



Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-1	22046 BASILONE 69.0 22848 TALEGATP 69.0 1	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	211.47	<100	<100	144.80	<100				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, SPS to trip TL 695 in the interim
SD-SP-T-2	22808 STUARTTP 69.0 22400 LASPULGS 69.0 1	TL0695d TALEGA 69-TALEGATP 69 ck 1	P1	L-1	136.70	<100	<100	<100	<100				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, SPS to trip TL 695 in the interim
SD-SP-T-3	22046 BASILONE 69.0 22368 JAP MESA 69.0 1	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	133.24	<100	<100	<100	<100				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, SPS to trip TL 695 in the interim
SD-SP-T-4	22708 SANLUSRY 69.0 22584 OCEANSDE 69.0 1	TL0690c OCNSDETP 69-SANLUSRY 69 ck 1	P1	L-1	120.91	<100	<100	<100	<100				Operation Procedure
SD-SP-T-5	22442 MELRSETP 69.0 22724 SANMRCOS 69.0 1	TL0684 ESCNDIDO-SANMRCOS ck 1	P1	L-1	112.27	<100	<100	<100	<100				ESCNDIDO-SANMRCOS ck 2, as previously approved, Congestion Management in the interim
SD-SP-T-6	N/A	TL6914NW MIGUEL-LOVELAND ck 1 AND TL0678 LOSCOCHS-ALPINE ck 1	P6	L-1/L-1	Diverge	Diverge	Diverge	Converge	Converge				Operation Procedure
SD-SP-T-7	N/A	TL06917 CREELMAN-SYCAMORE ck 1 AND TL0635 CREELMAN - LOSCOCHS ck 1	P6	L-1/L-1	Diverge	Diverge	Diverge	Converge	Converge				Operation Procedure
SD-SP-T-8	22884 WARNERS 69.0 22688 RINCON 69.0 1	TL0681 ASH-FELICITA-VALCNTR 69 ck 1 AND TL0683 RINCON-LILAC ck 1	P6	L-1/L-1	142.16	160.22	160.90	<100	<100				Turn on DG at Valley Center



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-9	22272 ESCO 69.0 22876 WARCYNTP 69.0 1	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	147.88	<100	<100	<100	<100				2nd Poway-Pomerado 69 kV line as previously approved, Operation Procedure in the interim
SD-SP-T-10	22856 TOREYPNS 69.0 22864 UCM 69.0 1	TL06905 GENESEE -PENSQTOS ck 2 AND TL06959 MIRASNT0-PENSQTOS ck 1	P6	L-1/L-1	142.38	136.94	137.18	<100	<100				Operation Procedure, re-configure systems after 1st contingency
SD-SP-T-11	22372 KEARNY 69.0 22140 CLARMTTP 69.0 1	TL0663 KEARNY -MISSION ck 1 AND TL0676 MESAHGTS-MISSION ck 1	P6	L-1/L-1	134.04	137.86	136.42	<100	<100				Operation Procedure, re-configure systems after 1st contingency
SD-SP-T-12	22316 GENESEE 69.0 22644 PENSQTOS 69.0 2	TL069 TOREYPNS to UCM ck 1 AND TL06959 MIRASNT0-PENSQTOS ck 1	P6	L-1/L-1	136.79	131.16	131.42	<100	<100				Operation Procedure, re-configure systems after 1st contingency
SD-SP-T-13	22331 MIRASNT0 69.0 22644 PENSQTOS 69.0 1	TL06905 GENESEE -PENSQTOS ck 2 AND TL069 TOREYPNS to UCM ck 1	P6	L-1/L-1	134.39	130.05	130.31	<100	<100				Operation Procedure, re-configure systems after 1st contingency
SD-SP-T-14	22420 SILVERGT 69.0 22868 URBAN 69.0 1	TL0602 B-SILVERGT ck 1 AND TL0699 B - SILVERGT ck 2	P6	L-1/L-1	104.50	123.90	129.54	<100	<100				preferred resources, operation procedure with higher emergency rating,
SD-SP-T-15	22420 SILVERGT 69.0 22548 NATNLCTY 69.0 1	TL0603A SWEETWTR 69-NAVSTMTR 69 ck 1 AND TL0604A OLD TOWN 69-VINE SUB 69 ck 1	P6	L-1/L-1	<100	126.83	127.15	<100	<100				Operation Procedure
SD-SP-T-16	22548 NATNLCTY 69.0 22820 SWEETWTR 69.0 1	TL0603A SWEETWTR 69-NAVSTMTR 69 ck 1 AND TL0604A OLD TOWN 69-VINE SUB 69 ck 1	P6	L-1/L-1	<100	125.52	125.79	<100	<100				Operation Procedure
SD-SP-T-17	22112 CAPSTRNO 138 22860 TRABUCO 138 1	TL13831 TALEGA-R.MSNVJO ck 1 AND TL13833 PICO-TRABUCO ck 1	P6	L-1/L-1	129.73	<100	<100	<100	<100				Capistrano-Trabuco line upgrade, as previously approved, in 2018, Operation Procedure in the interim



