

## **APPENDIX C: Reliability Assessment Study Results**



**Intentionally left blank**



Monitored Facility	Contingency Description	Category	Category Description	2026HS	2029HS	2034HS	2039HS	2026POP	2029POP	2034POP	2039POP	2034VOP	2026HS- HI Renew MinGas	2026 SOP HI Renew & MinGas	2029HS- NCCIC	Project & Potential Mitigation	
30360 MIDWAY 500 24595 NW_WRLWIND_31 500 3 1	Base Case	P0	base	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	<100	<100	System redispatch	
30435 LAKEVILLE 230 30460 VACA-DIX 230 1 1	Base Case	P0	base	<100	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	System redispatch	
30440 TULLUCAY 230 30460 VACA-DIX 230 55 1	Base Case	P0	base	<100	<100	<100	109	<100	<100	<100	<100	<100	<100	<100	<100	System redispatch	
38605 BUENAVIZ 230 30969 MIDWAY-DBAAH 230 2 1	Base Case	P0	base	<100	<100	<100	<100	<100	<100	<100	<100	<100	60	108	<100	Sensitivity Only	
300151 TM_VD_11 500 300152 TM_VD_12 500 1 1	Base Case	P0	base	<100	<100	<100	78	<100	<100	<100	<100	<100	100	74	<100	Sensitivity Only	
300051 RM_FR_11 500 300060 FERNROADSS 500 1 1	P1-2:A0:5_-ROUND MTN-FERNROADSS 500KV 2[0]	P1	L-1	<100	<100	<100	104	<100	<100	<100	76	<100	109	78	<100	Previously recommended N-1 RAS	
300053 FR_TM_22 500 300060 FERNROADSS 500 2 1	P1-2:A0:4_-ROUND MTN-FERNROADSS 500KV 1[0]	P1	L-1	<100	<100	<100	<100	<100	<100	<100	76	<100	109	78	<100	Sensitivity Only	
300053 RM_FR_22 500 300060 FERNROADSS 500 2 1	P1-2:A0:4_-ROUND MTN-FERNROADSS 500KV 1[0]	P1	L-1	<100	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	Previously recommended N-1 RAS	
30050 LOSBANOS 500 300505 LB_MN_11 500 1 1	P1-2:A0:18_-LOSBANOS-MANNING 500KV 2[0]	P1	L-1	<100	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	<100	System redispatch	
30052 MANNING 500 300501 MM_GT_11 500 1 1	P1-2:A0:29_-MIDWAY-MANNING 500KV [0]	P1	L-1	<100	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	<100	System redispatch	
30731 LS ESTRS 230 38901 SSS 230 1 1	P1-5:A0:6_-NEWARK-NRS POLE 2	P1	L-1	<100	<100	<100	118	<100	<100	<100	100	<100	<100	<100	<100	Mitigation in GBA local area assessment.	
300151 TM_VD_11 500 300152 TM_VD_12 500 1 1	P1-2:A0:7_-TABLE MTN-TESLA 500KV [6080]	P1	L-1	<100	<100	<100	74	<100	<100	<100	<100	<100	104	79	<100	Sensitivity Only	
300153 TM_TS_11 500 300154 TM_TS_12 500 1 1	P1-2:A0:6_-TABLE MTN-VACA 500KV [6090]	P1	L-1	<100	<100	<100	69	<100	<100	<100	<100	<100	104	81	<100	Sensitivity Only	
300551 GT_MW_11 500 30060 MIDWAY 500 1 1	P1-2:A0:29_-MIDWAY-MANNING 500KV [0]	P1	L-1	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	<100	<100	System redispatch	
300051 RM_FR_11 500 300060 FERNROADSS 500 1 1	P2-1:A0:20_-ROUND MTN-FERN RD #2 500KV [9502] (RM_FR_22-FERNROADSS)	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	<100	<100	109	<100	<100	Sensitivity Only	
300051 RM_FR_11 500 300060 FERNROADSS 500 1 1	P2-1:A0:5_-ROUND MTN-FERN RD #2 500KV [9502] (ROUND MT-RM_FR_22)	P2	bus-bkr	<100	<100	<100	104	<100	<100	<100	<100	<100	<100	78	<100	Previously recommended N-1 RAS	
300053 FR_TM_22 500 300060 FERNROADSS 500 2 1	P2-1:A0:18_-ROUND MTN-FERN RD #1 500KV [9501] (RM_FR_11-FERNROADSS)	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	76	<100	109	<100	<100	Sensitivity Only	
300053 RM_FR_22 500 300060 FERNROADSS 500 2 1	P2-1:A0:4_-ROUND MTN-FERN RD #1 500KV [9501] (ROUND MT-RM_FR_11)	P2	bus-bkr	<100	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	Previously recommended N-1 RAS	
