quickly for Suncrest T-1 outage in order to minimize generation curtailment at ECO/COC/IV/HDWSH, Operation Procedure with higher emergency rating of the Suncrest 500/230 kV banks and the Phase Shifter Transformers at IV, and/or Congection Management Process
SD-SP-T-64	22886 SUNCREST 230 22888 SNCRSMP1 500 1	'OP1-50185_Line ECO-MIG 500 kV & ALL-Gen Curtailed@IV' -AND- 'T-5077_ 22885 SUNCREST 500 22889 SNCRSMP2 500 1'	C3	T-1/L-1		130%	148%	
SD-SP-T-65	22886 SUNCREST 230 22888 SNCRSMP1 500 1	'T-5079_ 22886 SUNCREST 230 22889 SNCRSMP2 500 1' -AND- 'SPS1-50185_Line ECO-MIG 500 kV & ALL-GenTrip@IV'	C3	T-1/L-1		123%	139%	
SD-SP-T-66	22886 SUNCREST 230 22889 SNCRSMP2 500 1	'OP1-50185_Line ECO-MIG 500 kV & ALL-Gen Curtailed@IV' -AND- 'T-5078_ 22886 SUNCREST 230 22888 SNCRSMP1 500 1'	C3	T-1/L-1		130%	148%	
SD-SP-T-67	22886 SUNCREST 230 22889 SNCRSMP2 500 1	'T-5078_ 22886 SUNCREST 230 22888 SNCRSMP1 500 1' -AND- 'SPS1-50185_Line ECO-MIG 500 kV & ALL-GenTrip@IV'	C3	T-1/L-1		123%	139%	