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ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-18	22524 MORHILTP 69.0 22440 MELROSE 69.0 1	TL0698 MONSRATE-AVOCADO-PALA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	128.90	119.64	120.19	<100	<100				Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-19	22708 SANLUSRY 69.0 22582 OCEAN RANCH 69.0 2	TL0680 SANLUSRY-MELROSE-SANMRCOS ck 1 AND TL69XX OCEAN RANCH to SANLUSRY ck 1	P6	L-1/L-1	<100	120.24	119.84	<100	<100				Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-20	22708 SANLUSRY 69.0 22582 OCEAN RANCH 69.0 1	TL0680 SANLUSRY-MELROSE-SANMRCOS ck 1 AND TL69XX OCEAN RANCH to SANLUSRY ck 2	P6	L-1/L-1	<100	120.24	119.84	<100	<100				Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-21	22252 ENCNITAS 69.0 22160 DEL MAR 69.0 1	TL06952 NORTHCTY-PENSQTOS 69 ck 1 AND TL0616 Lkhodges-BERNARDO-RSF ck 1	P6	L-1/L-1	128.50	<100	<100	<100	<100				Del Mar - North City line, as previously approved, in 2018, Operation Procedure in the interim
SD-SP-T-22	22256 ESCNDIDO 69.0 22272 ESCO 69.0 1	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	127.29	<100	<100	103.57	<100				2nd Poway-Pomerado 69 kV line as previously approved, preferred resources, and/or load shedding in the interim
SD-SP-T-23	22841 LAGNA NL TAP 138 22396 LAGNA NL 138 1	TL13836 TALEGA-PICO ck 1 AND TL13846A PICO - TA TAP33 ck1	P6	L-1/L-1	126.60	<100	<100	<100	<100				SOCRE project as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-24	22884 WARNERS 69.0 22736 SANTYSBL 69.0 1	TL0683 RINCON-LILAC ck 1 AND TL0681 ASH- FELICITA-VALCNTR 69 ck 1	P6	L-1/L-1	113.41	119.39	121.74	<100	<100				Turn on DG at Valley Center
SD-SP-T-25	22664 POMERADO 69.0 22828 SYCAMORE 69.0 2	TL06915 POMERADO -SYCAMORE ck 1 AND Artesen 230/69 Transformer #1	P6	L-1/T-1	<100	115.64	120.15	<100	<100				Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-26	22664 POMERADO 69.0 22828 SYCAMORE 69.0 1	TL06924 POMERADO -SYCAMORE ck 2 AND Artesen 230/69 Transformer #1	P6	L-1/T-1	<100	115.64	120.15	<100	<100				Operation Procedure, and DG/DR/Energy Storage



