

2012/2013 ISO Reliability Assessment - Preliminary Study Results

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



**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014	2017	2022	
SD-T-001	22208 EL CAJON 69 - 22408 LOSCOCHS 69 - ckt 1	LD_GR OPEN 632 PK JM/EC/GA	B	N-1	107%	105%	< 80%	Local generation re-dispatch
SD-T-002	22604 OTAY 69 - 22616 OTAYLKTP 69 - ckt 1	TL06910 SALT CREEK - BORDER ck 1	B	N-1	< 80%	< 80%	102%	Re-evaluate in future planning cycles. Reconfigure and reconductor overloaded elements in the metro area 69kV system.
SD-T-003	22644 PENSQTOS 69 - 22856 TOREYPNS 69 - ckt 1	TL0666 PQ-DM-DB-DH-TP ck 1	B	N-1	87%	94%	102%	Re-evaluate in future planning cycles. Investigate the potential for re-rating this line.
SD-T-004	22664 POMERADO 69 - 22828 SYCAMORE 69 - ckt 1	TL06924 POMERADO -SYCAMORE ck 2	B	N-1	98%	96%	103%	Dispatch local generation. Re-evaluate in future planning cycles
SD-T-005	22664 POMERADO 69 - 22828 SYCAMORE 69 - ckt 2	TL06915 POMERADO -SYCAMORE ck 1	B	N-1	98%	96%	103%	Dispatch local generation. Re-evaluate in future planning cycles
SD-T-006	22740 SANYSYRO 69 - 22608 OTAY TP 69 - ckt 1	TL0649 BD-OY-SYO ck 1	B	N-1	85%	92%	100%	Re-evaluate in future planning cycles. Reconfigure and reconductor overloaded elements in the metro area 69kV system.
SD-T-007	22740 SANYSYRO 69 - 22616 OTAYLKTP 69 - ckt 1	TL06910 SALT CREEK - BORDER ck 1	B	N-1	< 80%	< 80%	113%	Re-evaluate in future planning cycles. Reconfigure and reconductor overloaded elements in the metro area 69kV system.
SD-T-008	22828 SYCAMORE 69 - 22756 SCRIPPS 69 - ckt 1	TL23042 OTAYMESA - BAY BLVD ck 1	B	N-1	101%	106%	N/A	Generation re-dispatch or reconductor.
SD-T-009	22831 SYCAMORE 138 - 22124 CHCARITA 138 - ckt 1	EA BK 60 230/138	B	N-1	< 80%	< 80%	106%	Generation re-dispatch or reconductor. Re-evaluate in future planning cycles

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SD-T-010	22112 CAPSTRNO 138 - 22396 LAGNA NL 138 - ckt 1	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	255%	< 80%	< 80%	Pico loop-in (operational solution) or SPS to drop load
SD-T-011	22112 CAPSTRNO 138 - 22860 TRABUCO 138 - ckt 1	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	142%	< 80%	< 80%	Pico loop-in (operational solution) or SPS to drop load
SD-T-012	22160 DEL MAR 69 - 22164 DELMARTP 69 - ckt 1	Del Mar 69kV E Bus	C	Bus	121%	131%	136%	Reconductor or SPS to drop local network load post-contingency or system reconfiguration
SD-T-013	22188 DOUBLTTP 69 - 22164 DELMARTP 69 - ckt 1	PQ-TP + PQ-GE	C	N-2	93%	100%	109%	Reconductor or SPS to drop load post-contingency
SD-T-014	22200 DUNHILTTP 69 - 22188 DOUBLTTP 69 - ckt 1	PQ-TP + PQ-GE	C	N-2	93%	100%	109%	Reconductor or SPS to drop load post-contingency
SD-T-015	22208 EL CAJON 69 - 22408 LOSCOCHS 69 - ckt 1	Murray 69kV N Bus	C	Bus	116%	125%	90%	Reconductor or SPS to drop load post-contingency
SD-T-016	22272 ESCO 69 - 22876 WARCYNTP 69 - ckt 1	POM-SX #1+#2	C	N-2	107%	96%	105%	Reconductor or SPS to drop load post-contingency
SD-T-017	22306 GARFIELD 69 - 22208 EL CAJON 69 - ckt 1	Murray 69kV N Bus	C	Bus	122%	132%	143%	Reconductor or SPS to drop load post-contingency
SD-T-018	22420 SILVERGT 69 - 22868 URBAN 69 - ckt 1	SG-CR + SG-B	C	N-2	84%	100%	118%	Re-evaluate in future planning cycles.
SD-T-019	22440 MELROSE 69 - 22442 MELRSETP 69 - ckt 1	TL69YY SANLUSRY to OCEAN RANCH ck 1 and ck 2	C	N-2	N/A	116%	110%	Re-rate and dispatch generation or SPS to drop load post-contingency
SD-T-020	22456 MIGUEL 69 - 22364 JAMACHA 69 - ckt 2	Miguel 69kV S Bus	C	Bus	93%	90%	102%	Re-evaluate in future planning cycles.
SD-T-021	22512 MONSRATE 69 - 22016 AVCADOTP 69 - ckt 1	Lilac 69kV S Bus	C	Bus	95%	102%	< 80%	Re-rate and dispatch existing generation or SPS to drop load post-contingency
SD-T-022	22532 MURRAY 69 - 22306 GARFIELD 69 - ckt 1	Murray 69kV N Bus	C	Bus	101%	109%	118%	Reconductor or SPS to drop load post-contingency