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P2-3:A0:17_-TESLA 500KV - Middle Breaker Bay 3	P2	bus-bkr	<100	<100	<100	93	<100	<100	<100	<100	<100	108	56	<100	Sensitivity Only	
30050 LOSBANOS 500 300505 LB_MN_11 500 1 1	P2-3:A0:28_-LOSBANOS 500KV - Middle Breaker Bay 2	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	104	<100	<100	<100	<100	System redispatch	
30050 LOSBANOS 500 300506 LB_MN_21 500 2 1	P2-1:A0:11_-LOS BANOS-MANNING #1 500KV [9506] (LOSBANOS-LB_MN_11)	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	<100	System redispatch	
30052 MANNING 500 300501 MM_GT_11 500 1 1	P2-3:A0:54_-MANNING 500KV - Middle Breaker Bay 3	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	<100	<100	System redispatch	
30052 MANNING 500 300502 MM_MW_21 500 2 1	P2-3:A0:33_-GATES 500KV - Middle Breaker Bay 4	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	102	<100	<100	<100	<100	System redispatch	
30640 TESLA C 230 30655 PPSASICT 230 2 1	P2-3:A0:17_-TESLA 500KV - Middle Breaker Bay 3	P2	bus-bkr	<100	<100	<100	103	<100	<100	<100	<100	<100	59	<100	<100	System redispatch	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P2-3:A0:17_-TESLA 500KV - Middle Breaker Bay 3	P2	bus-bkr	<100	<100	<100	92	<100	<100	<100	<100	<100	<100	107	55	<100	Sensitivity Only
300151 TM_VD_11 500 300152 TM_VD_12 500 1 1	P2-3:A0:16_-TESLA 500KV - Middle Breaker Bay 1	P2	bus-bkr	<100	<100	<100	78	<100	<100	<100	<100	<100	111	82	<100	Sensitivity Only	
300153 TM_TS_11 500 300154 TM_TS_12 500 1 1	P2-3:A0:8_-VACA-DIX 500KV - Middle Breaker Bay 3	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	82	<100	Sensitivity Only	
300504 MM_MW_23 500 30060 MIDWAY 500 2 1	P2-3:A0:33_-GATES 500KV - Middle Breaker Bay 4	P2	bus-bkr	<100	<100	<100	<100	<100	<100	<100	104	<100	<100	<100	<100	System redispatch	
300551 GT_MW_11 500 30060 MIDWAY 500 1 1	P2-1:A0:40_-MIDWAY-MANNING 500KV [9508] (MANNING-MM_MW_21)	P2	relay	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	<100	<100	System redispatch	
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P5-5(DC)A0:8_-Station DC Battery Supply Metcalf 500-230KV Batt	P5	relay	<100	<100	<100	0	<100	<100	<100	<100	<100	119	67	<100	Sensitivity Only	
30050 LOSBANOS 500 300502 LB_MW_11 500 1 1	P5-5(DC)A0:7_-Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	106	61	<100	System redispatch	
30052 MANNING 500 300502 MM_MW_21 500 2 1	P5-5(DC)A0:6_-Station DC Battery Supply Gates 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	126	<100	<100	<100	<100	System redispatch	
30055 GATES 500 34657 GATES12M 13.8 12 1	P5-5(DC)A0:7_-Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	0	<100	102	<100	<100	Sensitivity Only	
30105 COTWID_E 230 30245 ROUND MT 230 3 1	P5-5(DC)A0:2_-Station DC Battery Supply Table Mtn 500-230-115-60KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	0	101	<100	Sensitivity Only	
30348 BRIGHTON 230 30500 BELLOTA 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	77	<100	Sensitivity Only	
30435 LAKEVILLE 230 30460 VACA-DIX 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	110	<100	<100	<100	<100	<100	86	63	<100	Install redundant battery supply	
30440 TULLUCAY 230 30460 VACA-DIX 230 55 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	Install redundant battery supply	
