Study Area: San Diego Bulk Transmission

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-1	21025 ELCENTSW 230 22356 IMPRLVLY 230 1 1 (S-Line)	P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P1	L-1						100.09					rely on the CAISO electricity market and operation procedure to manage the reliability of its controlled transmission grid
SDBK-T-2		P1G_OT_OTAYMESA - G-1 and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P3	G-1/L-1	102.80					118.05					
SDBK-T-3		P1G_TDM_TDM - G-1 and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P3	G-1/L-1	123.59	106.96				139.22	119.81		108.23		
SDBK-T-4		P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				108.99							
SDBK-T-5		P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				117.31							
SDBK-T-6	22356 IMPRLVLY 230 22361 IV BK80 MP 500 1 1	P1T_50021_Xfmer IMPRLVLY 500 to IV BK82 MP 500 Ckt 1 0.00	P1	T-1										105.13	develop an Operation Procedure (OP) for a thirty-minute emergency rating to eliminate the overload by shedding generation
SDBK-T-7		P1T_50022_Xfmer IMPRLVLY 500 to IV BK81 MP 500 Ckt 1 0.00	P1	T-1										105.35	
SDBK-T-8		P4CB_IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker								107.94	102.14	108.21	
SDBK-T-9		P1T_50021_Xfmer IMPRLVLY 500 to IV BK82 MP 500 Ckt 1 0.00 and P1T_50022_Xfmer IMPRLVLY 500 to IV BK81 MP 500 Ckt 1 0.00	P6	T-1-1	162.89	185.83	186.29	216.47		164.69	187.96	228.36	205.62	253.44	
SDBK-T-10	22356 IMPRLVLY 230 22362 IV 500 BK82	P4CB_IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker								106.05	100.33	106.31	
SDBK-T-11	22356 IMPRLVLY 230 22362 IV 500 BK82 or BK81	P1T_50020_Xfmer IMPRLVLY 500 to IV BK80 followed by P1T_50022_Xfmer IMPRLVLY 500 IV BK81 or BK82	P6	T-1-1		111.36	111.95	129.87			112.65	136.87	123.53	152.54	
SDBK-T-12	22356 IMPRLVLY 230 22358 IV PFC 230 BK #1 and #2	P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS and P1L_SWPL1+SPS_TL50001 MIGUEL-ECO with SPS	P6	L-1-1	101.38					109.79					prepare the system for the 2nd contingency by reducing import level

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-13	22358 IV PFC 230 20118 ROA-230 230 1 1	P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS and P1L_SWPL1+SPS_TL50001 MIGUEL-ECO with SPS	P6	L-1-1						107.60					contingency by reducing import level via San Diego Import Transmission (SDIT) and adjusting the IV phase shifting transformers as system adjustment, while maintaining high generation support in the IV area to avoid the S-line overload for the outage of North Gila-Imperial Valley 500 kV line (TL50002)
SDBK-T-14	23310 OCOTILLO 500 22885 SUNCREST 500 1 1 (TL50003)	P1L_23014_Line OTAYMESA 230 to TJI-230 230 Ckt 1 and P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS	P6	L-1-1						100.29		102.16			
SDBK-T-15		P1L_23107_Line IV PFC 230 to ROA-230 230 Ckt 1 and P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS	P6	L-1-1						105.16		102.99			
SDBK-T-16	22382 SYCAMORE 230 228860 SUNCREST 230 Ckt #1 or #2	22382 SYCAMORE 230 228860 SUNCREST 230 Ckt #2 or #1	P1	L-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	rely on operation procedure to open OCO-SCR 500 kV line (TL50003) as needed even Suncrest-Sycamore 230 kV line TL23055 or TL23054 is not overloaded, in oder to prepare the system for next contingency in SWPL (TL50001 or TL50004)
SDBK-T-17		P1ML_23960_ML SYCAMORE TP2 230 to SUNCREST 230 Ckt #2 or #1 followed by P1L_SWPL1+SPS_TL50001 MIGUEL-ECO with SPS	P6	L-1-1	130.46	130.90	128.23			139.73	138.25	141.24	145.80	124.26	Avoid this N-1-1 contingency by opening Suncrest-Sycamore 230 kV line TL23055 or TL23054 for the first contingency of Suncrest-Sycamore 230 kV Ckt #1 or Ckt #2
SDBK-T-18	22382 SYCAMORE 230 22886 SUNCREST 230 Ckt #1 or #2	P1L_23108_Line OTAYMESA 230 to TJI-230 230 Ckt 1 and P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS	P6	L-1-1	101.85					110.25	104.57	112.03	104.88		prepare the system for the 2nd contingency by reducing import level via San Diego Import Transmission (SDIT) as system adjust, while maintaining high generation support in the IV area as needed to prevent the S-line overload for the outage of North Gila-Imperial Valley 500 kV line (TL50002)