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-27	22692 ROSCYNTP 69.0 22696 ROSE CYN 69.0 1	OLD TOWN 69/230 Transformer #1 AND #2	P6	T-1/T-1	125.04	<100	<100	101.80	<100				RoseCanyon 69 kV Tap Elimination, as previously approved, in 2018, Operation Procedure in the interim
SD-SP-T-28	22644 PENSQTOS 69.0 22444 MESA RIM 69.0 2	TL06916 SYCAMORE-SCRIPPS ck 1 AND PENSQTOS-MESA RIM 69 ck 1	P6	L-1/L-1	<100	<100	<100	122.89	122.17				Operation Procedure
SD-SP-T-29	22440 MELROSE 69.0 22708 SANLUSRY 69.0 2	SANLUSRY-MELRSETP 69 ck 1 AND TL0684 ESCNDIDO-SANMRCOS ck 1	P6	L-1/L-1	122.85	<100	<100	100.53	<100				Escondido-San Marcos Ck 2, as previously approved, in 2018, Operation Procedure in the interim
SD-SP-T-30	22416 LOVELAND 69.0 22168 DESCANSO 69.0 1	TL0626 ST-BC-DE ck 1 AND TL06923 BARRETT -CAMERON ck 1	P6	L-1/L-1	<100	<100	<100	<100	119.24				Operation Procedure
SD-SP-T-31	22316 GENESEE 69.0 22864 UCM 69.0 1	TL0662 PENSQTOS -TOREYPNS ck 1 AND TL0666 PQ-DB-DH-TP 69 ck 1	P6	L-1/L-1	119.82	105.01	104.31	<100	<100				Operation Procedure
SD-SP-T-32	22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1	TL0662 PENSQTOS -TOREYPNS ck 1 AND TL06907 GENESEE -UCM ck 1	P6	L-1/L-1	121.32	106.16	105.48	<100	<100				prefered resources, operation procedure with higher emergency rating
SD-SP-T-33	22668 POWAY 69.0 22876 WARCYNTP 69.0 1	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	119.84	<100	<100	<100	<100				2nd Poway-Pomerado 69 kV line as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-34	22440 MELROSE 69.0 22442 MELRSETP 69.0 1	TL0680b SANLUSRY 69-MELRSETP 69 ck 1 AND TL0684 ESCNDIDO-SANMRCOS ck 1	P6	L-1/L-1	119.24	<100	<100	<100	<100				Escondido-San Marcos Ck 2, as previously approved, in 2018, Operation Procedure in the interim
SD-SP-T-35	22160 DEL MAR 69.0 22644 PENSQTOS 69.0 2	TL0610 DEL MAR-PENSQTOS ck 1 AND TL06952 NORTHCTY-PENSQTOS 69 ck 1	P6	L-1/L-1	<100	111.06	111.17	<100	<100				Operation Procedure



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-36	22512 MONSRATE 69.0 22524 MORHILTP 69.0 1	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	116.00	110.88	111.54	<100	<100				Operation Procedure
SD-SP-T-37	22331 MIRASNT0 69.0 22316 GENESEE 69.0 1	TL06905 GENESEE -PENSQTOS ck 2 AND TL069 TOREYPNS to UCM ck 1	P6	L-1/L-1	114.07	108.68	109.15	<100	<100				Operation Procedure
SD-SP-T-38	22668 POWAY 69.0 22664 POMERADO 69.0 1	PEN-SYCAMORE 230 ck 1AND ASTESN-SYCAMORE 69 ck 1	P6	L-1/L-1	116.05	<100	<100	<100	<100				2nd Poway-Pomerado 69 kV line as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-39	22768 BAY BLVD 69.0 22520 MONTGYTP 69.0 1	TL0641 SOUTHBAY - MONTGMRY ck 1 AND TL0644 BAY BLVD - SWEETWTR ck 1	P6	L-1/L-1	<100	111.55	110.33	<100	<100				Operation Procedure
SD-SP-T-40	22160 DEL MAR 69.0 22644 PENSQTOS 69.0 1	TL0667 DEL MAR-PENSQTOS ck 2 AND TL06952 NORTHCTY-PENSQTOS 69 ck 1	P6	L-1/L-1	<100	108.59	108.67	<100	<100				Operation Procedure
SD-SP-T-41	22840 TALEGA 138 22842 TAP33 138 1	TALEGA-R.MSNVJO 138 ck 1 AND TALEGA-PICO 138 ck1	P6	L-1/L-1	111.08	<100	<100	115.05	<100				SOCRE project as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-42	22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1	TL06907 GENESEE -UCM ck 1 AND TL0662 PENSQTOS -TOREYPNS ck 1	P6	L-1/L-1	114.79	<100	<100	<100	<100				preferred resources, operation procedure with higher emergency rating
SD-SP-T-43	22644 PENSQTOS 69.0 22856 TOREYPNS 69.0 1	TL0666 PQ-DB-DH-TP 69 ck 1 AND TL06907 GENESEE -UCM ck 1	P6	L-1/L-1	113.08	<100	<100	<100	<100				Operation Procedure
SD-SP-T-44	22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1	TL06907 GENESEE -UCM ck 1 AND TL0662 PENSQTOS -TOREYPNS ck 1	P6	L-1/L-1	113.78	<100	<100	<100	<100				preferred resources, operation procedure with higher emergency rating