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SD-T-023	22604 OTAY 69 - 22616 OTAYLKTP 69 - ckt 1	ML-SW-SU-PD-BD-SS + ML-BD	C	N-2	< 80%	< 80%	101%	Also seen as a cat-B issue. Re-evaluate in future planning cycles.
SD-T-024	22640 PENDLETN 69 - 22708 SANLUSRY 69 - ckt 1	Lilac 69kV S Bus	C	Bus	103%	108%	< 80%	Re-rate and dispatch existing generation or SPS to drop load post-contingency
SD-T-025	22644 PENSQTOS 69 - 22164 DELMARTP 69 - ckt 1	PQ-TP + PQ-GE	C	N-2	104%	112%	121%	Re-rate the line or SPS to drop local post-contingency
SD-T-026	22644 PENSQTOS 69 - 22856 TOREYPNS 69 - ckt 1	Penasquitos 69kV SW Bus	C	Bus	93%	101%	109%	Reconductor or re-rate or SPS to drop load post-contingency
SD-T-027	22664 POMERADO 69 - 22828 SYCAMORE 69 - ckt 2	Sycamore 69kV S Bus	C	Bus	145%	137%	148%	Install SPS to drop local area load post contingency or expand an existing SPS at Rancho Carmel
SD-T-028	22668 POWAY 69 - 22664 POMERADO 69 - ckt 1	PEN-ES #1 + #2 230 kV	C	N-2	119%	109%	107%	Not an N-2. Operational action plan (e.g. generation dispatch or switching solution or local network load drop after the first contingency)
SD-T-029	22668 POWAY 69 - 22676 R.CARMEL 69 - ckt 1	SX-PEN 230 kV + AR-SX 69 kV B	C	N-2	104%	86%	94%	Install SPS to drop load post-contingency
SD-T-030	22740 SANYSYRO 69 - 22616 OTAYLKTP 69 - ckt 1	Otay 69kV E Bus	C	Bus	< 80%	< 80%	120%	Also seen as a cat-B issue. Reconductor or system reconfiguration. Re-evaluate in future planning cycles
SD-T-031	22768 BAY BLVD 69 - 22604 OTAY 69 - ckt 1	Bay Blvd 69kV SW Bus	C	Bus	99%	107%	< 80%	Install SPS to drop load post-contingency
SD-T-032	22828 SYCAMORE 69 - 22756 SCRIPPS 69 - ckt 1	MR-PQ + PQ-MRM	C	N-2	107%	112%	105%	Re-rate (short-term) and dispatch local generation or Install an SPS to drop load post-contingency

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SD-T-033	22831 SYCAMORE 138 - 22124 CHCARITA 138 - ckt 1	ENCINA 230 kV 1E CB	C	CB	< 80%	< 80%	107%	Re-evaluate in future planning cycles.
SD-T-034	22831 SYCAMORE 138 - 22124 CHCARITA 138 - ckt 1	ENCINA 230 kV 2E CB	C	CB	< 80%	< 80%	107%	Re-evaluate in future planning cycles.
SD-T-035	22840 TALEGA 138 - 22656 PICO 138 - ckt 1	TA-PICO 1 + TA-RMV 1 138 kV	C	N-2	113%	< 80%	< 80%	Pico loop-in (operational solution) or SPS to drop load
SD-T-036	22840 TALEGA 138 - 22841 TA TAP 138 - ckt 1	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	178%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-037	22840 TALEGA 138 - 22842 TA TAP33 138 - ckt 1	TALEGA 138 kV 8T CB	C	CB	114%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-038	22841 TA TAP 138 - 22396 LAGNA NL 138 - ckt 1	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	332%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-039	22856 TOREYPNS 69 - 22200 DUNHILTP 69 - ckt 1	PQ-TP + PQ-GE	C	N-2	99%	107%	116%	Re-rate the line or install SPS to drop load post-contingency
SD-T-040	22884 WARNERS 69 - 22688 RINCON 69 - ckt 1	DE-ST-BC + CRE-ST	C	N-2	105%	116%	125%	Re-rate the line or install SPS to drop load post-contingency
SD-T-041	22842 TA TAP33 138 - 22656 PICO 138 - ckt 1	TALEGA 138 kV 8T CB	C	CB	111%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-042	22256 ESCNDIDO 69 - 22260 ESCNDIDO 230 - ckt 2	ESCNDIDO 230 kV 2N CB	C	CB	128%	128%	107%	Upgrade or SPS to drop load post-contingency

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SD-T-043	22844 TALEGA 230 - 22840 TALEGA 138 - ckt 1	TALEGA 230 kV 4W CB	C	CB	120%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-044	22708 SANLUSRY 69 - 22582 OCEAN RANCH 69 - ckt 1	San Luis Rey 69kV SW Bus	C	Bus	N/A	136%	121%	Reconfiguration or SPS to droplload post-contingency
SD-T-045	22771 BAY BLVD 230 - 22464 MIGUEL 230 - ckt 1	ML-MS 230 kV #1&#2	C	N-2	N/A	N/A	100%	Re-evaluate in future planning cycles.
SD-T-046	22771 BAY BLVD 230 - 22464 MIGUEL 230 - ckt 1	MISSION 230 kV 5T CB	C	CB	N/A	N/A	100%	Re-evaluate in future planning cycles.
SD-T-047	22008 ASH 69 - 22012 ASH TP 69 - ckt 1	TL0679 ESCNDIDO-FELICITA ck 1 _TL0689 ES-FE-BR ck 1	C	N-1-1	<80%	<80%	125%	Re-evaluate in future planning cycles. (drop local network load prior to the second contingency or implement a short-term rating and drop load after the second contingency or install SPS)
SD-T-048	22084 BORREGO 69 - 22540 NARROWS 69 - ckt 1	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	<80%	117%	Diverged	Drop local network load after prior to the second contingency or re-rate the line and drop local network load after the second contingency or install an SPS to drop load post-contingency
SD-T-049	22112 CAPSTRNO 138 - 22656 PICO 138 - ckt 1	TL13830 MARGARTA-TRABUCO ck 1 _TL13835 SANMATEO-LAGNA NL-TA TAP B	C	N-1-1	111%	N/A	N/A	Pico loop-in (operational solution) or SPS to drop load
SD-T-050	22112 CAPSTRNO 138 - 22860 TRABUCO 138 - ckt 1	TL13831 TALEGA-R.MSNVJO ck 1 _TL13833 CAPSTRNO-TRABUCO ck 1	C	N-1-1	146%	<80%	<80%	Pico loop-in (operational solution) or SPS to drop load