30460 VACA-DIX 230 30465 BAHIA 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	124	84	<100	Sensitivity Only	
30460 VACA-DIX 230 30467 PARKWAY 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	100	<100	<100	<100	<100	<100	127	84	<100	Sensitivity Only	
30465 BAHIA 230 30550 MORAGA 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	87	<100	<100	<100	<100	<100	124	77	<100	Sensitivity Only	
30467 PARKWAY 230 30550 MORAGA 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	88	<100	<100	<100	<100	<100	120	78	<100	Sensitivity Only	
30515 WARNERVL 230 30516 WILSONRCTR 230 1 1	P5-5(DC)A0:5_-Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	100	<100	<100	<100	0	<100	66	146	<100	Install redundant battery supply	
30516 WILSONRCTR 230 30800 WILSON 230 4 1	P5-5(DC)A0:5_-Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	180	144	<100	Sensitivity Only	
30550 MORAGA 230 30554 CASTROVL 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	123	<100	<100	<100	<100	<100	130	134	<100	Install redundant battery supply	
30554 CASTROVL 230 30631 NEWARK E 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	111	<100	<100	<100	<100	<100	148	150	<100	Install redundant battery supply	
30565 BRENTWOD 230 30569 KELSO 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	105	<100	Sensitivity Only	
30574 WINDMASTERIT 230 38610 DELTAMP 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	82	160	<100	Sensitivity Only	
30580 SANDHIWJCT 230 30625 TESLA D 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	<100	Sensitivity Only	
30590 USWP-JRW_JCT 230 30530 CAYETANO 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	Install redundant battery supply	
30624 TESLA E 230 30670 WESTLEY 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	105	<100	<100	<100	68	<100	<100	<100	<100	Install redundant battery supply	
30631 NEWARK E 230 30635 NWK DIST 230 1 1	P5-5(DC)A0:8_-Station DC Battery Supply Metcalf 500-230KV Batt	P5	relay	<100	<100	<100	0	<100	<100	<100	55	<100	104	70	<100	Sensitivity Only	
30635 NWK DIST 230 30731 LS ESTRS 230 1 1	P5-5(DC)A0:8_-Station DC Battery Supply Metcalf 500-230KV Batt	P5	relay	<100	<100	<100	0	<100	<100	<100	54	<100	106	73	<100	Sensitivity Only	
30635 NWK DIST 230 30731 LS ESTRS 230 1 2	P5-5(DC)A0:8_-Station DC Battery Supply Metcalf 500-230KV Batt	P5	relay	<100	<100	<100	0	<100	<100	<100	51	<100	100	69	<100	Sensitivity Only	
30635 NWK DIST 230 30731 LS ESTRS 230 1 3	P5-5(DC)A0:8_-Station DC Battery Supply Metcalf 500-230KV Batt	P5	relay	<100	<100	<100	0	<100	<100	<100	51	<100	100	69	<100	Sensitivity Only	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P5-5(DC)A0:8_-Station DC Battery Supply Metcalf 500-230KV Batt	P5	relay	<100	<100	<100	0	<100	<100	<100	<100	<100	117	66	<100	Sensitivity Only	
30725 C.COSTAPPE 230 30574 WINDMASTERIT 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	77	160	<100	Sensitivity Only	
30726 C.COSTAPPE 230 30565 BRENTWOD 230 1 1	P5-5(DC)A0:4_-Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	130	<100	Sensitivity Only	
30755 MOSSLNSW 230 30797 LASAGUIASS 230 2 1	P5-5(DC)A0:5_-Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	149	162	<100	Sensitivity Only	
30755 MOSSLNSW 230 30798 LASAGUIASRCTR 230 1 1	P5-5(DC)A0:5_-Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	127	<100	<100	<100	0	&					