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-45	22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1	TL0662 PENSQTOS -TOREYPNS ck 1 AND TL06907 GENESEE -UCM ck 1	P6	L-1/L-1	113.77	<100	<100	<100	<100				preferred resources, operation procedure with higher emergency rating
SD-SP-T-46	22668 POWAY 69.0 22676 R.CARMEL 69.0 1	TL06920 ARTESN-SYCAMORE ck 1 AND TL0689 ESCNDIDO-FELICITA-BERNARDO ck 1	P6	L-1/L-1	112.86	<100	<100	<100	<100				Artesan - Bernardo Circuits, as previously approved, in 2019, Operation Procedure in the interim
SD-SP-T-47	22656 PICO 138 22842 TA TAP33 138 1	TALEGA-R.MSNVJO 138 ck 1 AND TALEGA-PICO 138 ck 1	P6	L-1/L-1	107.97	<100	<100	111.91	<100				SOCRE project as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-48	22840 TALEGA 138 22656 PICO 138 1	PICO-SANMATEO 138 ck 1 AND TALEGA-R.MSNVJO 138 ck 1	P6	L-1/L-1	105.63	<100	<100	109.48	<100				SOCRE project as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-49	22592 OLD TOWN 69.0 22380 KETTNER 69.0 1	SILVERGT 230/69 kV Transformer #1 AND #2	P6	T-1/T-1	109.42	<100	<100	<100	<100				Bay Blvd 230/69 kV Transformer, as previously approved, in 2018, Operation Procedure in the interim
SD-SP-T-50	22700 SAMPSON 69.0 22420 SILVERGT 69.0 1	TL0657 SAMPSON-SILVERGT ck 2 AND TL0603A SWEETWTR 69-NAVSTMTR 69 ck 1	P6	L-1/L-1	<100	104.61	104.73	<100	<100				Increase power factor at NAVSTMTR, Operation Procedure
SD-SP-T-51	22500 MISSION 138 22496 MISSION 69.0 1	MISSION 230/69 kV Transformer #1 AND #2	P6	T-1/T-1	<100	102.16	101.82	<100	<100				Operation Procedure
SD-SP-T-52	22284 FELCTATP 69.0 22288 FELICITA 69.0 1	TL0696 ESCNDIDO-ASH ck 1 AND TL06596 ESCNDIDO-ASH ck 2	P6	L-1/L-1	<100	100.55	101.82	<100	<100				Operation Procedure
SD-SP-T-53	22816 SUNYSIDE 69.0 22636 PARADISE 69.0 1	TL06911 JAMACHA-SPRNGVLY ck 1 AND TL0621 PARADISE-MIGUEL ck 1	P6	L-1/L-1	<100	103.06	101.25	<100	<100				Operation Procedure