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SD-T-051	22152 CREELMAN 69 - 22828 SYCAMORE 69 - ckt 1	TL13821 SYCAMORE-SANTEE ck 1 _TL13824 TELECYN-ML60 TAP-LOSCOCHS ck 1	C	N-1-1	115%	122%	120%	Dispatch local generation and drop local network load prior to the second contingency or implement a short-term rating and drop load after the second contingency or install SPS
SD-T-052	22188 DOUBLTTP 69 - 22164 DELMARTP 69 - ckt 1	TL0662 PENSQTOS -TOREYPNS ck 1 _TL0665 MIRASNT0-GENESEE ck 1	C	N-1-1	<80%	<80%	113%	Re-evaluate in future planning cycles
SD-T-053	22200 DUNHILTP 69 - 22188 DOUBLTTP 69 - ckt 1	TL0662 PENSQTOS -TOREYPNS ck 1 _TL0665 MIRASNT0-GENESEE ck 1	C	N-1-1	<80%	<80%	113%	Re-evaluate in future planning cycles
SD-T-054	22252 ENCNITAS 69 - 22685 R.SNTTP1 69 - ckt 1	TL0617 PB-RN-LJ ck 1 _TL06952 NORTHCTY-PENSQTOS 69 ck 1	C	N-1-1	<80%	91%	102%	Re-evaluate in future planning cycles
SD-T-055	22256 ESCNDIDO 69 - 22260 ESCNDIDO 230 - ckt 1	ES BK 71 69/230 _ES 72 BK 69/230	C	N-1-1	126%	127%	106%	Dispatch local generation
SD-T-056	22256 ESCNDIDO 69 - 22260 ESCNDIDO 230 - ckt 2	ES BK 70 69/230 _ES 72 BK 69/230	C	N-1-1	127%	86%	107%	Dispatch local generation
SD-T-057	22256 ESCNDIDO 69 - 22260 ESCNDIDO 230 - ckt 3	ES BK 70 69/230 _ES BK 71 69/230	C	N-1-1	129%	129%	108%	Dispatch local generation
SD-T-058	22256 ESCNDIDO 69 - 22272 ESCO 69 - ckt 1	TL06913 POWAY-POMERADO ck 1 _TL06918 ESCO-GOALLINE ck 1	C	N-1-1	<80%	95%	105%	Re-evaluate in future planning cycles.
SD-T-059	22256 ESCNDIDO 69 - 22724 SANMRCOS 69 - ckt 1	LD_ME OPEN 680A PEAK ME _LD_ME OPEN 693 PEAK ME/SM	C	N-1-1	<80%	136%	129%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-060	22272 ESCO 69 - 22876 WARCYNTP 69 - ckt 1	TL06915 POMERADO -SYCAMORE ck 1 _TL06924 POMERADO -SYCAMORE ck 2	C	N-1-1	<80%	<80%	105%	Re-evaluate in future planning cycles.
SD-T-061	22306 GARFIELD 69 - 22208 EL CAJON 69 - ckt 1	TL0618 MISSION-MURRAY ck 1 _TL0619 MISSION-MURRAY ck 2	C	N-1-1	122%	132%	143%	Reconfigure the system by switching actions

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SD-T-062	22316 GENESEE 69 - 22644 PENSQTOS 69 - ckt 2	TL0665 MIRASNT0-GENESEE ck 1 _TL069 TOREYPNS to UCM ck 1	C	N-1-1	<80%	<80%	119%	Re-evaluate in future planning cycles
SD-T-063	22336 GRANITE 69 - 22340 GRANITTP 69 - ckt 1	TL0620 MURRAY-GARFIELD ck 1 _TL0631 EL CAJON-LOSCOCHS ck 1	C	N-1-1	97%	103%	86%	Dispatch local generation
SD-T-064	22356 IMPRLVLY 230 - 22360 IMPRLVLY 500 - ckt 2	IV BK 81 230/500 _IV BK 82 230/500	C	N-1-1	114%	104%	109%	Re-dispatch local generation
SD-T-065	22408 LOSCOCHS 69 - 22004 ALPINE 69 - ckt 1	TL06914 LOVELAND-LOSCOCHS ck 1 _TL06917 CREELMAN-SYCAMORE ck 1	C	N-1-1	<80%	90%	102%	Re-evaluate in future planning cycles.
SD-T-066	22408 LOSCOCHS 69 - 22216 ELLIOTT 69 - ckt 1	TL13821 SYCAMORE-SANTEE ck 1 _TL13824 TELECYN-ML60 TAP-LOSCOCHS ck 1	C	N-1-1	108%	119%	109%	Dispatch local generation
SD-T-067	22420 SILVERGT 69 - 22868 URBAN 69 - ckt 1	OT BK 70 69/230 _OT BK 71 69/230	C	N-1-1	100%	108%	120%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-068	22440 MELROSE 69 - 22442 MELRSTP 69 - ckt 1	DIV QF 13.80 _LD_ME OPEN 693 PEAK ME/SM	C	N-1-1	<80%	117%	103%	Dispatch local generation
SD-T-069	22456 MIGUEL 69 - 22340 GRANITTP 69 - ckt 1	TL13821 SYCAMORE-SANTEE ck 1 _TL13824 TELECYN-ML60 TAP-LOSCOCHS ck 1	C	N-1-1	93%	98%	106%	Re-evaluate in future planning cycles.
SD-T-070	22464 MIGUEL 230 - 22461 MIGUEL60 138 - ckt 1	TL23042A BAY BLVD - MIGUEL ck 1 _TL13826 PRCTRVLY-MIGUEL ck 1	C	N-1-1	88%	95%	121%	Re-evaluate in future planning cycles.
SD-T-071	22464 MIGUEL 230 - 22468 MIGUEL 500 - ckt 2	IV BK 82 230/500 _ML BK 80 230/500 ck 1	C	N-1-1	89%	90%	106%	Re-evaluate in future planning cycles.
SD-T-072	22464 MIGUEL 230 - 22472 MIGUELMP 500 - ckt 1	LC BK 50 138/69 _ML BK 81 230/500 ck 2	C	N-1-1	91%	90%	107%	Re-evaluate in future planning cycles.
SD-T-073	22464 MIGUEL 230 - 22504 MISSION 230 - ckt 1	TL23004 SANLUSRY - MISSION ck 2 _TL23042A BAY BLVD - MIGUEL ck 1	C	N-1-1	<80%	<80%	101%	Re-evaluate in future planning cycles.
SD-T-074	22464 MIGUEL 230 - 22504 MISSION 230 - ckt 2	TL23003 SANLUSRY - ENCINA ck 1 _TL23042A BAY BLVD - MIGUEL ck 1	C	N-1-1	<80%	<80%	101%	Re-evaluate in future planning cycles.

