

Study Area: San Diego Sub-Transmission
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
22016 AVCADOTP 69.0 22020 AVOCADO 69.0 1 1	TL698_Line AVOCADO-MONSRATE-PALA 69 kV ck 1	P1	N-1	<90	<90	<90	100.97	<90	<90	101.01	<90	Potential RAS to trip battery charging at Avocado
	TL0698A_TL0698A AVOCADO-MNSRATTP ck 1	P2.1	N-1	<90	<90	<90	100.60	<90	<90	100.51	<90	
22020 AVOCADO 69.0 22508 MNSRATTP 69.0 1 1	TL691_Line PENDLETN-MONSRATE-AVOCADO ck 1	P1	N-1	<90	<90	<90	101.36	<90	<90	101.29	<90	Potential RAS to trip battery charging at Avocado
	TL0691D_TL0691D AVOCADO-AVCADOTP ck 1	P2.1	N-1	<90	<90	<90	100.36	<90	<90	100.26	<90	
22056 BERNARDO 69.0 22284 FELCTATP 69.0 1 1	PEN-230_Non-Redundant Relay Failure PALOMAR 230KV	P5	Non-Redundant Relay	<90	<90	<90	<90	<90	<90	109.74	<90	Generation Re-dispatch/Potential RAS to trip battery charging
	TL23014 PEN-ESCNDIDO 230 kV ck 1 AND TL23015 PEN-ESCNDIDO 230 kV ck 2	P6	N-1-1	<90	<90	<90	<90	<90	<90	100.92	<90	
22192 DOUBLTTP 138 22300 FRIARS 138 1 1	TL23071 SYCAMORE-PENSQTOS 230 kV ck 1 AND TL23051 ARTESN-SYCAMORE 230 kV ck 1	P6	N-1-1	<90	<90	<90	<90	<90	<90	109.95	<90	Generation Re-dispatch/Potential RAS to trip generation/Upgrade Relay or adjust relay settings
	TL23013+23071_Lines PENSQTOS-OLD TOWN 230 kV ck 1 AND SYCAMORE-PENSQTOS 230 kV ck 1	P7	N-2	<90	105.62	110.81	<90	<90	101.87	170.14	105.57	
22208 EL CAJON 69.0 22408 LOSCOCHS 69.0 1 1	El Cajon GEN2 Generator AND GRANITE-LOSCOCHS-MIGUEL 69 kV ck 1	P3	G-1, N-1	100.91	102.28	102.80	<90	<90	104.61	<90	107.35	Granite Re-configuration Project, as previously approved for long term, 30-min rating and BESS storage in the interim
	El Cajon GEN1 Generator AND GRANITE-LOSCOCHS-MIGUEL 69 kV ck 1	P3	G-1, N-1	99.43	100.79	102.30	<90	<90	103.11	<90	105.90	
22256 ESCNDIDO 69.0 22724 SANMRCOS 69.0 1 1	TL23011 ENCINA-SANLUSRY-PEN 230 kV ck 1 AND TL23030 ESCNDIDO-TALEGA 230 kV ck 1	P6	N-1-1	<90	<90	<90	<90	<90	<90	105.68	<90	2nd Escondido-San Marcos line for long term, Generation-Redispatch in the interim
	TL23003+23011_Lines SANLUSRY-ENCINA 230 kV ck 1 AND ENCINA-SANLUSRY-PEN 230 kV ck 1	P7	N-2	<90	<90	<90	<90	<90	<90	112.92	<90	
22300 FRIARS 138 22500 MISSION 138 1 1	TL23013+23071_Lines PENSQTOS-OLD TOWN 230 kV ck 1 AND SYCAMORE-PENSQTOS 230 kV ck 1	P7	N-2	<90	103.16	107.67	<90	<90	100.72	142.46	102.40	Generation Re-dispatch/Potential RAS to trip generation/Upgrade Relay or adjust relay settings
22368 JAP MESA 69.0 22400 LASPULGS 69.0 1 1	TL23052 TALEGA-S.ONOFRE 230 kV ck 2 AND TL23007 CAPSTRNO - SONGS 230 kV ck 1	P6	N-1-1	N/A	122.01	<90	N/A	<90	124.20	N/A	N/A	TL695B Japanese Mesa-Talega Tap Reconductor project is expected in service by 2026, existing SPS to trip TL 695 in the interim
	TL23007+23052_Lines TALEGA-S.ONOFRE 230 kV ck 1 AND TALEGA-S.ONOFRE 230 kV ck 2	P7	N-2	119.66	N/A	N/A	<90	N/A	N/A	<90	134.19	
22420 SILVERGT 69.0 22868 URBAN 69.0 1 1	TL604_Line OLD TOWN-VINE SUB 69 kV ck 1	P1	N-1	<90	90.85	119.69	<90	<90	92.40	<90	<90	Silvergate-Urban Upgrade, as previously approved
	OT_BK70_Tran OLDTOWN 230/69 kV Transformer 1	P1	N-1	<90	<90	105.23	<90	<90	<90	<90	<90	
	OT_BK71_Tran OLDTOWN 230/69 kV Transformer 2	P1	N-1	<90	<90	105.23	<90	<90	<90	<90	<90	
	TL699_Line B-SILVERGT 69 kV ck 2	P1	N-1	<90	<90	101.97	<90	<90	<90	<90	<90	
	TL655_Line SILVERGT-CORONADO 69 kV ck 1	P1	N-1	<90	<90	100.28	<90	<90	<90	<90	<90	
	OT-1N_OLD TOWN 230 kV 1N CB	P4	Fault+Stuck Breaker	<90	<90	107.25	<90	<90	<90	<90	<90	
	OT-1S_OLD TOWN 230 kV 1S CB	P4	Fault+Stuck Breaker	<90	<90	107.12	<90	<90	<90	<90	<90	
	OT-1T_OLD TOWN 230 kV 1T CB	P4	Fault+Stuck Breaker	<90	<90	105.72	<90	<90	<90	<90	<90	