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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-T-54	22112 CAPSTRNO 138 22656 PICO 138 1	TL13831 TALEGA-R.MSNVJO ck 1 AND TL13833 PICO-TRABUCO ck 1	P6	L-1/L-1	106.35	<100	<100	<100	<100				Capistrano-Pico ck 2, as previously approved, Operation Procedure in the interim
SD-SP-T-55	22056 BERNARDO 69.0 22284 FELCTATP 69.0 1	TL0648 POWAY-R.CARMEL ck 1 AND TL06920 ARTESN-SYCAMORE ck 1	P6	L-1/L-1	105.80	<100	<100	<100	<100				Artesen 230kV and 69kV upgrades, as previously approved, in 2019, Operation Procedure
SD-SP-T-56	22380 KETTNER 69.0 22024 B 69.0 1	OLD TOWN 230/69 kV Transformer #1 AND #2	P6	T-1/T-1	<100	100.92	<100	<100	<100				Operation Procedure
SD-SP-T-57	22336 GRANITE 69.0 22408 LOSCOCHS 69.0 1	TLNEWB LOSCOCHS 69-GRANITE 69 ck 2 AND EL CAJON-GRANITE 69 ck 1	P6	L-1/L-1	105.17	<100	<100	<100	<100				Increase power factor at GRANITE, Operation Procedure
SD-SP-T-58	22720 SANMATEO 138 22841 LAGNA NL TAP 138 1	TL13836 TALEGA-PICO ck 1 AND TL13846C TALEGA- TA TAP33 ck 1	P6	L-1/L-1	104.94	<100	<100	<100	<100				SOCRE project as previously approved in transmission plan, Operation Procedure in the interim
SD-SP-T-59	22336 GRANITE 69.0 22408 LOSCOCHS 69.0 2	TLNEWA LOSCOCHS 69-GRANITE 69 ck 1 AND EL CAJON-GRANITE 69 ck 1	P6	L-1/L-1	104.58	<100	<100	<100	<100				Increase power factor at GRANITE, Operation Procedure
SD-SP-T-60	22024 B 69.0 22420 SILVERGT 69.0 2	TL0602 B-SILVERGT ck 1 AND TL0605 SILVERGT-URBAN ck 1	P6	L-1/L-1	<100	<100	100.90	<100	<100				Operation Procedure
SD-SP-T-61	22208 EL CAJON 69.0 22408 LOSCOCHS 69.0 1	TL0620 MURRAY-GARFIELD ck 1 AND LD_GRB_LD_GR OPEN 632 PK JM/EC/GA	P6	L-1/L-1	<100	<100	<100	102.75	<100				Operation Procedure, and DG/DR
SD-SP-T-62	22720 SANMATEO 138 22842 TA TAP33 138 1	TL13835C TALEGA-LAGNA NL TAP AND LD_LNLB_TL13837 CAPSTRNO-LAGNA NL ck 1	P6	L-1/L-1	<100	<100	<100	101.44	<100				Operation Procedure, and DG/DR
SD-SP-T-63	22680 R.SNTAFE 69.0 22685 R.SNTTP1 69.0 1	TL06952 NORTHCTY-PENSQTOS 69 ck 1 AND TL0660 ENCINITAS-DEL MAR ck 1	P6	L-1/L-1	101.04	<100	<100	<100	<100				Del Mar - North City line, as previously approved, in 2018, Operation Procedure in the interim
SD-SP-T-64	22462 ML60 TAP 138 22772 SOUTHBAY 138 1	TL13824 SOUTHBAY-ML60 TAP ck 1 AND Miguel 230/138 Transformer	P6	L-1/T-1	100.45	<100	<100	<100	<100				Operation Procedure

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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A		N/A
SD-SP-T-65	22306 GARFIELD 69.0 22208 EL CAJON 69.0 1	TL0618 MISSION-MURRAY ck 1 AND TL0619 MISSION-MURRAY ck 2	P7	L-2	119.53	119.59	116.57	<100	<100				preferred resources, operation procedure with higher emergency rating
SD-SP-T-66	22284 FELCTATP 69.0 22288 FELICITA 69.0 1	TL0696 ESCNDIDO-ASH ck 1 AND TL06596 ESCNDIDO-ASH ck 2	P7	L-2	<100	100.55	101.82	<100	<100				Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-67	22532 MURRAY 69.0 22306 GARFIELD 69.0 1	TL0618 MISSION-MURRAY ck 1 AND TL0619 MISSION-MURRAY ck 2	P7	L-2	103.59	101.93	<100	<100	<100				Operation Procedure, and DG/DR/Energy Storage
SD-SP-T-68	22160 DEL MAR 69.0 22164 DELMARTP 69.0 1	TL0610 DEL MAR-PENSQTOS ck 1 AND TL0667 DEL MAR-PENSQTOS ck 2	P7	L-2	115.44	<100	<100	<100	<100				Del Mar - North City line, as previously approved, in 2018, Operation Procedure in the interim





ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-VD-1	22804 STUART 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	21.10	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-2	22808 STUARTTP 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	21.10	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-3	22400 LASPULGS 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	19.05	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-4	22368 JAP MESA 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	15.81	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-5	22046 BASILONE 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	14.92	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-6	22848 TALEGATP 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	13.26	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-7	22156 CRSTNTS 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	13.25	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-8	22836 TALEGA 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	13.25	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-9	22084 BORREGO 69 kV	TL06960 BORREGO-BR GEN HV ck 1	P1	L-1	9.26	8.66	8.70	9.08	<5				Turn on Capacitor at BORREGO to compensate for voltage drop
SD-SP-VD-10	22540 NARROWS 69 kV	TL06960 BORREGO-BR GEN HV ck 1	P1	L-1	7.13	6.67	6.71	6.79	<5				Turn on Capacitor at BORREGO to compensate for voltage drop
SD-SP-VD-11	22083 BR GEN HV 69 kV	BORREGO_SOLAR @ BORREGO	P1	L-1	6.79	6.51	6.51	6.96	<5				Turn on Capacitor at BORREGO to compensate for voltage drop