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SD-T-075	22476 MIGUELTP 69 - 22456 MIGUEL 69 - ckt 1	TL23042A BAY BLVD - MIGUEL ck 1 _TL0621 PARADISE-MIGUEL ck 1	C	N-1-1	<80%	80%	104%	Re-evaluate in future planning cycles.
SD-T-076	22480 MIRAMAR 69 - 22296 FENTONTP 69 - ckt 1	TL06914 LOVELAND-LOSCOCHS ck 1 _LD_MRM OPEN 675 PEAK MRM/MR/SS	C	N-1-1	<80%	<80%	110%	Re-evaluate in future planning cycles.
SD-T-077	22480 MIRAMAR 69 - 22644 PENSQTOS 69 - ckt 1	TL0675 PENSQTOS-MESA RIM ck 1 _TL06916 SYCAMORE-SCRIPPS ck 1	C	N-1-1	113%	<80%	<80%	Dispatch local generation
SD-T-078	22500 MISSION 138 - 22496 MISSION 69 - ckt 1	MS BK 51 138/69 _MS BK 52 138/69	C	N-1-1	95%	106%	107%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-079	22500 MISSION 138 - 22496 MISSION 69 - ckt 2	MS BK 50 138/69 _MS BK 52 138/69	C	N-1-1	123%	138%	140%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-080	22500 MISSION 138 - 22496 MISSION 69 - ckt 3	ML BK 81 230/500 ck 2 _MS BK 51 138/69	C	N-1-1	<80%	116%	83%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-081	22512 MONSRATE 69 - 22016 AVCADOTP 69 - ckt 1	LD_ME OPEN 680A PEAK ME _LD_ME OPEN 693 PEAK ME/SM	C	N-1-1	<80%	147%	87%	Dispatch local generation
SD-T-082	22512 MONSRATE 69 - 22524 MORHILTP 69 - ckt 1	TL06908 ESCNDIDO-ESCO ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	134%	<80%	<80%	Dispatch local generation
SD-T-083	22524 MORHILTP 69 - 22440 MELROSE 69 - ckt 1	TL06908 ESCNDIDO-ESCO ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	145%	<80%	<80%	Dispatch local generation
SD-T-084	22532 MURRAY 69 - 22306 GARFIELD 69 - ckt 1	TL0618 MISSION-MURRAY ck 1 _TL0619 MISSION-MURRAY ck 2	C	N-1-1	101%	109%	118%	Reconfigure the system



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SD-T-085	22540 NARROWS 69 - 22884 WARNERS 69 - ckt 1	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	<80%	106%	Diverged	Drop local network load prior to the second contingency or re-rate the line and drop local network load after the second contingency or install an SPS to drop load post-contingency
SD-T-086	22604 OTAY 69 - 22608 OTAY TP 69 ckt 1	TL0647 BAY BLVD - IMPRLBCH ck 1 _TL0649 BD-OY-SYO ck 1	C	N-1-1	94%	102%	111%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-087	22604 OTAY 69 - 22616 OTAYLKTP 69 - ckt 1	TL0643 MIGUEL - JAMACHA ck 2 _TL06910 SALT CREEK - BORDER ck 1	C	N-1-1	<80%	<80%	102%	Re-evaluate in future planning cycles.
SD-T-088	22636 PARADISE 69 - 22812 SUNYSDTP 69 - ckt 1	TL0621 PARADISE-MIGUEL ck 1 _TL06911 JAMACHA-SPRNGVLY ck 1	C	N-1-1	<80%	<80%	114%	Re-evaluate in future planning cycles.
SD-T-089	22640 PENDLETN 69 - 22016 AVCADOTP 69 - ckt 1	TL0680 SA-ME-SM ck 1 _LD_ME OPEN 680A PEAK ME	C	N-1-1	<80%	121%	<80%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-090	22644 PENSQTOS 69 - 22164 DELMARTP 69 - ckt 1	TL0662 PENSQTOS - TOREYPNS ck 1 _TL0665 MIRASNTO-GENESEEE ck 1	C	N-1-1	<80%	<80%	124%	Re-evaluate in future planning cycles.
SD-T-091	22644 PENSQTOS 69 - 22648 PENSQTOS 138 - ckt 2	PQ BK 70 230/69 _PQ BK 71 230/69	C	N-1-1	92%	101%	91%	Dispatch local generation
SD-T-092	22644 PENSQTOS 69 - 22856 TOREYPNS 69 - ckt 1	TL23012 PENSQTOS - ENCINA ck 1 _TL0666 PQ-DM-DB-DH-TP ck 1	C	N-1-1	88%	94%	103%	Re-evaluate in future planning cycles.
SD-T-093	22648 PENSQTOS 138 - 22644 PENSQTOS 69 - ckt 1	PQ BK 70 230/69 _PQ BK 71 230/69	C	N-1-1	91%	100%	96%	Dispatch local generation
SD-T-094	22652 PENSQTOS 230 - 22644 PENSQTOS 69 - ckt 2	PQ60 PENSQTOS-PENSQTOS ck 1 _PQ BK 70 230/69	C	N-1-1	98%	100%	98%	Dispatch local generation