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Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-68	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C' -AND- 'SPS1-50185_Line ECO-MIG 500 kV & ALL-GenTrip@IV'	C3	L-1-1		127%	144%	Bypass series caps on TL50003, SPS to open Suncrest-Sycarmore 230 kV line for the other Suncrest-Sycarmore 230 kV line outage, Operation Procedure with the Phase Shifter Transformers at IV, and/or Congection Management Process
SD-SP-T-69	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C'	C3	L-1-1		150%	170%	
SD-SP-T-70	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'OP1-50185_Line ECO-MIG 500 kV & ALL-Gen Curtailed@IV' -AND- 'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C'	C3	L-1-1		134%	152%	
SD-SP-T-71	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C'	C3	L-1-1		150%	170%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-72	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'OP1-50185_Line ECO-MIG 500 kV & ALL-Gen Curtailed@IV' -AND- 'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C'	C3	L-1-1		134%	152%	
SD-SP-T-73	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C' -AND- 'SPS1-50185_Line ECO-MIG 500 kV & ALL-GenTrip@IV'	C3	L-1-1		127%	144%	
SD-SP-T-74	22356 IMPRLVLY 230 22360 IMPRLVLY 500 2	'MSL-5084_ 22536 N.GILA 500 22360 IMPRLVLY 500 &1' -AND- 'T-5070_ 22356 IMPRLVLY 230 22360 IMPRLVLY 500 3'	C3	T-1/L-1		105%	113%	Modify the existing SPS to protect IV 500/230 kV banks by tripping generation at IV, and/or upgrade the smaller Bank #80 at IV
SD-SP-T-75	22356 IMPRLVLY 230 22360 IMPRLVLY 500 2	'T-5070_ 22356 IMPRLVLY 230 22360 IMPRLVLY 500 3' -AND- 'T-5071_ 22356 IMPRLVLY 230 22911 IV MP 500 1'	C3	T-1-1		179%	173%	
SD-SP-T-76	22356 IMPRLVLY 230 22360 IMPRLVLY 500 3	'MSL-5084_ 22536 N.GILA 500 22360 IMPRLVLY 500 &1' -AND- 'T-5071_ 22356 IMPRLVLY 230 22911 IV MP 500 1'	C3	T-1/L-1			105%	
SD-SP-T-77	22356 IMPRLVLY 230 22360 IMPRLVLY 500 3	'T-5071_ 22356 IMPRLVLY 230 22911 IV MP 500 1' -AND- 'T-5069_ 22356 IMPRLVLY 230 22360 IMPRLVLY 500 2'	C3	T-1-1		113%	110%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-78	22430 SILVERGT 230 22597 OLDTWNTP 230 1	'SL-5013_ 22430 SILVERGT 230 22596 OLD TOWN 230 1' -AND- 'SL-5016_ 22464 MIGUEL 230 22504 MISSION 230 1'	C3	L-1-1	103%			As interim solutiomn, develop higher emergency rating, operation procedure, or interim SPS to shed load until the Bay Boulevard 230 kV substation in service
SD-SP-T-79	22430 SILVERGT 230 22597 OLDTWNTP 230 1	'SL-5013_ 22430 SILVERGT 230 22596 OLD TOWN 230 1' -AND- 'SL-5017_ 22464 MIGUEL 230 22504 MISSION 230 2'	C3	L-1-1	103%			
SD-SP-T-80	22430 SILVERGT 230 22596 OLD TOWN 230 1	'ML_5005_L_OLD TOWN-OLDTWNTP-MISSION-SILVERGT 230.0 Ckt 1' -AND- 'SL-5016_ 22464 MIGUEL 230 22504 MISSION 230 1'	C3	L-1-1	103%			
SD-SP-T-81	22430 SILVERGT 230 22596 OLD TOWN 230 1	'SL-5017_ 22464 MIGUEL 230 22504 MISSION 230 2' -AND- 'ML_5005_L_OLD TOWN-OLDTWNTP-MISSION-SILVERGT 230.0 Ckt 1'	C3	L-1-1	102%			
SD-SP-T-82	22464 MIGUEL 230 22504 MISSION 230 1	'SL-5029_ 22771 BAY BLVD 230 22464 MIGUEL 230 1' -AND- 'SL-5017_ 22464 MIGUEL 230 22504 MISSION 230 2'	C3	L-1-1			103%	Prefered resources, and/or upgrade TL23022/TL23023 when necessary
SD-SP-T-83	22464 MIGUEL 230 22504 MISSION 230 2	'SL-5029_ 22771 BAY BLVD 230 22464 MIGUEL 230 1' -AND- 'SL-5016_ 22464 MIGUEL 230 22504 MISSION 230 1'	C3	L-1-1			103%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-84	22596 OLD TOWN 230 22504 MISSION 230 1	'SL-5029_ 22771 BAY BLVD 230 22464 MIGUEL 230 1' -AND- 'ML_5005_L_OLD TOWN-OLDTWNTP-MISSION-SILVERGT 230.0 Ckt 1'	C3	L-1-1			101%	Prefered resources, and the overload can be mitigated is a new Mission-Penasquitos 230 kV line is approved
SD-SP-T-85	22056 BERNARDO 69.0 22009 ARTESN 69.0 1	'SL-1017_ 22056 BERNARDO 69 22009 ARTESN 69 2' -AND- 'SL-10192_ 22668 POWAY 69 22676 R.CARMEL 69 1'	C3	L-1-1	114%	109%	112%	Operation Procedure to shed loads with higher emergency rating, and DG/DR/Energy Storage
SD-SP-T-86	22056 BERNARDO 69.0 22009 ARTESN 69.0 2	'SL-1016_ 22056 BERNARDO 69 22009 ARTESN 69 1' -AND- 'SL-10192_ 22668 POWAY 69 22676 R.CARMEL 69 1'	C3	L-1-1	114%	109%	112%	
SD-SP-T-87	22056 BERNARDO 69.0 22284 FELCTATP 69.0 1	'SL-10192_ 22668 POWAY 69 22676 R.CARMEL 69 1' -AND- 'T-10421_ 22010 ARTESN 230 22009 ARTESN 69 1'	C3	L-1-1	102%	106%	105%	
SD-SP-T-88	22136 CLAIRMNT 69.0 22140 CLARMTTP 69.0 1	'SL-10124_ 22448 MESAHGTS 69 22496 MISSION 69 1' -AND- 'SL-1099_ 22372 KEARNY 69 22496 MISSION 69 1'	C3	L-1-1	119%	117%	109%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-89	22160 DEL MAR 69.0 22644 PENSQTOS 69.0 1	'SL-10158_ 22581 NORTHCTY 69 22644 PENSQTOS 69 1' -AND- 'SL-1050_ 22160 DEL MAR 69 22644 PENSQTOS 69 2'	C3	L-1-1	113%	118%	118%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-90	22160 DEL MAR 69.0 22644 PENSQTOS 69.0 2	'SL-10158_ 22581 NORTHCTY 69 22644 PENSQTOS 69 1' -AND- 'SL-1049_ 22160 DEL MAR 69 22644 PENSQTOS 69 1'	C3	L-1-1	115%	120%	120%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-91	22064 BLDCRKTP 69.0 22736 SANTYSBL 69.0 1	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C3	L-1-1		112%	118%	DG/DR/Energy Storage, and Operation Procedure
SD-SP-T-92	SDGE BackCountry Area	'SL-10106_ 22408 LOSCOCHS 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C3	L-1-1	Diverged	Diverged	Diverged	Operation Procedure to shed up to 70 MW loads in broad area of the back country for the 2nd contingency, or build a new transmission 69 kV source in the area
SD-SP-T-93	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	112%	118%	118%	DG/DR/Energy Storage, and Operation Procedure
SD-SP-T-94	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	107%	113%	113%	
SD-SP-T-95	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1090_ 22316 GENESEE 69 22864 UCM 69 1'	C3	L-1-1	106%	110%	111%	
SD-SP-T-96	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2'	C3	L-1-1	103%	108%	109%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-97	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1	100%	106%	107%	
SD-SP-T-98	22192 DOUBLTTP 138 22300 FRIARS 138 1	'SL-5026_ 22652 PENSQTOS 230 22596 OLD TOWN 230 1' -AND- 'ML_5006_L_SYCAMORE-SYCAMORE TP3-PENSQTOS TP1-PENSQTOS 230.0 Ckt'	C3	L-1-1		102%	115%	DG/DR/Energy Storage, Build new Mission-Penasquitos 230 kV line by using the abandoned 230 kV line, and/or upgrade Friars-DoubletTap 138 kV line
SD-SP-T-99	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	112%	118%	118%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-100	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	107%	113%	113%	
SD-SP-T-101	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1090_ 22316 GENESEE 69 22864 UCM 69 1'	C3	L-1-1	106%	110%	111%	
SD-SP-T-102	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2'	C3	L-1-1	103%	108%	109%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-103	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1	100%	106%	107%	
SD-SP-T-104	22256 ESCNDIDO 69.0 22272 ESCO 69.0 1	SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1' -AND- 'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1'	C3	L-1-1	138%	144%	141%	2nd Poway-Pomerado 69 kV line, preferred resources, and/or load shedding
SD-SP-T-105	22272 ESCO 69.0 22876 WARCYNTP 69.0 1	'SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1' -AND- 'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1'	C3	L-1-1	149%	155%	152%	
SD-SP-T-106	22316 GENESEE 69.0 22644 PENSQTOS 69.0 2	'SL-10239_ 22856 TOREYPNS 69 22864 UCM 69 1' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	136%	144%	145%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-107	22316 GENESEE 69.0 22644 PENSQTOS 69.0 2	'SL-10239_ 22856 TOREYPNS 69 22864 UCM 69 1' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1	111%	118%	120%	
SD-SP-T-108	22331 MIRASNTO 69.0 22316 GENESEE 69.0 1	'SL-10239_ 22856 TOREYPNS 69 22864 UCM 69 1' -AND- 'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2'	C3	L-1-1		113%	115%	
SD-SP-T-109	22331 MIRASNTO 69.0 22644 PENSQTOS 69.0 1	'SL-10239_ 22856 TOREYPNS 69 22864 UCM 69 1' -AND- 'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2'	C3	L-1-1	128%	136%	137%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-110	22372 KEARNY 69.0 22140 CLARMTTP 69.0 1	'SL-10124_ 22448 MESAHGTS 69 22496 MISSION 69 1' -AND- 'SL-1099_ 22372 KEARNY 69 22496 MISSION 69 1'	C3	L-1-1	148%	154%	152%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-111	22420 SILVERGT 69.0 22548 NATNLCTY 69.0 1	'SL-10155_ 22556 NAVSTMTR 69 22820 SWEETWTR 69 1' -AND- 'SL-10164_ 22592 OLD TOWN 69 22380 KETTNER 69 1'	C3	L-1-1		100%	106%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-112	22420 SILVERGT 69.0 22548 NATNLCTY 69.0 1	'SL-10155_ 22556 NAVSTMTR 69 22820 SWEETWTR 69 1' -AND- 'T-10305_ 22430 SILVERGT 230 22420 SILVERGT 69 1'	C3	L-1-1		104%	112%	
SD-SP-T-113	22420 SILVERGT 69.0 22548 NATNLCTY 69.0 1	'SL-10155_ 22556 NAVSTMTR 69 22820 SWEETWTR 69 1' -AND- 'T-10306_ 22430 SILVERGT 230 22420 SILVERGT 69 2'	C3	L-1-1		104%	112%	
SD-SP-T-114	22420 SILVERGT 69.0 22868 URBAN 69.0 1	'SL-10114_ 22420 SILVERGT 69 22144 CORONADO 69 1' -AND- 'SL-107_ 22024 B 69 22420 SILVERGT 69 2'	C3	L-1-1		102%	106%	
SD-SP-T-115	22420 SILVERGT 69.0 22868 URBAN 69.0 1	'T-10318_ 22592 OLD TOWN 69 22596 OLD TOWN 230 1' -AND- 'T-10319_ 22592 OLD TOWN 69 22596 OLD TOWN 230 2'	C3	L-1-1		104%	108%	
SD-SP-T-116	22420 SILVERGT 69.0 22868 URBAN 69.0 1	'SL-106_ 22024 B 69 22420 SILVERGT 69 1' -AND- 'SL-107_ 22024 B 69 22420 SILVERGT 69 2'	C3	L-1-1		115%	119%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-117	22500 MISSION 138 22496 MISSION 69.0 1	'T-10315_ 22504 MISSION 230 22496 MISSION 69 1' -AND- 'T-10422_ 22504 MISSION 230 22496 MISSION 69 2'	C3	T-1/L-1		108%	108%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-118	22532 MURRAY 69.0 22306 GARFIELD 69.0 1	'SL-10142_ 22496 MISSION 69 22532 MURRAY 69 1' -AND- 'SL-10143_ 22496 MISSION 69 22532 MURRAY 69 2'	C3	L-1-1		119%	118%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-119	22548 NATNLCTY 69.0 22820 SWEETWTR 69.0 1	'SL-10155_ 22556 NAVSTMTR 69 22820 SWEETWTR 69 1' -AND- 'T-10305_ 22430 SILVERGT 230 22420 SILVERGT 69 1'	C3	L-1-1		104%	111%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-120	22548 NATNLCTY 69.0 22820 SWEETWTR 69.0 1	'SL-10155_ 22556 NAVSTMTR 69 22820 SWEETWTR 69 1' -AND- 'T-10306_ 22430 SILVERGT 230 22420 SILVERGT 69 2'	C3	L-1-1		104%	111%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-121	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1		106%	107%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-122	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2'	C3	L-1-1		108%	109%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-123	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1090_ 22316 GENESEE 69 22864 UCM 69 1'	C3	L-1-1		110%	111%	Operation Procedure, and DG/DR/Energy Storage