	OT-2N_OLD TOWN 230 kV 2N CB	P4	Fault+Stuck Breaker	<90	<90	105.36	<90	<90	<90	<90	<90	
	OT-2S_OLD TOWN 230 kV 2S CB	P4	Fault+Stuck Breaker	<90	<90	105.19	<90	<90	<90	<90	<90	
	TL23026 SILVERGT-BAY BLVD 230 kV ck 1 AND TL23027 OLD TOWN-MISSION 230 kV ck 1	P6	N-1-1	<90	<90	100.13	<90	<90	<90	<90	<90	
	TL23028+23029_Lines SILVERGT-OLD TOWN-MISSION 230 kV ck 1 AND SILVERGT-OLD TOWN 230 kV ck 1	P7	N-2	<90	<90	105.72	<90	<90	<90	<90	<90	
22442 MELRSETP 69.0 22724 SANMRCOS 69.0 1 1	TL23003+23011_Lines SANLUSRY-ENCINA 230 kV ck 1 AND ENCINA-SANLUSRY-PEN 230 kV ck 1	P7	N-2	<90	<90	<90	<90	<90	<90	100.23	<90	Generation re-dispatch/Existing RAS to trip the line/Congestion Management
22556 NAVSTMTR 69.0 22824 SWTWTRTP 69.0 1 1	SG-230_Non-Redundant Relay Failure SILVERGATE 230KV	P5	Non-Redundant Relay	96.78	103.45	111.78	<90	<90	104.48	<90	97.32	Sweetwater Reconfiguration Project, as previously approved, Generation Re-dispatch in the interim
22604 OTAY 69.0 22616 OTAYLKTP 69.0 1 1	TL6910_Line BORDER-SALT CREEK 69 kV ck 1	P1	N-1	135.78	131.97	128.08	<90	<90	130.47	<90	135.34	Pre-contingency Generation Re-dispatch/ Post-contingency Generation Re-dispatch within 30 minutes, 30-min rating
	TL6964_Line MIGUEL-SALT CREEK 69 kV ck 1	P1	N-1	102.22	<90	<90	<90	<90	<90	<90	101.79	
	TL0649D_TL0649D OTAYLKTP-SANYSDDRO ck 1	P2.1	N-1	110.70	107.69	105.67	<90	<90	107.21	<90	111.87	
22808 STUARTTP 69.0 22400 LASPULGS 69.0 1 1	TL23052 TALEGA-S.ONOFRE 230 kV ck 2 AND TL23007 CAPSTRNO - SONGS 230 kV ck 1	P6	N-1-1	N/A	134.75	123.26	N/A	<90	137.14	N/A	N/A	Upgrade Las Pulgas - Stuart Tap 69 kV, as previously approved, existing SPS to trip TL 695 in the interim
	TL23007+23052_Lines TALEGA-S.ONOFRE 230 kV ck 1 AND TALEGA-S.ONOFRE 230 kV ck 2	P7	N-2	134.50	N/A	N/A	93.23	N/A	N/A	<90	149.19	
22820 SWEETWTR 69.0 22824 SWTWTRTP 69.0 1 1	SG-230_Non-Redundant Relay Failure SILVERGATE 230KV	P5	Non-Redundant Relay	100.39	108.03	117.53	<90	<90	109.04	<90	101.04	Sweetwater Reconfiguration Project, as previously approved, Generation Re-dispatch in the interim

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				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
	TL23026 SILVERGT-BAY BLVD 230 kV ck 1 AND TL23071 SYCAMORE-PENSQTOS 230 kV ck 1	P6	N-1-1	<90	92.64	101.68	<90	<90	92.71	<90	<90	
22841 LAGNA NL TAP 138 22396 LAGNA NL 138 1 1	PI-138-E_Bus	P2	Bus Fault	113.51	<90	<90	<90	<90	<90	<90	113.20	SOCRE project as previously approved in transmission plan, Operation Procedure in the interim
	PI-TCB_PICO TCB 138 kV 13836/46/16/48	P4	Fault+Stuck Breaker	111.34	<90	<90	<90	<90	<90	<90	111.04	
	TL13836+13846_Lines TALEGA-PICO 138 kV ck 1 AND PICO-SANMATEO-TALEGA 138 kV ck 1	P7	N-2	113.34	<90	<90	<90	<90	<90	<90	113.03	

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

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
None	None											

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Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)					Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
None	None											

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Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	
None	None							

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Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

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

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Single Source Substation with more than 100 MW Load



Substation	Load Served (MW)										Potential Mitigation Solutions
	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

No single source substation with more than 100 MW