30797 LASAGUILASS	230	30790 PANOCHO	230	1	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	81	<100	<100	<100	0	<100	76	122	<100	Sensitivity Only		
30797 LASAGUILASS	230	30790 PANOCHO	230	2	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	81	<100	<100	<100	0	<100	76	123	<100	Sensitivity Only		
30800 WILSON	230	30801 STOREYICT1	230	1	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	134	<100	Sensitivity Only		
30800 WILSON	230	30802 STOREYICT2	230	2	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	<100	Sensitivity Only		
30800 WILSON	230	37563 MELOINES	230	1	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	157	<100	Sensitivity Only		
30801 STOREYICT1	230	30805 BORDEN	230	1	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	52	<100	<100	<100	0	<100	<100	119	<100	Sensitivity Only		
30802 STOREYICT2	230	30805 BORDEN	230	2	1	P5-5(DC)A0-5_Station DC Battery Supply Los Banos 500-230-70KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	0	<100	<100	104	<100	Sensitivity Only		
30900 GATES D	230	30889 CALFATISS	230	1	1	P5-5(DC)A0-7_Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	0	<100	116	<100	<100	Sensitivity Only		
30906 GATES F	230	30935 ARCO	230	1	1	P5-5(DC)A0-7_Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	0	<100	142	<100	<100	Sensitivity Only		
30906 GATES F	230	30971 MIDWAY-F	230	1	1	P5-5(DC)A0-6_Station DC Battery Supply Gates 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	<100	Sensitivity Only		
30906 GATES F	230	30971 MIDWAY-F	230	1	1	P5-5(DC)A0-7_Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	0	<100	155	<100	<100	Sensitivity Only		
30935 ARCO	230	30970 MIDWAY-E	230	1	1	P5-5(DC)A0-7_Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	0	<100	114	<100	<100	Sensitivity Only		
38610 DELTAPMP	230	30580 SANDHWCCT	230	1	1	P5-5(DC)A0-4_Station DC Battery Supply Tesla 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	<100	Sensitivity Only		
300153 TM_TS_11	500	300154 TM_TS_12	500	1	1	P5-5(DC)A0-3_Station DC Battery Supply Vaca-Dixon 500KV Batt	P5	relay	<100	<100	<100	68	<100	<100	<100	<100	<100	<100	83	<100	Sensitivity Only		
300502 MN_MW_21	500	300503 MN_MW_22	500	2	1	P5-5(DC)A0-6_Station DC Battery Supply Gates 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	112	<100	<100	<100	<100	System redispach		
300503 MN_MW_22	500	300504 MN_MW_23	500	2	1	P5-5(DC)A0-6_Station DC Battery Supply Gates 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	112	<100	<100	<100	<100	System redispach		
300504 LB_MW_13	500	30060 MIDWAY	500	1	1	P5-5(DC)A0-7_Station DC Battery Supply Midway 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	<100	<100	106	61	<100	Sensitivity Only		
300504 MN_MW_23	500	30060 MIDWAY	500	2	1	P5-5(DC)A0-6_Station DC Battery Supply Gates 500KV Batt	P5	relay	<100	<100	<100	<100	<100	<100	<100	127	<100	<100	<100	<100	System redispach		
30005 ROUND MT	500	300051 RM_FR_11	500	1	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-5_ _ROUND MTN-FERNROADSS 500KV 2[0]	P6	N-1/N-1	<100	<100	<100	127	<100	<100	<100	<100	<100	<100	82	<100	Operate to nomogram; mitigated by COI RAS		