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-VD-12	22724 SANMRCOS 69 kV	TL0684 ESCNDIDO-SANMRCOS ck 1	P1	L-1	6.24	<5	<5	<5	<5				ESCNDIDO-SANMRCOS ck 2, as previously approved, in 2018, Operation Procedure, and DG/DR/Energy Storage in the interim
SD-SP-VD-13	22044 BARRETTP 69 kV	TL0625c_LOVELAND 69-BARRETTP 69 ck 1	P1	L-1	<5	<5	<5	-5.25	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-14	22324 GLENCLIF 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1	<5	<5	<5	-5.61	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-15	22328 GLNCLFTP 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1	<5	<5	<5	-5.61	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-16	22072 CAMERNTP 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1	<5	<5	<5	-7.31	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-17	22902 CRESTWD 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1	<5	<5	<5	-7.33	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-18	22903 KUMEYAAY 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1	<5	<5	<5	-7.34	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-19	22104 CAMERON 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1	<5	<5	<5	-8.57	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-20	22836 TALEGA 69 kV	TL0692 LASPULGS - JAP MESA ck 1	P1	L-1	-9.35	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-21	22848 TALEGATP 69 kV	TL0692 LASPULGS - JAP MESA ck 1	P1	L-1	-9.36	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-22	22156 CRSTNTS 69 kV	TL0692 LASPULGS - JAP MESA ck 1	P1	L-1	-9.36	<5	<5	<5	<5				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-23	22040 BARRETT 69 kV	TL0625_TL0625 BAR - DS - LV ck 1	P1	L-1	<5	<5	<5	-9.58	<5				Turn on Reactor at KUMEYAAY
SD-SP-VD-24	22640 PENDLETN 69 kV	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	14.33	10.38	10.45	<10	<10				Operation Procedure
SD-SP-VD-25	22676 R.CARMEL 69 kV	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	12.09	<10	<10	<10	<10				2nd Poway-Pomerado 69 kV line as previously approved, Operation Procedure in the interim
SD-SP-VD-26	22668 POWAY 69 kV	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	11.96	<10	<10	<10	<10				2nd Poway-Pomerado 69 kV line as previously approved, Operation Procedure in the interim



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-VD-27	22046 BASILONE 69 kV	LASPULGS-JAP MESA 69 ck1 AND TALEGA-S.ONOFRE 230 ck 2	P7	L-2	-10.31	<10	<10	<10	<10				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-VD-28	22368 JAP MESA 69 kV	LASPULGS-JAP MESA 69 ck1 AND TALEGA-S.ONOFRE 230 ck 2	P7	L-2	-10.67	<10	<10	<10	<10				Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation

Study Area: **SDG&E Sub-Transmission**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Summer Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-V-1	22804 STUART 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.79								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-2	22808 STUARTTP 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.79								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-3	22400 LASPULGS 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.79								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-4	22368 JAP MESA 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.83								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-5	22046 BASILONE 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.85								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-6	22848 TALEGATP 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.88								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-7	22156 CRSTNTS 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.88								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-8	22836 TALEGA 69 kV	TL0690d OCNSDETP 69-STUARTTP 69 ck 1	P1	L-1	0.88								Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Summer Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-V-9	22540 NARROWS 69 kV	TL0682 WARNERS-RINCON ck 1	P1	L-1	1.11								Turn off capacitor at SANTYSBL and BORREGO
SD-SP-V-10	22084 BORREGO 69 kV	TL0682 WARNERS-RINCON ck 1	P1	L-1	1.12								Turn off capacitor at SANTYSBL and BORREGO
SD-SP-V-11	22083 BR GEN HV 69 kV	TL0682 WARNERS-RINCON ck 1	P1	L-1	1.12								Turn off capacitor at SANTYSBL and BORREGO
SD-SP-V-12	22836 TALEGA 69 kV	TL06971 JAPMESA-BASILONE ck 1	P1	L-1	1.12			1.07					Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-13	22848 TALEGATP 69 kV	TL06971 JAPMESA-BASILONE ck 1	P1	L-1	1.12			1.07					Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-14	22156 CRSTNTS 69 kV	TL06971 JAPMESA-BASILONE ck 1	P1	L-1	1.12			1.07					Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-15	22046 BASILONE 69 kV	TL06971 JAPMESA-BASILONE ck 1	P1	L-1	1.12			1.07					Reconduct Talega Tap - Stuart Tap 69 kV, as previously approved, in 2018, higher power factor resolves voltage deviation
SD-SP-V-16	22324 GLENCLIF 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.11					Turn on Reactor at KUMEYAAY
SD-SP-V-17	22328 GLNCLFTP 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.11					Turn on Reactor at KUMEYAAY
SD-SP-V-18	22040 BARRETT 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.14					Turn on Reactor at KUMEYAAY
SD-SP-V-19	22104 CAMERON 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.14					Turn on Reactor at KUMEYAAY
SD-SP-V-20	22072 CAMERNTP 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.14					Turn on Reactor at KUMEYAAY
SD-SP-V-21	22902 CRESTWD 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.16					Turn on Reactor at KUMEYAAY