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-19		P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS and P1ML_23960_ML SYCAMORE 230 to SUNCREST 230 Ckt #2 or Ckt #1	P6	L-1-1	161.57	162.01	158.70	101.06		173.47	171.47	182.76	181.69	155.41	enable a new SPS to open OCO-SCR 500 kV line (TL50003) for the single outage of Suncrest-Sycamore 230 kV line TL23055 or TL23054, along with the system adjustment prepared for the N-1-1 contingency of TL50001 and TL50003
SDBK-T-20	22886 SUNCREST 230 22885 SUNCREST 500 BK80 or BK81	P1T_50026_Xfmer SUNCREST 500 to SUNCREST 500 BK81 or BK80	P1	T-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	rely on Operation procedure to open SCR-BK81 or SCR-BK 80 as needed even it is not overloaded, in oder to prepare the system for next contingency in SWPL (TL50001 or TL50004)
SDBK-T-21		P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS and P1T_50026_Xfmer SUNCREST 500 to SUNCREST 500 BK81 or BK80	P6	L-1/T-1	147.01	146.83	144.72			151.60	151.57	154.04	155.04	140.57	enable a new SPS to open SCR-BK81 or SCR-BK80, along with the system adjustment prepared for the N-1-1 contingency of TL50001 and TL50003
SDBK-T-22		P1T_50026_Xfmer SUNCREST 500 to SUNCREST 500 BK81 or BK80 and P1L_SWPL1+SPS_TL50001 MIGUEL-ECO with SPS	P6	T-1/L-1	123.55	123.26	122.33			131.46	130.92	134.58	134.65	120.20	Avoid this N-1-1 contingency by opening SCR-BK81 or SCR-BK80 after the first contingency of SCR-BK80 or SCR-BK81
SDBK-T-23	22930 ECO 500 22468 MIGUEL 500 1 1 (TL50001)	P1G_OT_OTAYMESA - G-1 and P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS	P3	G-1/L-1						102.72	102.53	105.13	110.30		prepare the system for the 2nd contingency by reducing import level via San Diego Import Transmission (SDIT) and adjusting the IV phase shifting transformers as system adjustment, while maintaining high generation support in the IV area after the first contingency to avoid the S-line overload for the outage of North
SDBK-T-24		P1G_OT_OTAYMESA - G-1 and P1L_SPL3+SPS_TL50003 OCOTILLO-SUNCREST with SPS	P3	G-1/L-1									100.23		
SDBK-T-25		P1L_23107_Line IV PFC 230 to ROA-230 230 Ckt 1 and P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS	P6	L-1-1	107.07	101.43				114.87	106.91	114.35	105.19		
SDBK-T-26		P1L_23014_Line OTAYMESA 230 to TJI-230 230 Ckt 1 and P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS	P6	L-1-1	103.11	101.28				110.80	106.73	114.12	106.08		