30005 ROUND MT	500	300053 FR_TM_22	500	2	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-4_ _ROUND MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	77	<100	Sensitivity Only	
30005 ROUND MT	500	300053 RM_FR_22	500	2	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-4_ _ROUND MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	127	<100	<100	<100	<100	<100	<100	<100	<100	Operate to nomogram; mitigated by COI RAS		
300051 RM_FR_11	500	300060 FERNROADSS	500	1	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-5_ _ROUND MTN-FERNROADSS 500KV 2[0]	P6	N-1/N-1	<100	<100	<100	154	<100	<100	<100	94	<100	<100	100	<100	Operate to nomogram; mitigated by COI RAS		
300053 FR_TM_22	500	300060 FERNROADSS	500	2	1	P1-2-A0-8_ _OLINDA-TRACY 500KV [0] & P1-2-A0-4_ _ROUND MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	100	<100	127	94	<100	Sensitivity Only		
300053 RM_FR_22	500	300060 FERNROADSS	500	2	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-4_ _ROUND MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	154	<100	<100	<100	<100	<100	<100	<100	<100	Operate to nomogram; mitigated by COI RAS		
300060 FERNROADSS	500	300052 FR_TM_12	500	1	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-27_ _TABLE MTN-FERNROADSS 500KV 2[0]	P6	N-1/N-1	<100	<100	<100	109	<100	<100	<100	<100	<100	<100	<100	92	<100	Operate to nomogram; mitigated by COI RAS	
300060 FERNROADSS	500	300054 FR_TM_22	500	2	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-26_ _TABLE MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	109	<100	<100	<100	<100	<100	<100	<100	<100	Operate to nomogram; mitigated by COI RAS		
300060 FERNROADSS	500	300054 RM_FR_22	500	2	1	P1-5-A0-8_ _OLINDA-TRACY 500KV [0] & P1-2-A0-26_ _TABLE MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	122	90	<100	Sensitivity Only	
30040 TESLA	500	30050 LOSBANOS	500	1	1	P1-2-A0-24_ _MIDWAY-VINCENT 500KV 2[0] & P1-2-A0-11_ _TRACY-LOS BANOS 500KV [6130]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	System redispach	
30040 TESLA	500	33856 TESLA 6M	13.8	6	1	P1-2-A0-12_ _TESLA-METCALF 500KV [6110] & P1-2-A0-15_ _MOSSLANDING-LOSBANOS 500KV [6040]	P6	N-1/N-1	<100	<100	<100	93	<100	<100	<100	<100	<100	114	<100	<100	Sensitivity Only		
30050 LOSBANOS	500	300505 LB_MN_11	500	1	1	P1-5-A0-6_ _NEWARK-NRS POLE 2 & P1-2-A0-18_ _LOSBANOS-MANNING 500KV 2[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	System redispach		
30052 MANNING	500	300501 MN_GT_11	500	1	1	P1-5-A0-6_ _NEWARK-NRS POLE 2 & P1-2-A0-29_ _MIDWAY-MANNING 500KV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	<100	System redispach		
30060 MIDWAY	500	24591 MN_VINCNT_11	500	1	1	P1-2-A0-25_ _MIDWAY-WIRLWIND 500KV [0] & P1-2-A0-24_ _MIDWAY-VINCENT 500KV 2[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	98	<100	114	<100	<100	Sensitivity Only	
30060 MIDWAY	500	24593 MN_VINCNT_21	500	2	1	P1-2-A0-25_ _MIDWAY-WIRLWIND 500KV [0] & P1-2-A0-23_ _MIDWAY-VINCENT 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	98	<100	114	<100	<100	Sensitivity Only	
30060 MIDWAY	500	24595 MN_WRLWIND_31	500	3	1	P1-2-A0-24_ _MIDWAY-VINCENT 500KV 2[0] & P1-2-A0-23_ _MIDWAY-VINCENT 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	94	<100	107	<100	<100	Sensitivity Only	