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-124	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1		113%	113%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-125	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1		118%	118%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-126	22664 POMERADO 69.0 22828 SYCAMORE 69.0 1	'T-10421_ 22010 ARTESN 230 22009 ARTESN 69 1' -AND- 'SL-10190_ 22664 POMERADO 69 22828 SYCAMORE 69 2'	C3	T-1/L-1	105%	102%	104%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-127	22664 POMERADO 69.0 22828 SYCAMORE 69.0 2	'T-10421_ 22010 ARTESN 230 22009 ARTESN 69 1' -AND- 'SL-10189_ 22664 POMERADO 69 22828 SYCAMORE 69 1'	C3	G-1/L-1	105%	102%	104%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-128	22668 POWAY 69.0 22664 POMERADO 69.0 1	'SL-506_ 22261 PEN 230 22010 ARTESN 230 1' -AND- 'SL-5063_ 22010 ARTESN 230 22832 SYCAMORE 230 1'	C3	L-1-1	102%			Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-129	22668 POWAY 69.0 22664 POMERADO 69.0 1	'T-10421_ 22010 ARTESN 230 22009 ARTESN 69 1' -AND- 'SL-102_ 22009 ARTESN 69 22828 SYCAMORE 69 1'	C3	T-1/L-1	112%	107%	110%	Operation Procedure, and DG/DR/Energy Storage