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-27		P1L_23107_Line IV PFC 230 to ROA-230 230 Ckt 1 and P1L_SPL3+SPS_TL50003 OCOTILLO-SUNCREST with SPS	P6	L-1-1						101.09					Gila-Imperial Valley 500 kV line (TL50002)
SDBK-T-28		P1L_SPL231_SUNCREST-SYCAMORE 230kV #1 and P1L_SPL232_SUNCREST-SYCAMORE 230kV #2	P6	L-1-1								101.39			
SDBK-T-29	22464 MIGUEL 230 22468 MIGUEL 500 BK80 or BK81	P1T_50024_Xfmer MIGUEL 500 to MIGUEL 230 BK81 or BK80	P1	T-1						101.77	103.25	106.29	107.19		implement a new SPS open Miguel BK81 or BK80,
SDBK-T-30		P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS and P1T_50024_Xfmer MIGUEL 500 to MIGUEL 230 BK81 or BK80	P6	T-1/L-1	143.17	146.41	145.25			152.87	153.75	158.71	160.30	138.95	enable a new SPS to open Miguel BK81 or BK80, along with the system adjustment prepared for the N-1-1 contingency of TL50001 and TL50003
SDBK-T-31	22464 MIGUEL 230 22468 MIGUEL 500 BK80 and BK81	P1L_23107_Line IV PFC 230 to ROA-230 230 Ckt 1 and P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS	P6	L-1-1	101.27					106.75	100.69	104.69			prepare the system for the 2nd contingency by reducing import level via San Diego Import Transmission (SDIT) as system adjustment, while maintaining high generation support in the IV area after the first contingency to avoid the S-line overload for the outage of North Gila-Imperial Valley 500 kV line (TL50002)
SDBK-T-32	22609 OTAYMESA 230 20149 TJI-230 230 1 1	P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o SPS and P1L_SWPL1+SPS_TL50001 MIGUEL-ECO with SPS	P6	L-1-1	115.02					124.20	107.41			101.76	prepare the system for the 2nd contingency by reducing import level via San Diego Import Transmission (SDIT) and adjusting the IV phase shifting transformers as system adjustment, while maintaining high generation support in the IV area after the first contingency to avoid the S-
SDBK-T-33		P1L_SWPL1_TL50001 MIGUEL-ECO w/o SPS and P1L_SPL3+SPS_TL50003 OCOTILLO-SUNCREST with SPS	P6	L-1-1						106.95					
SDBK-T-34	22596 OLD TOWN 230 22504 MISSION 230 1 1	P1ML_23008_Line SILVERGT-OTTAP-OLDTOWN-MS 230 Ckt 1 and P1ML_23920_ML OT-MLMS3TAP-BB-MIGUEL 230 Ckt 1	P6	L-1-1	101.66					103.58					rely on OP as an interim solution until the 2nd Miguel-Bay Blvd 230 kV line in service
SDBK-T-35		P4CB_SX-28T_SYCAMORE 230 kV 28T CB	P2/P4	Breaker Fault/Stuck Breaker						104.46					