30060 MIDWAY	500	24595 MW_WRLWIND_31	500	3	1	P1-2-A0-24_ _MIDWAY-VINCENT 500KV 2[0] & P1-2-A0-23_ _MIDWAY-VINCENT 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	111	<100	<100	<100	<100	<100	<100	<100	<100	Operate to nomogram; mitigated by SCE RAS		
30105 COTWDD_E	230	30045 ROUND MT	230	3	1	P1-2-A0-27_ _TABLE MTN-FERNROADSS 500KV 2[0] & P1-2-A0-26_ _TABLE MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	67	<100	Sensitivity Only	
30337 GOLDHLL	230	37012 LAKE	230	1	1	P1-2-A0-5_ _ROUND MTN-FERNROADSS 500KV 2[0] & P1-3-A0-4_ _ROUND MTN500/230KV TB 1 [6110]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	Sensitivity Only	
30435 LAKEVILLE	230	30460 VACA-DIX	230	1	1	P1-2-A0-34_ _COLLINSVILLE-PITTSBURG-F 230KV [0] & P1-2-A0-33_ _COLLINSVILLE-PITTSBURG-E 230KV [0]	P6	N-1/N-1	<100	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	System redispach		
30537 DUNEVIN	230	35219 VINEYARD	230	1	1	P1-2-A0-8_ _OLINDA-TRACY 500KV [0] & P1-2-A0-9_ _VACA DIXON-COLLINSVILLE 500KV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Sensitivity Only	
30550 MORAGA	230	30554 CASTROVL	230	1	1	P1-2-A0-14_ _METCALF-MOSSLANDING 500KV [6050] & P1-2-A0-12_ _TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100	<100	<100	117	<100	<100	<100	<100	<100	<100	<100	<100	<100	Mitigation in GBA local area assessment.	
30554 CASTROVL	230	30631 NEWARK E	230	1	1	P1-2-A0-7_ _TABLE MTN-TESLA 500KV [6080] & P1-2-A0-9_ _VACA DIXON-COLLINSVILLE 500KV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	106	<100	<100	Sensitivity Only	
30560 E. SHORE	230	30527 PITTSBURG-E	230	1	1	P1-2-A0-14_ _METCALF-MOSSLANDING 500KV [6050] & P1-2-A0-12_ _TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	<100	Mitigation in GBA local area assessment.	
30567 LONETREE	230	30590 USWP-JRW_ JCT	230	1	1	P1-2-A0-15_ _MOSSLANDING-LOSBANOS 500KV [6040] & P1-2-A0-12_ _TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	<100	<100	Sensitivity Only	
30574 WINDMASTERIT	230	38610 DELTAPMP	230	1	1	P1-5-A0-2_ _POCI SOUTH POLE & P1-2-A0-9_ _VACA DIXON-COLLINSVILLE 500KV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	<100	<100	Sensitivity Only	
30585 LS PSTAS	230	30630 NEWARK D	230	1	1	P1-2-A0-12_ _TESLA-METCALF 500KV [6110] & P1-2-A0-14_ _METCALF-MOSSLANDING 500KV [6050]	P6	N-1/N-1	<100	<100	<100	155	<100	<100	<100	<100	<100	<100	<100	<100	<100	Mitigation in GBA local area assessment.	
30590 USWP-JRW_ JCT	230	30530 CAYETANO	230	1	1	P1-2-A0-8_ _OLINDA-TRACY 500KV [0] & P1-2-A0-9_ _VACA DIXON-COLLINSVILLE 500KV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	108	92	<100	Sensitivity Only
30631 NEWARK E	230	30635 NWK DIST	230	1	1	P1-2-A0-15_ _MOSSLANDING-LOSBANOS 500KV [6040] & P1-2-A0-12_ _TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	120	89	<100	Sensitivity Only
30635 NWK DIST	230	30731 LS ESTRS	230	1	1	P1-2-A0-15_ _MOSSLANDING-LOSBANOS 500KV [6040] & P1-2-A0-12_ _TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	125	95	<100	Sensitivity Only	
30635 NWK DIST	230	30731 LS ESTRS	230	1	2	P1-2-A0-15_ _MOSSLANDING-LOSBANOS 500KV [6040] & P1-2-A0-12_ _TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	118	90	<100	Sensitivity Only	
30635 NWK DIST</																							