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SD-T-095	22668 POWAY 69 - 22664 POMERADO 69 - ckt 1	TL23014 PEN-ESCNDIDO ck 1 _TL23015 PEN-ESCNDIDO ck 2	C	N-1-1	119%	109%	107%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-096	22668 POWAY 69 - 22676 R.CARMEL 69 - ckt 1	TL06939 BERNARDO-ARTESN ck 1 _TL06961 SYCAMORE-BERNARDO 69 ck 1	C	N-1-1	N/A	106%	114%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-097	22680 R.SNTAFE 69 - 22685 R.SNTTP1 69 - ckt 1	TL0660 ENCINITAS-DEL MAR ck 1 _TL06952 NORTHCTY-PENSQTOS 69 ck 1	C	N-1-1	101%	<80%	<80%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-098	22716 SANLUSRY 230 - 22708 SANLUSRY 69 - ckt 1	SA BK 71 69/230 _SA BK 72 69/230	C	N-1-1	97%	100%	102%	Re-evaluate in future planning cycles.
SD-T-099	22740 SANYSYRO 69 - 22608 OTAY TP 69 - ckt 1	TL0612 OLD TOWN-POINTLMA ck 2 _TL0649 BD-OY-SYO ck 1	C	N-1-1	85%	92%	101%	Re-evaluate in future planning cycles.
SD-T-100	22740 SANYSYRO 69 - 22616 OTAYLKTP 69 - ckt 1	TL0600 CM-KY-RN ck 1 _TL06910 SALT CREEK - BORDER ck 1	C	N-1-1	<80%	<80%	113%	Re-evaluate in future planning cycles.
SD-T-101	22768 BAY BLVD 69 - 22352 IMPRLBCH 69 - ckt 1	TL0645 BAY BLVD-OTAY ck 1 _TL0646 BAY BLVD - OTAY ck 2	C	N-1-1	127%	136%	<80%	Dispatch local generation
SD-T-102	22768 BAY BLVD 69 - 22604 OTAY 69 - ckt 1	TL0646 BAY BLVD - OTAY ck 2 _TL0647 BAY BLVD - IMPRLBCH ck 1	C	N-1-1	98%	106%	<80%	Dispatch local generation
SD-T-103	22768 BAY BLVD 69 - 22604 OTAY 69 - ckt 2	TL0645 BAY BLVD-OTAY ck 1 _TL0647 BAY BLVD - IMPRLBCH ck 1	C	N-1-1	99%	108%	<80%	Dispatch local generation
SD-T-104	22771 BAY BLVD 230 - 22464 MIGUEL 230 - ckt 1	TL23004 SANLUSRY - MISSION ck 2 _TL23022 MIGUEL - MISSION ck 1	C	N-1-1	N/A	N/A	100%	Re-evaluate in future planning cycles.

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



**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014	2017	2022	
SD-T-105	22820 SWEETWTR 69 - 22824 SWTWTRTP 69 - ckt 1	TL23022 MIGUEL - MISSION ck 1 _TL23026 SILVERGT - BAY BLVD ck 1	C	N-1-1	91%	103%	118%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-106	22832 SYCAMORE 230 - 22828 SYCAMORE 69 - ckt 1	SX BK 71 230/69                      _SX BK 72 230/69	C	N-1-1	110%	123%	132%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-107	22832 SYCAMORE 230 - 22828 SYCAMORE 69 - ckt 2	SX BK 70 230/69                      _SX BK 71 230/69	C	N-1-1	115%	129%	138%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-108	22832 SYCAMORE 230 - 22828 SYCAMORE 69 - ckt 3	LC BK 51 69/138                      _SX BK 70 230/69	C	N-1-1	85%	95%	102%	Re-evaluate in future planning cycles.
SD-T-109	22840 TALEGA 138 - 22656 PICO 138 - ckt 1	TL13834 CAPSTRNO-TRABUCO ck 1 _TL13846 TALEGA-TA TAP33-PICO-SMO	C	N-1-1	113%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-110	22840 TALEGA 138 - 22842 TA TAP33 138 - ckt 1	TL13828 SYCAMORE-CARLTNHS ck 1 _TL13836 TALEGA-PICO ck 1	C	N-1-1	114%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-111	22842 TA TAP33 138 - 22656 PICO 138 - ckt 1	TL13828 SYCAMORE-CARLTNHS ck 1 _TL13836 TALEGA-PICO ck 1	C	N-1-1	111%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-112	22844 TALEGA 230 - 22840 TALEGA 138 - ckt 1	TA BK 62 230/138                      _TA BK 63 230/138	C	N-1-1	120%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim

2012/2013 ISO Reliability Assessment - Preliminary Study Results

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



**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014	2017	2022	
SD-T-113	22844 TALEGA 230 - 22840 TALEGA 138 - ckt 3	TA BK 62 230/138 _TA BK 63 230/138	C	N-1-1	118%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim
SD-T-114	22856 TOREYPNS 69 - 22200 DUNHILTP 69 - ckt 1	TL0662 PENSQTOS -TOREYPNS ck 1 _TL0665 MIRASNT0-GENESEE ck 1	C	N-1-1	<80%	<80%	120%	Re-evaluate in future planning cycles.
SD-T-115	22856 TOREYPNS 69 - 22200 DUNHILTP 69 - ckt 1	TL06905 GENESEE -PENSQTOS ck 2 _TL06959 MIRASNT0-PENSQTOS ck 1	C	N-1-1	<80%	102%	<80%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-116	22856 TOREYPNS 69 - 22864 UCM 69 - ckt 1	TL06905 GENESEE -PENSQTOS ck 2 _TL06959 MIRASNT0-PENSQTOS ck 1	C	N-1-1	<80%	109%	<80%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-117	22884 WARNERS 69 - 22736 SANTYSBL 69 - ckt 1	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	213%	273%	Diverged	Drop local network load prior to the second contingency or re-rate the line and drop local network load after the second contingency or install an SPS to drop load post-contingency
SD-T-118	22884 WARNERS 69 - 22736 SANTYSBL 69 - ckt 1	TL0682 WARNERS-RINCON ck 1 _TL06926 RINCON -VALCNTR ck 1	C	N-1-1	<80%	<80%	153%	Generation dispatch or switching solution or local network load drop prior to the second contingency
SD-T-119	-	23052/07/30 OC area	D	-	Diverged	Diverged	Diverged	Further evaluation
SD-T-120	-	Los Coches 69kV E+W Bus	D	-	Diverged	Diverged	Diverged	Further evaluation
SD-T-121	-	San Luis Rey 69kV N+S Bus	D	-	Diverged	Diverged	Diverged	Further evaluation
SD-T-122	-	Penasquitos 69kV NE+NW+SE+SW Bus	D	-	Diverged	Diverged	Diverged	Further evaluation

**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	2022 Summer Light Load	
SD-T-123	22841 TA TAP 138 - 22396 LAGNA NL 138 - ckt 1	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	107%	N/A	N/A	Previously approved M-SOCRUP will mitigate this issue. Install SPS or operational solution in the interim