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-130	22668 POWAY 69.0 22664 POMERADO 69.0 1	'SL-5063_ 22010 ARTESN 230 22832 SYCAMORE 230 1' -AND- 'ML_5006_L_SYCAMORE-SYCAMORE TP3-PENSQTOS TP1-PENSQTOS 230.0 Ckt'	C3	L-1-1			109%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-131	22668 POWAY 69.0 22876 WARCYNTP 69.0 1	'SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1' -AND- 'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1'	C3	L-1-1	121%	126%	123%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-132	22768 BAY BLVD 69.0 22520 MONTGYTP 69.0 1	'SL-10215_ 22768 BAY BLVD 69 22516 MONTGMRY 69 1' -AND- 'SL-10219_ 22768 BAY BLVD 69 22820 SWEETWTR 69 1'	C3	L-1-1		106%	109%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-133	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	119%	125%	125%	
SD-SP-T-134	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	114%	120%	120%	
SD-SP-T-135	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1090_ 22316 GENESEE 69 22864 UCM 69 1'	C3	L-1-1	113%	117%	118%	

Study Area: San Diego Area - Summer Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-136	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2'	C3	L-1-1	109%	115%	115%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-137	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	'SL-10188_ 22644 PENSQTOS 69 22856 TOREYPNS 69 1' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1	106%	113%	113%	
SD-SP-T-138	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1		106%	107%	
SD-SP-T-139	22856 TOREYPNS 69.0 22864 UCM 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1093_ 22331 MIRASNTO 69 22644 PENSQTOS 69 1'	C3	L-1-1	136%	144%	145%	
SD-SP-T-140	22856 TOREYPNS 69.0 22864 UCM 69.0 1	'SL-1089_ 22316 GENESEE 69 22644 PENSQTOS 69 2' -AND- 'SL-1092_ 22331 MIRASNTO 69 22316 GENESEE 69 1'	C3	L-1-1	111%	118%	120%	
SD-SP-T-141	22736 SANTYSBL 69.0 22152 CREELMAN 69.0 1	'SL-1045_ 22152 CREELMAN 69 22408 LOSCOCHS 69 1' -AND- 'SL-1046_ 22152 CREELMAN 69 22828 SYCAMORE 69 1'	C3	L-1-1	147%	170%	153%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-142	22064 BLDCRKTP 69.0 22168 DESCANSO 69.0 1	'SL-1045_ 22152 CREELMAN 69 22408 LOSCOCHS 69 1' -AND- 'SL-1046_ 22152 CREELMAN 69 22828 SYCAMORE 69 1'	C3	L-1-1	106%	138%	126%	Operation Procedure, and DG/DR/Energy Storage

Study Area: **San Diego Area - Summer Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-T-143	22064 BLDCRKTP 69.0 22736 SANTYSBL 69.0 1	'SL-1045_ 22152 CREELMAN 69 22408 LOSCOCHS 69 1' -AND- 'SL-1046_ 22152 CREELMAN 69 22828 SYCAMORE 69 1'	C3	L-1-1	106%	138%	126%	Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-144	22884 WARNERS 69.0 22688 RINCON 69.0 1	'SL-1045_ 22152 CREELMAN 69 22408 LOSCOCHS 69 1' -AND- 'SL-1046_ 22152 CREELMAN 69 22828 SYCAMORE 69 1'	C3	L-1-1	146%	137%	128%	Operation Procedure, and DG/DR/Energy Storage

Study Area: **San Diego Area- Summer Off-Peak & Summer Light Load**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-T-1	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1' -AND- 'SPS2-50386_Line OCO-SUNCREST 500kV & All-	C3	L-1-1	113%		N/A	Prior to the Phase Shifter Transformers in service at IV, bypass the series cap banks on the NG-IV 500 kV line, rely on Operation Procedure and congection management process with higher emergency rating of the Miguel 500/230 kV banks, along with the existing and proposed SPS gen tripping at IV/ECO/OCC
SD-NP-T-2	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5075_ 22468 MIGUEL 500 22472 MIGUELMP 500 1' -AND- 'SPS2-50286_Line OCO-SUNCREST 500kV & Xtrip Only'	C3	L-1-1	132%		N/A	
SD-NP-T-3	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1' -AND- 'SPS2-50286_Line OCO-SUNCREST 500kV & Xtrip Only'	C3	L-1-1	132%		N/A	
SD-NP-T-4	22464 MIGUEL 230 22472 MIGUELMP 500 1	'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2' -AND- 'SPS2-50386_Line OCO-SUNCREST 500kV & All-GenTrip@IV+Xtrip'	C3	L-1-1	115%		N/A	
SD-NP-T-5	22464 MIGUEL 230 22468 MIGUEL 500 1	'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2' -AND- 'SPS2-50286_Line OCO-SUNCREST 500kV & Xtrip Only'	C3	L-1-1	135%		N/A	