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-36	22261 PEN 230 22832 SYCAMORE 230 1 1	P1L_4502_Line PALOVRDE 500 to COLRIVER 500 Ckt 1 and P1ML_23940_ML PENSQTOS TP1 230 to SYCAMORE 230 Ckt 1	P6	L-1-1	115.58					118.01					reset SX-PEN 230 kV line (TL23051) directional relay if this is limited by the directional relay to rating identified in Transmission Registry/TMC1015a
SDBK-T-37		P1ML_23920_ML OT-MLMS3TAP-BB-MIGUEL 230 Ckt 1 and P1ML_23940_ML PENSQTOS TP1 230 to SYCAMORE 230 Ckt 1	P6	L-1-1	117.34			100.36		117.98					
SDBK-T-38		P7_23001/SX-PQ_SA-MS + SX-PQ 230 kV	P7	Common structure	107.25					106.19					
SDBK-T-39		P7_23003/230YY_SA-EA 230 kV ckt 1 and 2	P7	Common structure				112.82							
SDBK-T-40		P7_SX-PQ/13811_SX-PQ 230 + CC-NCM-SH 138 kV	P7	Common structure	104.04					104.08					
SDBK-T-41		P7_SX-PQ/13820_SX-PQ 230 + SX-CC 138 kV	P7	Common structure	106.41					106.47					
SDBK-T-42	22232 ENCINA 230 22716 SANLUSRY 230 2 1	P1L_23006_Line PEN 230 to SANLUSRY SC 230 Ckt 1 and P1L_23022_Line SANLUSRY 230 to ENCINA 230 Ckt 1	P6	L-1-1				102.01							lower the northbound flow via north of SONGS switchyard after the first contingency
SDBK-T-43		P1L_23021_Line SANLUSRY SC 230 to MISSION 230 Ckt 1 and P1L_23022_Line SANLUSRY 230 to ENCINA 230 Ckt 1	P6	L-1-1				118.08						109.31	
SDBK-T-44		P1L_23022_Line SANLUSRY 230 to ENCINA 230 Ckt 1 and P1L_23050_Line PEN 230.0 to SYCAMORE 230.0 Circuit 1	P6	L-1-1				103.83							
SDBK-T-45		P1L_23022_Line SANLUSRY 230 to ENCINA 230 Ckt 1 and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				113.50							
SDBK-T-46	22430 SILVERGT 230 22596 OLD	P1ML_23008_Line SILVERGT-OTTAP-OLDTOWN-MS 230 Ckt 1 and P1ML_23940_ML PENSQTOS TP1 230 to SYCAMORE 230 Ckt 1	P6	L-1-1										108.59	lower the northbound flow via north of SONGS switchyard after the first
SDBK-T-47		P1ML_23008_Line SILVERGT-OTTAP-OLDTOWN-MS 230 Ckt 1 followed by P1L_23010_Line MIGUEL 230 to MISSION 230 Ckt #2 or #1	P6	L-1-1										106.31	

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-48	TOWN 230 1 1	P1L_23007_Line SILVERGT 230 to OLD TOWN 230 Ckt 1 and P1L_23010_Line MIGUEL 230 to MISSION 230 Ckt #1 or #2	P6	L-1-1										106.78	SONGS switchyard after the first contingency
SDBK-T-49		P1L_23007_Line SILVERGT 230 to OLD TOWN 230 Ckt 1 and P1ML_23940_ML PENSQTOS TP1 230 to SYCAMORE 230 Ckt 1	P6	L-1-1										108.98	
SDBK-T-50	22716 SANLUSRY 230 22232 ENCINA 230 Ckt #1 or #2	P1L_23002_Line ENCINA 230 to SANLUSRY 230 Ckt #2 or #1 followed by P1L_23021_Line SANLUSRY SC 230 to MISSION 230 Ckt 1	P6	L-1-1				118.26						109.48	lower the northbound flow via north of SONGS switchyard after the first contingency
SDBK-T-51		P1L_23002_Line ENCINA 230 to SANLUSRY 230 Ckt #2 or #1 followed by P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				113.83							
SDBK-T-52	22716 SANLUSRY 230 24131 S.ONOFRE 230 1 1	P1L_23024_Line SANLUSRY 230 to S.ONOFRE 230 Ckt 2 and P1L_23025_Line SANLUSRY 230 to S.ONOFRE 230 Ckt 3	P6	L-1-1				106.25							
SDBK-T-53		P7_23002/23010_SA-SO 2 + SO-SA 3 230 kV	P7	Common structure				106.20							
SDBK-T-54	22710 SANLUSRY SC 230 22504 MISSION 230 1 1	P1L_23002_Line ENCINA 230 to SANLUSRY 230 Ckt 2 and P1L_23022_Line SANLUSRY 230 to ENCINA 230 Ckt 1	P6	L-1-1				139.54						130.97	This requires further review after the construction of the Sycamore-Penasquitos 230 kV line project is authorized by CPUC
SDBK-T-55		P1L_23020_Line PENSQTOS 230 to OLD TOWN 230 Ckt 1 and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				107.13							
SDBK-T-56		P1L_23050_Line PEN 230.0 to SYCAMORE 230.0 Circuit 1 and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				108.45							