Study Area: **SDG&E Sub-Transmission**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Summer Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-V-22	22903 KUMEYAAY 69 kV	TL0625 BARRETT - DESCANSO - LOVELAND ck 1	P1	L-1				1.16					Turn on Reactor at KUMEYAAY
SD-SP-V-23	22328 GLNCLFTP 69 kV	TL06923 BARRETT -CAMERON ck 1	P1	L-1					1.10				Turn on Reactor at KUMEYAAY
SD-SP-V-24	22324 GLENCLIF 69 kV	TL06923 BARRETT -CAMERON ck 1	P1	L-1					1.10				Turn on Reactor at KUMEYAAY
SD-SP-V-25	22040 BARRETT 69 kV	TL06957 LOVELAND-BARRETT ck 1	P1	L-1					1.14				Turn on Reactor at KUMEYAAY
SD-SP-V-26	22104 CAMERON 69 kV	TL06923 BARRETT -CAMERON ck 1	P1	L-1				1.12	1.14				Turn on Reactor at KUMEYAAY
SD-SP-V-27	22072 CAMERNTP 69 kV	TL06923 BARRETT -CAMERON ck 1	P1	L-1				1.12	1.14				Turn on Reactor at KUMEYAAY
SD-SP-V-28	22902 CRESTWD 69 kV	TL06923 BARRETT -CAMERON ck 1	P1	L-1				1.14	1.16				Turn on Reactor at KUMEYAAY
SD-SP-V-29	22903 KUMEYAAY 69 kV	TL06923 BARRETT -CAMERON ck 1	P1	L-1				1.14	1.16				Turn on Reactor at KUMEYAAY
SD-SP-V-30	22640 PENDLETN 69 kV	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	0.84	0.89	0.89						Operation Procedure, and DG/DR/Energy Storage
SD-SP-V-31	22020 AVOCADO 69 kV	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	0.84	0.88	0.88						Operation Procedure, and DG/DR/Energy Storage
SD-SP-V-32	22016 AVCADOTP 69 kV	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	0.86	0.90	0.90						Operation Procedure, and DG/DR/Energy Storage
SD-SP-V-33	22512 MONSRATE 69 kV	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	0.86		0.90						Operation Procedure, and DG/DR/Energy Storage
SD-SP-V-34	22676 R.CARMEL 69 kV	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	0.87								2nd Poway-Pomerado 69 kV line as previously approved, Operation Procedure in the interim
SD-SP-V-35	22668 POWAY 69 kV	TL0633 BERNARDO-R.CARMEL ck 1 AND TL06913 POWAY-POMERADO ck 1	P6	L-1/L-1	0.88								2nd Poway-Pomerado 69 kV line as previously approved, Operation Procedure in the interim
SD-SP-V-36	22688 RINCON 69 kV	TL0683 RINCON-LILAC ck 1 AND TL06926 RINCON -VALCNTR ck 1	P6	L-1/L-1	1.12								Turn off capacitor at RINCON