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-T-6	22886 SUNCREST 230 22888 SNCRSMP1 500 1	'T-5077_ 22885 SUNCREST 500 22889 SNCRSMP2 500 1' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	L-1-1	111%		N/A	Prior to the Phase Shifter Transformers in service at IV, bypass the series cap banks on the NG-IV 500 kV line, rely on Operation Procedure and congection management process along with the existing and proposed SPS gen tripping at IV/ECO/OCC
SD-NP-T-7	22886 SUNCREST 230 22889 SNCRSMP2 500 1	'T-5076_ 22885 SUNCREST 500 22888 SNCRSMP1 500 1' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	L-1-1	111%		N/A	
SD-NP-T-8	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	L-1-1	121%		N/A	
SD-NP-T-9	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	'ML_5008_L_SUNCREST-50SUNCREST TP2-SYCAMORE TP2-SYCAMORE 230.0 C' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C3	L-1-1	103%		N/A	
SD-NP-T-10	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C3	L-1-1	121%		N/A	
SD-NP-T-11	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	'ML_5007_L_SUNCREST-50SUNCREST TP1-SYCAMORE TP1-SYCAMORE 230.0 C' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C3	L-1-1	103%		N/A	
SD-NP-T-12	22464 MIGUEL 230 22472 MIGUELMP 500 1	'SL-5012_ 22360 IMPRLVLY 500 23310 OCOTILLO 500 1' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	C3	L-1-1	114%		N/A	

Study Area: San Diego Area- Summer Off-Peak & Summer Light Load

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-T-13	22468 MIGUEL 500 22472 MIGUELMP 500 1	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	C3	L-1-1	123%		N/A	Prior to the Phase Shifter Transformers in service at IV, bypass the series cap banks on the NG-IV 500 kV line, rely on Operation Procedure and congection management process with higher emergency rating of the Miguel 500/230 kV banks, along with the existing and proposed SPS gen tripping at IV/ECO/OCC
SD-NP-T-14	22464 MIGUEL 230 22472 MIGUELMP 500 1	'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2' -AND- 'SPS2-50186_Line OCO-SUNCREST 500 kV & ALL-GenTrip@IV'	C3	L-1-1	107%		N/A	
SD-NP-T-15	22464 MIGUEL 230 22468 MIGUEL 500 2	'OP2-50186_Line OCO-SUNCREST 500 kV & ALL-Gen Curtailed@IV' -AND- 'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1'	C3	L-1-1	105%		N/A	
SD-NP-T-16	22464 MIGUEL 230 22468 MIGUEL 500 2	'T-5074_ 22464 MIGUEL 230 22472 MIGUELMP 500 1' -AND- 'SPS2-50186_Line OCO-SUNCREST 500 kV & ALL-GenTrip@IV'	C3	L-1-1	105%		N/A	
SD-NP-T-17	22464 MIGUEL 230 22472 MIGUELMP 500 1	'OP2-50186_Line OCO-SUNCREST 500 kV & ALL-Gen Curtailed@IV' -AND- 'T-5073_ 22464 MIGUEL 230 22468 MIGUEL 500 2'	C3	L-1-1	108%		N/A	