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014	2017	2022	
SD-dV-01	AVCADOTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1	B	N-1	-5.41%	-5.70%	-3.61%	Upgrade the 69kV system from Pendleton to Rincon-Warners area and/or change tap settings at Escondido, Talega, San Luis Rey. Distribution caps in automatic mode can also mitigate the deviations.
SD-dV-02	AVOCADO 69 kV	TL06912 PENDLETN-SANLUSRY ck 1	B	N-1	-5.24%	-5.53%	-3.43%	Upgrade the 69kV system from Pendleton to Rincon-Warners area and/or change tap settings at Escondido, Talega, San Luis Rey. Distribution caps in automatic mode can also mitigate the deviations.
SD-dV-03	KETTNER 69 kV	TL0609 KETTNER-B ck 1	B	N-1	-3.12%	-4.98%	-5.12%	Re-evaluate in future planning cycles
SD-dV-04	MNSRATTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1	B	N-1	-5.03%	-5.31%	-3.22%	Upgrade the 69kV system from Pendleton to Rincon-Warners area and/or change tap settings at Escondido, Talega, San Luis Rey. Distribution caps in automatic mode can also mitigate the deviations.
SD-dV-05	MONSRATE 69 kV	TL06912 PENDLETN-SANLUSRY ck 1	B	N-1	-5.03%	-5.32%	-3.22%	Upgrade the 69kV system from Pendleton to Rincon-Warners area and/or change tap settings at Escondido, Talega, San Luis Rey. Distribution caps in automatic mode can also mitigate the deviations.
SD-dV-06	NORTHCTY 69 kV	TL06952 NORTHCTY-PENSQTOS 69 ck 1	B	N-1	-3.86%	-6.01%	-5.09%	Additional dynamic reactive support or adjust taps on Penasquitos banks. Adjust set points of reactive power sources.
SD-dV-07	PENDLETN 69 kV	TL06912 PENDLETN-SANLUSRY ck 1	B	N-1	-7.38%	-7.67%	-5.58%	Upgrade the 69kV system from Pendleton to Rincon-Warners area and/or change tap settings at Escondido, Talega, San Luis Rey. Distribution caps in automatic mode can also mitigate the deviations.
SD-dV-08	POWAY 69 kV	TL06913 POWAY-POMERADO ck 1	B	N-1	-4.89%	-4.79%	-6.01%	Re-evaluate in future planning cycles
SD-dV-09	WARCYNTP 69 kV	TL06913 POWAY-POMERADO ck 1	B	N-1	-4.18%	-4.05%	-5.06%	Re-evaluate in future planning cycles
SD-dV-10	WARENCYN 69 kV	TL06913 POWAY-POMERADO ck 1	B	N-1	-4.19%	-4.05%	-5.06%	Re-evaluate in future planning cycles

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014	2017	2022	
SD-dV-11	LILAC 69 kV	Lilac 69kV S Bus	C	Bus	-10.80%	-7.90%	-2.20%	Dynamic reactive support or SPS to drop load post-contingency
SD-dV-12	MARGARTA 138 kV	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	-10.10%	-0.50%	-0.60%	Dynamic reactive support or SPS to drop load post-contingency
SD-dV-13	PICO 138 kV	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	-10.20%	-0.10%	-0.10%	Dynamic reactive support or SPS to drop load post-contingency
SD-dV-14	POMERADO 69 kV	POM-SX #1+#2	C	N-2	-10.00%	-10.60%	-12.30%	Dynamic reactive support or SPS to drop load post-contingency
SD-dV-15	R.MSNVJO 138 kV	13831/36 N-2 TRIP 13812 SPS8.4C	C	N-2	-10.20%	-0.70%	-0.80%	Dynamic reactive support or SPS to drop load post-contingency
SD-dV-16	AVCADOTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-14.70%	-1.20%	-4.00%	Dispatch local generation after the first contingency
SD-dV-17	AVOCADO 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-14.60%	-1.20%	-3.80%	Dispatch local generation after the first contingency
SD-dV-18	BLDCRKTP 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-4.40%	-11.10%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency
SD-dV-19	BOLDRCRK 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-4.40%	-11.10%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency
SD-dV-20	MNSRATTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-14.30%	-1.30%	-3.60%	Dispatch local generation after the first contingency
SD-dV-21	MONSRATE 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-14.30%	-1.20%	-3.60%	Dispatch local generation after the first contingency
SD-dV-22	NARROWS 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-4.90%	-10.50%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency
SD-dV-23	PALA 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-15.40%	-2.10%	-1.80%	Dispatch local generation after the first contingency
SD-dV-24	PA99MW 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-15.40%	-2.10%	-1.70%	Dispatch local generation after the first contingency
SD-dV-25	PENDLETN 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	-16.80%	-0.90%	-6.00%	Dispatch local generation after the first contingency

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014	2017	2022	
SD-dV-26	POMERADO 69 kV	TL06915 POMERADO -SYCAMORE ck 1 _TL06924 POMERADO -SYCAMORE ck 2	C	N-1-1	-0.80%	-0.70%	-12.30%	Operational action plan (Dispatch local generation after the first contingency) or rely on the existing SPS which drops load at Rancho Carmel.
SD-dV-27	RINCON 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-11.50%	-32.70%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency
SD-dV-28	SANTYSBL 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-5.70%	-14.10%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency
SD-dV-29	VALCNTR 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-11.50%	-33.20%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency
SD-dV-30	WARNERS 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	-5.10%	-16.70%	Diverged	Local network load reduction prior to the second contingency or SPS to drop load after the second contingency



**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	2022 Summer Light Load	
SD-dV-31	BARRETT 69 kV	TL06957 LL-BAR ck 1	B	N-1	3.10%	1.50%	-5.20%	Re-evaluate in future planning cycles
SD-dV-32	MESA RIM 69 kV	LD_MRM OPEN 675 PEAK MRM/MR/SS	B	N-1	-6.30%	-5.20%	-6.00%	Adjust taps settings or add dynamic reactive support