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-57		P1L_23101_Line ELCENTSW 230 to IMPRLVLY 230 Ckt 1 and P1L_SWPL2_TL50002 N.GILA 500 to IMPRLVLY 500 Ckt 1	P6	L-1-1				105.32							
SDBK-T-58		P7_23003/230YY_SA-EA 230 kV ckt 1 and 2	P7	Common structure				139.50						130.92	
SDBK-T-59	22464 MIGUEL 230 22504 MISSION 230 1 1 [with SX-PQ 230 kV line project delayed]	P1L_23011_Line MIGUEL 230 to MISSION 230 Ckt 2 -AND- P1ML_23920_ML OT-MLMS3TAP-BB-MIGUEL 230 Ckt 1	P6	L-1-1	123.07					127.67					rely on congestion management and operation procedure to redispatch generation until SX-PQ 230 kV line in service
SDBK-T-60		P1L_23009_Line SILVERGT 230 to BAY BLVD 230 Ckt 1 -AND- P1L_23011_Line MIGUEL 230 to MISSION 230 Ckt 2	P6	L-1-1	110.22					113.78					
SDBK-T-61		P7_23042A/13824_ML-BB 230 kV + TY-JM-ML 138 kV	P7	Common structure	100.03					103.92					
SDBK-T-62	22464 MIGUEL 230 22504 MISSION 230 2 1 [with SX-PQ 230 kV line project delayed]	P1L_23010_Line MIGUEL 230 to MISSION 230 Ckt 1 -AND- P1ML_23920_ML OT-MLMS3TAP-BB-MIGUEL 230 Ckt 1	P6	L-1-1	122.6					127.18					rely on operation procedure to redispatch generation until SX-PQ 230 kV line in service
SDBK-T-63		P1L_23009_Line SILVERGT 230 to BAY BLVD 230 Ckt 1 -AND- P1L_23010_Line MIGUEL 230 to MISSION 230 Ckt 1	P6	L-1-1	109.79					113.34					
SDBK-T-64	22596 OLD TOWN 230 22504 MISSION 230 1 1 [with SX-PQ 230 kV line project delayed]	P1L_23013_Line OLDTWNTP 230 to MISSION 230 Ckt 1 -AND- P1ML_23920_ML OT-MLMS3TAP-BB-MIGUEL 230 Ckt 1	P6	L-1-1	153.55					160.86					rely on operation procedure re-dispatching generation and implement a temporary SPS shedding load as needed in the Old Town area until SX-PQ 230 kV line in service
SDBK-T-65		P1L_23009_Line SILVERGT 230 to BAY BLVD 230 Ckt 1 -AND- P1L_23013_Line OLDTWNTP 230 to MISSION 230 Ckt 1	P6	L-1-1	121.47					126.32					
SDBK-T-66	22597 OLDTWNTP 230 22504 MISSION 230 1 1 [with SX-PQ 230 kV line project	P1L_23012_Line OLD TOWN 230 to MISSION 230 Ckt 1 -AND- P1ML_23920_ML OT-MLMS3TAP-BB-MIGUEL 230 Ckt 1	P6	L-1-1	143.02					149.83					
SDBK-T-67		P1L_23009_Line SILVERGT 230 to BAY BLVD 230 Ckt 1 -AND- P1L_23012_Line OLD TOWN 230 to MISSION 230 Ckt 1	P6	L-1-1	113.08					117.6					