Study Area: San Diego Area - Summer Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-VD-1	SUNCREST 500 KV	SL-5012_ 22360 IMPRLVLY 500 23310 OCOTILLO 500 1	B	L-1			-5%	voltage deviation within SDG&E's acceptable operational voltage limits
SD-SP-VD-2	SUNCREST 500 KV	SPS1-50285_Line ECO-MIGUEL 500kV & Xtrip Only	B	L-1	6%			voltage deviation within SDG&E's acceptable operational voltage limits
SD-SP-VD-3	SUNCREST 230 KV	SPS1-50285_Line ECO-MIGUEL 500kV & Xtrip Only	B	L-1	7%			voltage deviation within SDG&E's acceptable operational voltage limits
SD-SP-VD-4	SYCAMORE 230 KV	SPS1-50285_Line ECO-MIGUEL 500kV & Xtrip Only	B	L-1	6%			voltage deviation within SDG&E's acceptable operational voltage limits
SD-SP-VD-5	BARRETT 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		6%	7%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-6	CAMERON 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		5%	6%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-7	CRSTNTS 69 KV	T-10347_ 22836 TALEGA 69 22840 TALEGA 138 1	B	T-1		7%	6%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-8	PENDLETN 69 KV	SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1	B	L-1	6%			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-9	ENCNITAS 69 KV	SL-1070_ 22252 ENCNITAS 69 22160 DEL MAR 69 1	B	L-1	7%	6%	7%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-10	JAP MESA 69 KV	T-10347_ 22836 TALEGA 69 22840 TALEGA 138 1	B	T-1		6%		Reconductor TL692 or SPS with dynamic VAR support
SD-SP-VD-11	BASILONE 69 KV	T-10347_ 22836 TALEGA 69 22840 TALEGA 138 1	B	T-1		6%		Reconductor TL692 or SPS with dynamic VAR support
SD-SP-VD-12	LASPULGS 69 KV	ML_1022_L_OCNSDETP-OCEANSDE-SANLUSRY-STUARTTP-LASPULGS-STUART 6	B	L-1			7%	Reconductor TL692 or SPS with dynamic VAR support
SD-SP-VD-13	KUMEYAAY 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		10.908		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-14	CRESTWD 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		10.909		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-15	CAMERON 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		11.896	11.032	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-16	BARRETT 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		12.543	12.147	Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area - Summer Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-VD-17	BOULEVRD 69 KV	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'SPS1-50385_Line ECO-MIG 500kV & ALL-GenTrip@IV+Xtrip'	C	L-1-1	-7%	N/A	N/A	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-18	BOULEVRD 69 KV	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'SPS1-50185_Line ECO-MIG 500 kV & ALL-GenTrip@IV'	C	L-1-1	-5%	-8%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-19	BOULEVRD 69 KV	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'SPS1-50285_Line ECO-MIG 500kV & Xtrip Only'	C	L-1-1	-6%			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-20	BOULEVRD 69 KV	'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1' -AND- 'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1'	C	L-1-1	-5%			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-21	POWAY 69 KV	'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1' -AND- 'SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1'	C	L-1-1	11%	13%	13%	2nd Poway-Pomerado 69 kV line or OP to shed load
SD-SP-VD-22	RINCON 69 KV	'ML_1024_Line ASH-ASHTP-FELICITA_VALCNTR 69 Ckt 1' -AND- 'SL-10197_ 22688 RINCON 69 22404 LILAC 69 1'	C	L-1-1			13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-23	AVOCADO 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	13%	12%	12%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-24	AVOCADO 69 KV	'ML_1025_Line AVOCADO-MNSRATTP-MONSRATE-PALA 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	15%	11%	11%	Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area - Summer Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-VD-25	BARRETT 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		12%	12%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-26	BARRETT 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		15%	13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-27	CAMERON 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		12%	11%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-28	CAMERON 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		15%	13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-29	CRESTWD 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		11%	10%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-30	CRESTWD 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		15%	13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-31	VALCNTR 69 KV	'ML_1024_Line ASH-ASHTP-FELICITA_VALCNTR 69 Ckt 1' -AND- 'SL-10197_ 22688 RINCON 69 22404 LILAC 69 1'	C	L-1-1			13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-32	CREELMAN 69 KV	'SL-1046_ 22152 CREELMAN 69 22828 SYCAMORE 69 1' -AND- 'SL-1045_ 22152 CREELMAN 69 22408 LOSCOCHS 69 1'	C	L-1-1		24%	11%	Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area - Summer Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-VD-33	DESCANSO 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		14%	12%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-34	GLENCLIF 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		15%	13%	Reply on distribution VAR support, OP to manage voltage issue as needed
SD-SP-VD-35	LOVELAND 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		15%	13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-36	MONSRATE 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	12%	12%	12%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-37	MONSRATE 69 KV	'ML_1025_Line AVOCADO-MNSRATTP-MONSRATE-PALA 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	14%	10%	11%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-38	PENDLETN 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	16%	14%	14%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-39	PENDLETN 69 KV	'ML_1025_Line AVOCADO-MNSRATTP-MONSRATE-PALA 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	18%	13%	13%	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-VD-40	R.CARMEL 69 KV	'SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1' -AND- 'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1'	C	L-1-1	12%	15%	14%	2nd Poway-Pomerado 69 kV line or OP to shed load

Study Area: San Diego Area - Summer Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-VD-41	BackCountry Area 69 KV	'SL-10106_ 22408 LOSCOCHS 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1	Diverged	Diverged	Diverged	Operation Procedure to shed up to 70 MW loads in broad area of the back country for the 2nd contingency, or build a new transmission 69 kV source in the area
SD-SP-VD-42	WARENCYN 69 KV	'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1' -AND- 'SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1'	C	L-1-1		11%	11%	2nd Poway-Pomerado 69 kV line or load shedding

Study Area: San Diego Area- Summer Off-Peak & Summer Light Load

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-VD-1	CRESTWD 69 KV	G1-1022_ 22915 KUMEYAAY 0.69 1	B	L-1	6%			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-2	BARRETT 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		-9%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-3	CAMERON 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		-8%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-4	CRESTWD 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		-6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-5	CRESTWD 69 KV	SL-10248_ 22902 CRESTWD 69 22903 KUMEYAAY 69 1	B	L-1	6%			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-6	CAMERON 69 KV	SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1	B	L-1	-6%	-8%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-7	CRESTWD 69 KV	SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1	B	L-1		-6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-8	CRSTNTS 69 KV	T-10347_ 22836 TALEGA 69 22840 TALEGA 138 1	B	T-1		6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-9	KUMEYAAY 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		-6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-10	KUMEYAAY 69 KV	SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1	B	L-1		-6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-11	KUMEYAAY 69 KV	Bus_BAR69_Barrett 69kV Bus	B	L-1		-6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-12	CAMERON 69 KV	Bus_BAR69_Barrett 69kV Bus	C1/C2/C5	Bus Section	-6%	-8%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-13	CRESTWD 69 KV	Bus_CN69_Cameron 69kV Bus	C1/C2/C5	Bus Section	-5%	-7%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-14	CRESTWD 69 KV	Bus_BAR69_Barrett 69kV Bus	C1/C2/C5	Bus Section		-6%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-15	CRESTWD 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		-9%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-16	GLENCLIF 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		-7%		Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area- Summer Off-Peak & Summer Light Load