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014	2017	2022	
SD-V-01	ALPINE 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.02	Voltage schedules to be adjusted appropriately and/or use of voltage control devices to maintain voltages within desired operating range.
SD-V-02	BARRETT 69 kV	Base system (n-0)	A	N-0	1.07	1.03	1.03	
SD-V-03	BLDCRKTP 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.02	
SD-V-04	BOLDRCRK 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.02	
SD-V-05	CAMERNTP 69 kV	Base system (n-0)	A	N-0	1.09	1.03	1.02	
SD-V-06	BOULEVRD 69 kV	Base system (n-0)	A	N-0	1.07	1.06	1.07	
SD-V-07	CAMERON 69 kV	Base system (n-0)	A	N-0	1.08	1.03	1.02	
SD-V-08	DESCANSO 69 kV	Base system (n-0)	A	N-0	1.07	1.03	1.02	
SD-V-09	GLENCLIF 69 kV	Base system (n-0)	A	N-0	1.08	1.03	1.02	
SD-V-10	GLNCLFTP 69 kV	Base system (n-0)	A	N-0	1.08	1.03	1.02	
SD-V-11	LOSCOCHS 69 kV	Base system (n-0)	A	N-0	1.05	1.04	1.03	
SD-V-12	LOVELAND 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.02	
SD-V-13	CRESTWD 69 kV	Base system (n-0)	A	N-0	1.11	1.03	1.03	
SD-V-14	KUMEYAA 69 kV	Base system (n-0)	A	N-0	1.11	1.03	1.03	
SD-V-15	LILAC 69 kV	Lilac 69kV S Bus	C	Bus	0.89	0.92	0.98	
SD-V-16	AVCADOTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.85	0.98	0.95	Dispatch local generation after the first contingency
SD-V-17	AVOCADO 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.84	0.97	0.94	Dispatch local generation after the first contingency
SD-V-18	MNSRATTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.85	0.98	0.95	Dispatch local generation after the first contingency
SD-V-19	MNSRATTP 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.85	0.98	0.95	Dispatch local generation after the first contingency
SD-V-20	MONSRATE 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.85	0.98	0.95	Dispatch local generation after the first contingency
SD-V-21	PALA 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.84	0.97	0.97	Dispatch local generation after the first contingency
SD-V-22	PA99MW 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.84	0.97	0.97	Dispatch local generation after the first contingency
SD-V-23	PENDLETN 69 kV	TL06912 PENDLETN-SANLUSRY ck 1 _TL06932 LILAC -PALA ck 1	C	N-1-1	0.83	0.99	0.94	Dispatch local generation after the first contingency

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014	2017	2022	
SD-V-24	RINCON 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	0.90	0.68	Diverged	Load reduction in the local area network prior to the second contingency or SPS to drop load after the second contingency
SD-V-25	SANTYSBL 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	0.99	0.88	Diverged	Load reduction in the local area network prior to the second contingency or SPS to drop load after the second contingency
SD-V-26	VALCNTR 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	0.89	0.67	Diverged	Load reduction in the local area network prior to the second contingency or SPS to drop load after the second contingency
SD-V-27	WARNERS 69 kV	TL0681 ASH-FE-VC ck 1 _TL0683 RINCON-LILAC ck 1	C	N-1-1	0.99	0.86	Diverged	Load reduction in the local area network prior to the second contingency or SPS to drop load after the second contingency

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



**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	2022 Summer Light Load	
SD-V-28	ALPINE 69 kV	Base system (n-0)	A	N-0	1.11	1.05	1.08	Voltage schedules to be adjusted appropriately and/or use of voltage control devices to maintain voltages within desired operating range.
SD-V-29	BOLDRCRK 69 kV	Base system (n-0)	A	N-0	1.09	1.04	1.07	Same as above
SD-V-30	LRKSP_BD 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-31	BORDER 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-32	BORREGO 69 kV	Base system (n-0)	A	N-0	1.11	1.02	1.09	Same as above
SD-V-33	CAMERON 69 kV	Base system (n-0)	A	N-0	1.12	1.06	1.06	Same as above
SD-V-34	CHOLLAS 69 kV	Base system (n-0)	A	N-0	1.05	1.02	1.05	Same as above
SD-V-35	CLAIRMNT 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.07	Same as above
SD-V-36	EC GEN1 69 kV	Base system (n-0)	A	N-0	1.09	1.04	1.08	Same as above
SD-V-37	CREELMAN 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.07	Same as above
SD-V-38	DEL MAR 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-39	DESCANSO 69 kV	Base system (n-0)	A	N-0	1.11	1.05	1.08	Same as above
SD-V-40	DOUBLET 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-41	DUNHILL 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-42	EASTGATE 69 kV	Base system (n-0)	A	N-0	1.07	1.04	1.07	Same as above
SD-V-43	EL CAJON 69 kV	Base system (n-0)	A	N-0	1.09	1.04	1.08	Same as above
SD-V-44	ELLIOTT 69 kV	Base system (n-0)	A	N-0	1.06	1.05	1.07	Same as above
SD-V-45	ENCINITAS 69 kV	Base system (n-0)	A	N-0	1.07	1.04	1.07	Same as above
SD-V-46	F 69 kV	Base system (n-0)	A	N-0	1.06	1.05	1.08	Same as above
SD-V-47	FENTON 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.07	Same as above
SD-V-48	GARFIELD 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-49	GENESEE 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.07	Same as above
SD-V-50	GLENCLIF 69 kV	Base system (n-0)	A	N-0	1.12	1.06	1.06	Same as above
SD-V-51	GRANITE 69 kV	Base system (n-0)	A	N-0	1.09	1.04	1.09	Same as above
SD-V-52	IMPRLBCH 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.05	Same as above
SD-V-53	IMPRLVLY 500 kV	Base system (n-0)	A	N-0	1.04	1.05	1.04	Same as above
SD-V-54	JAMACHA 69 kV	Base system (n-0)	A	N-0	1.07	1.03	1.07	Same as above
SD-V-55	KEARNY 69 kV	Base system (n-0)	A	N-0	1.06	1.05	1.07	Same as above