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-T-68	delayed]	P1L_23012_Line OLD TOWN 230 to MISSION 230 Ckt 1 -AND- P1L_23009_Line SILVERGT 230 to BAY BLVD 230 Ckt 1	P6	L-1-1	112.95					117.47					
SDBK-T-69	22771 BAY BLVD 230 22466 MLMS3TAP 230 1 1 [with SX-PQ 230 kV line project delayed]	P4CB_MS-5T_MISSION 230 kV 5T CB	P2/P4	Breaker Fault/Stuck Breaker	111.5					115.72					rely on congestion management and operation procedure to redispatch generation until SX-PQ 230 kV line in service
SDBK-T-70		P1L_23010_Line MIGUEL 230 to MISSION 230 Ckt 1 -AND- P1L_23011_Line MIGUEL 230 to MISSION 230 Ckt 2	P6	L-1-1	111.57					115.75					
SDBK-T-71		P7_23022/23023_ML-MS 230 kV #1&#2	P7	Common structure	111.5					115.72					

Study Area: San Diego Bulk Transmission

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-VD-1													
X-VD-2													
X-VD-3													
X-VD-4													
X-VD-5													
X-VD-6													
X-VD-7													
X-VD-8													
X-VD-9													
X-VD-10													
X-VD-11													
X-VD-12													
X-VD-13													
X-VD-14													
X-VD-15													
X-VD-16													
X-VD-17													
X-VD-18													
X-VD-19													
X-VD-20													
X-VD-21													
X-VD-22													
X-VD-23													
X-VD-24													
X-VD-25													
X-VD-26													
X-VD-27													
X-VD-28													
X-VD-29													
X-VD-30													
X-VD-31													
X-VD-32													
X-VD-33													
X-VD-34													
X-VD-35													

Study Area: San Diego Bulk Transmission

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-V-1	Suncrest 500 kV Bus	P1L_SPL3_TL50003 OCOTILLO-SUNCREST w/o coordination of the Suncrest SVC facility and the existing shunt capacitors/reactors in the Suncrest 500/230 kV substation	P1	L-1					1.11						implement a coordinated control scheme of the SVC (Static Var Compensator) to be installed in NextEra's Suncrest 230 kV substation and the existing conventional mechanically switched shunt capacitors/reactors in SDG&E's Suncrest 500/230 kV substation to achieve wide range voltage control
SDBK-V-2	Suncrest 500 kV Bus	OCO-2T_OCO 2T TL50003 & TL50006 w/o coordination of the Suncrest SVC facility and the existing shunt capacitors/reactors in the Suncrest 500/230 kV substation	P2/P4	Breaker Fault/Stuck Breaker				1.12	1.17						

Study Area: San Diego Bulk Transmission

Transient Stability

ID	Contingency	Category	Category Description	Transient Stability Performance										Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP with no Behind-the-meter PV	2021 SP CEC High Load	2021 SP Heavy Renewable & Min Gas Gen	2026 SP with no Behind-the-meter PV	2026 SP with Heavy Northbound Flow via North of SONGS	
SDBK-TS-1	TL50001 ECO-MIGUEL 500 KV line out of service followed by SYCAMORE-SUNCREST 230 kV TL23054 or TL23055 outage that trigger a newly recommended SPS to open OCOTILLO-SUNCRET 500 kV line (TL50003), with system adjustment between the two outages	P6	L-1-1	None	None	None	None	None	42.7%~25.6 % transient voltage dips at Valley SC/Johanna/Santiago/Ellis/VillaPK/Serrano/Barre/Huntington Beach 230 kV or 115 kV buses in SCE	None	None	None	None	further evaluation as WECC's TPL-001-WECC-CRT-3 System Performance is currently under development to supersede TPL-001-WECC-CRT-2.1.

Study Area: San Diego Bulk Transmission

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)								Potential Mitigation Solutions
				Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SLD-1												

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

Study Area: San Diego Bulk Transmission

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)								Potential Mitigation Solutions
		Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SS-1										

No single source substation with more than 100 MW Load