300002 MN_RM_11	500	300003 MN_RM_12	500	1	1	P1-2-A0:3-_CAPTJACK-OLINDA 500kV [0] & P1-2-A0:2-_MALIN-ROUND MT 500kV 2[6020]	P6	N-1/N-1	<100	<100	<100	137	<100	<100	<100	106	<100	135	87	<100	Review existing RAS model
300003 MN_RM_12	500	300005 ROUND MT	500	1	1	P1-2-A0:3-_CAPTJACK-OLINDA 500kV [0] & P1-2-A0:2-_MALIN-ROUND MT 500kV 2[6020]	P6	N-1/N-1	<100	<100	<100	120	<100	<100	<100	95	<100	118	<100	<100	Review existing RAS model
300004 MN_RM_21	500	300005 MN_RM_22	500	2	1	P1-2-A0:3-_CAPTJACK-OLINDA 500kV [0] & P1-2-A0:1-_MALIN-ROUND MT 500kV 1[0]	P6	N-1/N-1	<100	<100	<100	153	<100	<100	<100	121	<100	151	97	<100	Review existing RAS model
300005 MN_RM_22	500	300006 MN_RM_23	500	2	1	P1-2-A0:3-_CAPTJACK-OLINDA 500kV [0] & P1-2-A0:1-_MALIN-ROUND MT 500kV 1[0]	P6	N-1/N-1	<100	<100	<100	155	<100	<100	<100	122	<100	151	99	<100	Review existing RAS model
300006 MN_RM_23	500	300005 ROUND MT	500	2	1	P1-2-A0:3-_CAPTJACK-OLINDA 500kV [0] & P1-2-A0:1-_MALIN-ROUND MT 500kV 1[0]	P6	N-1/N-1	<100	<100	<100	122	<100	<100	<100	96	<100	119	<100	<100	Review existing RAS model
300151 TM_VD_11	500	300152 TM_VD_12	500	1	1	P1-2-A0:24-_MIDWAY-VINCENT 500kV 2[0] & P1-2-A0:7-_TABLE MTN-TESLA 500kV [6080]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	Sensitivity Only
300153 TM_TS_11	500	300154 TM_TS_12	500	1	1	P1-2-A0:9-_VACA DIXON-COLLINSVILLE 500kV [0] & P1-2-A0:8-_OLINDA-TRACY 500kV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	108	<100	Sensitivity Only
300301 VD_TS_11	500	30040 TESLA	500	1	1	P1-2-A0:8-_OLINDA-TRACY 500kV [0] & P1-2-A0:7-_TABLE MTN-TESLA 500kV [6080]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	100	<100	Sensitivity Only
300551 GT_MW_11	500	30060 MIDWAY	500	1	1	P1-5-A0:6-_NEWARK-NRS POLE 2 & P1-2-A0:29-_MIDWAY-MANNING 500kV [0]	P6	N-1/N-1	<100	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	<100	System redispatch
30731 LS ESTRS	230	38901 SSS	230	1	1	P7-1:4-_Newark-Nrs Bipole outage	P7	N-2	<100	<100	<100	118	<100	<100	<100	102	<100	<100	<100	<100	Issue in 2039 only; will monitor