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



**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	2022 Summer Light Load	
SD-V-56	KYOCERA 69 kV	Base system (n-0)	A	N-0	1.06	1.05	1.07	Same as above
SD-V-57	LA JOLLA 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-58	LOSCOCHS 69 kV	Base system (n-0)	A	N-0	1.11	1.06	1.09	Same as above
SD-V-59	LOVELAND 69 kV	Base system (n-0)	A	N-0	1.11	1.05	1.08	Same as above
SD-V-60	MESA RIM 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.07	Same as above
SD-V-61	MESAHGTS 69 kV	Base system (n-0)	A	N-0	1.06	1.05	1.07	Same as above
SD-V-62	MIGUEL 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.05	Same as above
SD-V-63	MIRAMAR 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.07	Same as above
SD-V-64	MIRAMAR1 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.07	Same as above
SD-V-65	MISSION 69 kV	Base system (n-0)	A	N-0	1.07	1.05	1.08	Same as above
SD-V-66	MONTGMRY 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.05	Same as above
SD-V-67	MURRAY 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-68	N.GILA 500 kV	Base system (n-0)	A	N-0	1.05	1.07	1.06	Same as above
SD-V-69	NARROWS 69 kV	Base system (n-0)	A	N-0	1.10	1.03	1.09	Same as above
SD-V-70	NORTHCTY 69 kV	Base system (n-0)	A	N-0	1.07	1.04	1.07	Same as above
SD-V-71	Lkhodges 69 kV	Base system (n-0)	A	N-0	1.05	1.02	1.05	Same as above
SD-V-72	OTAY 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.05	Same as above
SD-V-73	OTAYLAKE 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-74	OY GEN 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.05	Same as above
SD-V-75	PARADISE 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.05	Same as above
SD-V-76	PENSQTOS 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-77	R.SNTAFE 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-78	RINCON 69 kV	Base system (n-0)	A	N-0	1.05	1.01	1.05	Same as above
SD-V-79	ROSE CYN 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.07	Same as above
SD-V-80	SANTYSBL 69 kV	Base system (n-0)	A	N-0	1.08	1.03	1.07	Same as above
SD-V-81	SANYSDRO 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.05	Same as above
SD-V-82	SCRIPPS 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.06	Same as above
SD-V-83	BAY BLVD 69 kV	Base system (n-0)	A	N-0	1.06	1.04	1.05	Same as above
SD-V-84	SPRNGVLY 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-85	SUNYSIDE 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.05	Same as above
SD-V-86	SWEETWTR 69 kV	Base system (n-0)	A	N-0	1.05	1.03	1.05	Same as above

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



**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	2022 Summer Light Load	
SD-V-87	TOREYPNS 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-88	UCM 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.07	Same as above
SD-V-89	WARNERS 69 kV	Base system (n-0)	A	N-0	1.08	1.03	1.07	Same as above
SD-V-90	CRESTWD 69 kV	Base system (n-0)	A	N-0	1.13	1.08	1.05	Same as above
SD-V-91	KUMEYAAY 69 kV	Base system (n-0)	A	N-0	1.13	1.08	1.05	Same as above
SD-V-92	CALPK_BD 69 kV	Base system (n-0)	A	N-0	1.06	1.03	1.06	Same as above
SD-V-93	EC GEN2 69 kV	Base system (n-0)	A	N-0	1.09	1.04	1.08	Same as above
SD-V-94	MIRASNT0 69 kV	Base system (n-0)	A	N-0	1.08	1.04	1.08	Same as above
SD-V-95	SALT CREEK 69 kV	Base system (n-0)	A	N-0	N/A	1.03	1.05	Same as above

**Post-Transient Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014	2017	2022	
PSTR-local-SD-T-01	MIGUEL 230.0 - BAY BLVD 230.0 #1	Miguel - Mission 230kV line #1 and #2	C	N-2	<100%	<100%	100.20%	Generation curtailment or Re-rate the line or Reconductor. Re-evaluate in future planning cycles.
PSTR-local-SD-T-02	ESCNDIDO 230.0 - TA230 TA 230.0 #1	SONGS - Capistrano and SONGS - Talega 230kV lines	C	N-2	N/A	<100%	107.00%	Re-rate the line or SPS to shed local network load post-contingency. Re-evaluate in future planning cycles.
PSTR-bulk-SD-T-01	MIGUEL 230 - BAY BLVD 230 #1	Base case	A	N-0	<100%	<100%	104%	Generation curtailment or Re-rate the line or Reconductor. Re-evaluate in future planning cycles.
PSTR-bulk-SD-T-02	MIGUEL 230.0 BAY BLVD 230.0 #1	Miguel - Mission 230kV line #1 and #2	C	N-2	<100%	<100%	109.00%	Generation curtailment or Re-rate the line or Reconductor. Re-evaluate in future planning cycles.
PSTR-bulk-SD-T-03	ESCNDIDO 230.0 TA230 TA 230.0 #1	SONGS - Capistrano and SONGS - Talega 230kV lines	C	N-2	N/A	<100%	104%	Re-rate the line or SPS to shed local network load post-contingency. Re-evaluate in future planning cycles.

**Post-Transient Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					Select..	Select..	Select..	

No post-transient thermal overloads identified.



**Post-Transient Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	2022 Summer Light Load	
PSTR-local-SD-dV-01	Miguel 500kV	Miguel - ECO 500KV line	B	N-1	5.80%	6.40%	<5%	Operate local SVDs in automatic mode and/or add dynamic reactive support
PSTR-local-SD-dV-02	Eastern 69kV system	Miguel - ECO 500KV line	B	N-1	<5%	5.1% to 6.1%	<5%	Operate SVDs and distribution capacitors in automatic mode under peak load conditions to mitigate the deviations and/or add dynamic reactive support
PSTR-bulk-SD-dV-01	Miguel 500kV	Miguel - ECO 500KV line	B	N-1	5.80%	<5%	<5%	Operate local SVDs in automatic mode and/or add dynamic reactive support
PSTR-bulk-SD-dV-02	Eastern and central 69kV system	Miguel - ECO 500KV line	B	N-1	<5%	5.1% to 6.1%	<5%	Operate SVDs and distribution capacitors in automatic mode under peak load conditions to mitigate the deviations and/or add dynamic reactive support
PSTR-bulk-SD-dV-03	Eastern and central 69kV system	Miguel-ECO 500kV with CFE cross-trip	B	N-1	N/A	N/A	6% to 9%	Operate SVDs and distribution capacitors in automatic mode under peak load conditions to mitigate the deviations and/or add dynamic reactive support

**Post-Transient Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					Select..	Select..	Select..	

No post-transient voltage deviations identified.

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**Single Contingency Load Drop**

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2014	2017	2022	

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**

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		2014	2017	2022	

No single source substation with more than 100 MW Load