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)							Potential Mitigation Solutions	
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Summer Off-Peak	2020 Spring Light Load	N/A	N/A		N/A
SD-SP-V-37	22064 BLDCKRTP 69 kV	TL0637 SANTYSBL - CREELMAN ck 1 AND TL0625 BAR - DS - LV 69 ck 1	P6	L-1/L-1	1.13								Turn on Reactor at KUMEYAAY
SD-SP-V-38	22068 BOLDRCKR 69 kV	TL0637 SANTYSBL - CREELMAN ck 1 AND TL0625 BAR - DS - LV 69 ck 1	P6	L-1/L-1	1.13								Turn on Reactor at KUMEYAAY
SD-SP-V-39	22168 DESCANSO 69 kV	TL0637 SANTYSBL - CREELMAN ck 1 AND TL0625 BAR - DS - LV 69 ck 1	P6	L-1/L-1	1.13			1.12					Turn on Reactor at KUMEYAAY
SD-SP-V-40	22736 SANTYSBL 69 kV	TL0637 SANTYSBL - CREELMAN ck 1 AND TL0682 WARNERS-RINCON ck 1	P6	L-1/L-1	1.13								Turn on Reactor at KUMEYAAY
SD-SP-V-41	22084 BORREGO 69 kV	TL0685 WARNERS-SANTYSBL ck 1 AND TL06960 BORREGO-BR GEN HV ck 1	P6	L-1/L-1			0.90						Operation Procedure
SD-SP-V-42	22512 MONSRATE 69 kV	TL0698 MN-AV-PA ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1	0.86		0.90						Operation Procedure
SD-SP-V-43	22640 PENDLETN 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 AND TL0694 MN-MHTAP-MH-ME 69 ck 1	P6	L-1/L-1				0.88	0.88				Operation Procedure
SD-SP-V-44	22020 AVOCADO 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 AND TL0694 MN-MHTAP-MH-ME 69 ck 1	P6	L-1/L-1				0.88					Operation Procedure
SD-SP-V-45	22016 AVCADOTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 AND TL0694 MN-MHTAP-MH-ME 69 ck 1	P6	L-1/L-1				0.89	0.90				Operation Procedure
SD-SP-V-46	22540 NARROWS 69 kV	TL0637 SANTYSBL - CREELMAN ck 1 AND TL0682 WARNERS-RINCON ck 1	P6	L-1/L-1	1.18			1.12					Turn off capacitor at BORREGO
SD-SP-V-47	22168 DESCANSO 69 kV	TL0625 BAR - DS - LV 69 ck 1 AND TL0637 SANTYSBL - CREELMAN ck 1	P6	L-1/L-1	1.13			1.10					Turn on Reactor at KUMEYAAY
SD-SP-V-48	22640 PENDLETN 69 kV	TL0694 MN-MHTAP-MH-ME ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1				0.88	0.88				Operation Procedure
SD-SP-V-49	22016 AVCADOTP 69 kV	TL0694 MN-MHTAP-MH-ME ck 1 AND TL06912 PENDLETN-SANLUSRY ck 1	P6	L-1/L-1				0.89	0.90				Operation Procedure





ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Summer Off-Peak	2020 Spring Light Load	N/A	N/A	N/A	
SD-SP-V-50	22104 CAMERON 69 kV	TL06904 LOVELAND-ALPINE ck 1 AND TL6914NW MIGUEL-LOVELAND ck 1	P6	L-1/L-1					1.11				Turn on Capacitor/Reactor at KUMEYAAY
SD-SP-V-51	22040 BARRETT 69 kV	TL06904 LOVELAND-ALPINE ck 1 AND TL6914NW MIGUEL-LOVELAND ck 1	P6	L-1/L-1					1.10				Turn on Capacitor/Reactor at KUMEYAAY
SD-SP-V-52	22884 WARNERS 69 kV	DESCANSO-SANTYSBL-BOLDRCRK 69 + CREELMAN-SANTYSBL 69	P7	L-2	1.10								Turn off capacitor at BORREGO
SD-SP-V-53	22736 SANTYSBL 69 kV	DESCANSO-SANTYSBL-BOLDRCRK 69 + CREELMAN-SANTYSBL 69	P7	L-2	1.12								Turn off capacitor at BORREGO
SD-SP-V-54	22540 NARROWS 69 kV	DESCANSO-SANTYSBL-BOLDRCRK 69 + CREELMAN-SANTYSBL 69	P7	L-2	1.13								Turn off capacitor at BORREGO
SD-SP-V-55	22084 BORREGO 69 kV	DESCANSO-SANTYSBL-BOLDRCRK 69 + CREELMAN-SANTYSBL 69	P7	L-2	1.14			1.11					Turn off capacitor at BORREGO
SD-SP-V-56	22083 BR GEN HV 69 kV	DESCANSO-SANTYSBL-BOLDRCRK 69 + CREELMAN-SANTYSBL 69	P7	L-2	1.14			1.11					Turn off capacitor at BORREGO

Study Area: **SDG&E Sub-Transmission**

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance							Potential Mitigation Solutions	
				2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	N/A	N/A		N/A



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-SP-SLD-1												

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

Study Area: **SDG&E Sub-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-SP-SS-1										

No single source substation with more than 100 MW Load