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-VD-17	CAMERON 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		-11%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-18	BARRETT 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		-12%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-19	AVOCADO 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	14%	10%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-20	BARRETT 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		-12%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-21	CAMERON 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		-11%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-22	CRESTWD 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		-10%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-23	MONSRATE 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	14%	10%		Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-VD-24	PENDLETN 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	16%	12%		Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-V-1	AVOCADO 69 KV	'ML_1025_Line AVOCADO-MNSRATTP-MONSRATE-PALA 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	N-1-1	0.81	0.88	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-2	AVOCADO 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	N-1-1	0.86	0.89	0.89	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-3	BARRETT 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.87	0.89	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-4	CAMERON 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.87	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-5	CRESTWD 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.87	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-6	BOULEVRD 69 KV	'MSL-5085_ 22930 ECO 500 22468 MIGUEL 500 &1' -AND- 'MSL-5086_ 23310 OCOTILLO 500 22885 SUNCREST 500 &1'	C	N-1-1	1.11			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-7	CAMERNTP 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.87	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-V-8	CREELMAN 69 KV	'SL-1045_ 22152 CREELMAN 69 22408 LOSCOCHS 69 1' -AND- 'SL-1046_ 22152 CREELMAN 69 22828 SYCAMORE 69 1'	C	N-1-1		0.79		Operation Procedure to shed up to 70 MW loads in broad area of the back country for the 2nd contingency, or build a new transmission 69 kV source in the area
SD-SP-V-9	GLENCLIF 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.87	0.89	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-10	GLNCLFTP 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.88	0.89	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-11	KUMEYAAY 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.87	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-12	LOVELAND 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1		0.88	0.89	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-13	PENDLETN 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	N-1-1	0.84	0.88	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-SP-V-14	PENDLETN 69 KV	'ML_1025_Line AVOCADO-MNSRATTP-MONSRATE-PALA 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	N-1-1	0.81	0.89	0.88	Reply on distribution VAR support, OP to manage voltage issue as needed,

Study Area: San Diego Area - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-V-15	POWAY 69 KV	'SL-1019_ 22056 BERNARDO 69 22676 R.CARMEL 69 1' -AND- 'SL-10191_ 22668 POWAY 69 22664 POMERADO 69 1'	C	N-1-1	0.90	0.87	0.88	2nd Poway-Pomerado 69 kV line or OP to shed load
SD-SP-V-16	BackCountry Area 69 KV	'SL-10106_ 22408 LOSCOCHS 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	N-1-1	Diverged	Diverged	Diverged	Operation Procedure to shed up to 70 MW loads in broad area of the back country for the 2nd contingency, or build a new transmission 69 kV source in the area

Study Area: San Diego Area- Summer Off-Peak & Summer Light Load

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-V-1	CAPSTRNO 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-2	TRABUCO 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-3	LAGNA NL 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-4	MARGARTA 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-5	R.MSNVJO 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-6	PICO 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-7	SANMATEO 138 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-8	CRESTWD 69 KV	Base Case	A	N-0	1.08	1.09		voltage within SDG&E's acceptable operational limits
SD-NP-V-9	OTAY 69 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-10	IMPRLBCH 69 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-11	MONTGMRY 69 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-12	SANYSDRO 69 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-13	GLENCLIF 69 KV	Base Case	A	N-0	1.05	1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-14	OTAYLAKE 69 KV	Base Case	A	N-0		1.06		voltage within SDG&E's acceptable operational limits
SD-NP-V-15	ECO MP 500 KV	SL-5011_ 22360 IMPRLVLY 500 22930 ECO 500 1	B	L-1		1.11		voltage within SDG&E's acceptable operational limits
SD-NP-V-16	BARRETT 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		1.13		OP to manage voltage issue as needed,

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-V-17	CAMERON 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		1.13		OP to manage voltage issue as needed,
SD-NP-V-18	CAMERON 69 KV	SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1	B	L-1	1.11	1.13		OP to manage voltage issue as needed,
SD-NP-V-19	CRESTWD 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		1.15		OP to manage voltage issue as needed,
SD-NP-V-20	CRESTWD 69 KV	SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1	B	L-1	1.12	1.15		OP to manage voltage issue as needed,
SD-NP-V-21	KUMEYAAY 69 KV	SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1	B	L-1		1.15		OP to manage voltage issue as needed,
SD-NP-V-22	KUMEYAAY 69 KV	SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1	B	L-1	1.13	1.15		OP to manage voltage issue as needed,
SD-NP-V-23	ECO MP 500 KV	IV-8032_IV 8032 50004 & BK82 CB	C1/C2/C5	Breaker		1.11		OP to manage voltage issue as needed,
SD-NP-V-24	BARRETT 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		1.16		OP to manage voltage issue as needed,
SD-NP-V-25	CAMERON 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		1.16		OP to manage voltage issue as needed,
SD-NP-V-26	CAMERON 69 KV	Bus_BAR69_Barrett 69kV Bus	C1/C2/C5	Bus Section	1.11	1.13		OP to manage voltage issue as needed,
SD-NP-V-27	CRESTWD 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section	1.11	1.18		OP to manage voltage issue as needed,
SD-NP-V-28	CRESTWD 69 KV	Bus_CN69_Cameron 69kV Bus	C1/C2/C5	Bus Section	1.13	1.15		OP to manage voltage issue as needed,
SD-NP-V-29	CRESTWD 69 KV	Bus_BAR69_Barrett 69kV Bus	C1/C2/C5	Bus Section	1.13	1.15		OP to manage voltage issue as needed,
SD-NP-V-30	GLENCLIF 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section		1.13		OP to manage voltage issue as needed,
SD-NP-V-31	KUMEYAAY 69 KV	Bus_LL69_Loveland 69kV Bus	C1/C2/C5	Bus Section	1.11			OP to manage voltage issue as needed,
SD-NP-V-32	KUMEYAAY 69 KV	Bus_CN69_Cameron 69kV Bus	C1/C2/C5	Bus Section	1.13	1.15		OP to manage voltage issue as needed,

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-V-33	KUMEYAAY 69 KV	Bus_BAR69_Barrett 69kV Bus	C1/C2/C5	Bus Section	1.13	1.15		OP to manage voltage issue as needed,
SD-NP-V-34	AVOCADO 69 KV	'ML_1021_Line MONSRATE-MORHILTP-MOROHILL-MELROSE 69 Ckt 1' -AND- 'SL-10182_ 22640 PENDLETN 69 22708 SANLUSRY 69 1'	C	L-1-1	0.86			Reply on distribution VAR support, OP to manage voltage issue as needed,
SD-NP-V-35	BARRETT 69 KV	'SL-10111_ 22412 LOSCOCHS 138 23322 JAMUL 138 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.14		OP to manage voltage issue as needed,
SD-NP-V-36	BARRETT 69 KV	'ML_1017_Line ML60 TAP-MIGUEL60-TELECYN-JAMUL 138.0 Ckt 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.13		OP to manage voltage issue as needed,
SD-NP-V-37	CAMERON 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.16		OP to manage voltage issue as needed,
SD-NP-V-38	CAMERON 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.16		OP to manage voltage issue as needed,
SD-NP-V-39	CAMERON 69 KV	'SL-10111_ 22412 LOSCOCHS 138 23322 JAMUL 138 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.14		OP to manage voltage issue as needed,
SD-NP-V-40	CAMERON 69 KV	'ML_1017_Line ML60 TAP-MIGUEL60-TELECYN-JAMUL 138.0 Ckt 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.14		OP to manage voltage issue as needed,

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-V-41	CAMERON 69 KV	'SL-1028_ 22084 BORREGO 69 22083 BR GEN HV 69 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.14		OP to manage voltage issue as needed,
SD-NP-V-42	CAMERON 69 KV	'SL-10111_ 22412 LOSCOCHS 138 23322 JAMUL 138 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.14		OP to manage voltage issue as needed,
SD-NP-V-43	CAMERON 69 KV	'ML_1017_Line ML60 TAP-MIGUEL60-TELECYN-JAMUL 138.0 Ckt 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.14		OP to manage voltage issue as needed,
SD-NP-V-44	CRESTWD 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		1.13		OP to manage voltage issue as needed,
SD-NP-V-45	CRESTWD 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.18		OP to manage voltage issue as needed,
SD-NP-V-46	CRESTWD 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.18		OP to manage voltage issue as needed,
SD-NP-V-47	CRESTWD 69 KV	'SL-10111_ 22412 LOSCOCHS 138 23322 JAMUL 138 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.15		OP to manage voltage issue as needed,
SD-NP-V-48	CRESTWD 69 KV	'ML_1017_Line ML60 TAP-MIGUEL60-TELECYN-JAMUL 138.0 Ckt 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.15		OP to manage voltage issue as needed,

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SD-NP-V-49	CRESTWD 69 KV	'SL-1028_ 22084 BORREGO 69 22083 BR GEN HV 69 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.15		OP to manage voltage issue as needed,
SD-NP-V-50	CRESTWD 69 KV	'SL-10111_ 22412 LOSCOCHS 138 23322 JAMUL 138 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.15		OP to manage voltage issue as needed,
SD-NP-V-51	CRESTWD 69 KV	'ML_1017_Line ML60 TAP-MIGUEL60-TELECYN-JAMUL 138.0 Ckt 1' -AND- 'SL-1010_ 22040 BARRETT 69 22416 LOVELAND 69 1'	C	L-1-1		1.15		OP to manage voltage issue as needed,
SD-NP-V-52	CAMERNTP 69 KV	'SL-10112_ 22416 LOVELAND 69 22004 ALPINE 69 1' -AND- 'SL-10109_ 22408 LOSCOCHS 69 22416 LOVELAND 69 1'	C	L-1-1		1.12		OP to manage voltage issue as needed,
SD-NP-V-53	GLENCLIF 69 KV	'SL-10113_ 22416 LOVELAND 69 22168 DESCANSO 69 1' -AND- 'SL-109_ 22040 BARRETT 69 22104 CAMERON 69 1'	C	L-1-1		1.13		OP to manage voltage issue as needed,

Study Area: **San Diego Area - Summer Peak**

Post-Transient Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SD-SP-PTVD-1	SDGE and LA Basin Areas	ECO-Miguel 500 kV Line (SWPL) outage followed by OCO-Suncrest 500 kV line (Sunrise) outage if the 230 kV tie with CFE is cross tripped by the CFE's SPS to protect its 230 kV system from La Rosita to Tijuana	C	L-1-1			voltage instability concern	With the Phase Shifter Transformers in-service at IV, develop an Operation Procedure and Congection Management Process for the Phase Shifters in cordination with CFE in oder to eliminate potential overloads in the SDGE 500/230 kV and the CFE 230 kV systems under Category C outage and ultimately mofidy/eliminate the CFE SPS accordingly, adjust system operation in SDGE/LA Basin/CFE to prepare for the 2nd 500 kV contingency, and take advantage of Preferred Resources inclduing Demand Response and Distributed Generation, and Energy Storage in the SDGE abd LA Basin areas