Substation	Contingency (All and Worst F	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2034 Winter Off- Peak	2026 SP Heavy Renewable	2026 SOP Heavy Renewable & Min Gas Gen	2029 SP High CEC Forecast	
NONE detected on Bulk System																



### Voltage Deviation

[illegible]



Contingency	Category	Category Description	2026-SOP	2029-HS	2034-HS	2026-SOP-HighRE	2029-HS-HighCEC	Potential Mitigation Solutions
P1_1-0. DIABLOCNYNSS GENERATOR	P1	L-1	no issues	no issues	N/A	no issues	N/A	No issue
P1_2-19. MIDWAY-VINCENT #1 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_2-2. TABLE MTN-VACA-DIX #1 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_2-20. MIDWAY-VINCENT #2 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_2-21. MIDWAY-WIRLWIND #3 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_2-3. TABLE MTN-TESLA #1 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_3-20. TABLE MTN_RM_DRS #1 500/230KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_3-21. RM_DRS #2 500/230KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_4-3. TM_TS_11-TM_TS_12 #1 500KV SHUNT	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P1_4-5. LB_MW_13-MIDWAY #1 500KV SHUNT	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Working with PTO for fault information.
P3_2-0. DIABLOCNYNSS GENERATOR & ROUND MT-RM_DRS #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-1. DIABLOCNYNSS GENERATOR & ROUND MT-RM_DRS #2 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-10. DIABLOCNYNSS GENERATOR & METCALF-MOSSLAND #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-11. DIABLOCNYNSS GENERATOR & MOSSLAND-LOSANOS #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-12. DIABLOCNYNSS GENERATOR & LOSBANOS-GATES #3 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-13. DIABLOCNYNSS GENERATOR & LOSBANOS-GATES #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-14. DIABLOCNYNSS GENERATOR & LOSBANOS-MIDWAY #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-15. DIABLOCNYNSS GENERATOR & GATES-DIABLOCNYNSS #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-16. DIABLOCNYNSS GENERATOR & GATES-MIDWAY #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-17. DIABLOCNYNSS GENERATOR & DIABLOCNYNSS-MIDWAY #2 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-18. DIABLOCNYNSS GENERATOR & DIABLOCNYNSS-MIDWAY #3 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-19. DIABLOCNYNSS GENERATOR & MIDWAY-VINCENT #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-2. DIABLOCNYNSS GENERATOR & TABLE MTN-VACA-DIX #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-20. DIABLOCNYNSS GENERATOR & MIDWAY-VINCENT #2 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-21. DIABLOCNYNSS GENERATOR & MIDWAY-WIRLWIND #3 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-22. DIABLOCNYNSS GENERATOR & TABLE MTN_RM_DRS #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-23. DIABLOCNYNSS GENERATOR & TABLE MTN_RM_DRS #2 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-24. DIABLOCNYNSS GENERATOR & OLINDA-CAPTJACK #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-25. DIABLOCNYNSS GENERATOR & DALLASES-MOSSLAND #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-26. DIABLOCNYNSS GENERATOR & ROUND MT-MALIN #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-27. DIABLOCNYNSS GENERATOR & ROUND MT-MALIN #2 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-3. DIABLOCNYNSS GENERATOR & TABLE MTN-TESLA #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-4. DIABLOCNYNSS GENERATOR & OLINDA-TRACY #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-5. DIABLOCNYNSS GENERATOR & VACA-DIX-TESLA #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-6. DIABLOCNYNSS GENERATOR & TRACY-TESLA #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-7. DIABLOCNYNSS GENERATOR & TRACY-LOSANOS #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-8. DIABLOCNYNSS GENERATOR & TESLA-METCALF #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_2-9. DIABLOCNYNSS GENERATOR & TESLA-LOSANOS #1 500KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_3-0. DIABLOCNYNSS GENERATOR & OLINDA #1 500/230KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_3-1. DIABLOCNYNSS GENERATOR & TRACY #1 500/230KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.
P3_3-10. DIABLOCNYNSS GENERATOR & METCALF #11 500/230KV	P3	L-1	no issues	Potential WECC/NERC criteria violation	N/A	no issues	N/A	Working with PTO for fault information.



[illegible]



[illegible]



Study Area: PG&E Bulk



Single Contingency Load Drop

Substation	Contingency (All and None)	Category	Category Description	Amount of Load Drop (MW)									Amount of Load Drop (Sensitivity)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2034 Winter Off-Peak	2026 SP Heavy Renewable	2026 SOP Heavy Renewable & Min Gas Gen	2029 SP High CEC Forecast	

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



2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&E Bulk



Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)											Potential Mitigation Solutions
	2025 Summer Peak	2028 Summer Peak	2035 Summer Peak	2025 Spring Off Peak	2028 Spring Off Peak	2035 Spring Off Peak	2035 Winter Peak	2025 SP Heavy Renewable	2025 SOP Heavy Renewable & Min Gas Gen	2028 SP High CEC Forecast	2035-SP-HalfSC	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)**										Loading % (Sensitivity Scenarios)**			Project & Potential Mitigation Solutions
				B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Off Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity		
24114 PARDEE 230 24128 S.CLARA 230 1 1	line_M_P7_0059_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2	P7	common structure				118.7									Dispatch available resources including energy storage and demand response in the Ventura area after the 1st event of P6 contingency or pre-contingency for the P7 contingencies. The use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed. If the energy storage resources in the Ventura area are insufficient or limited to be charged, the needs for upgrading the 230 kV lines will be considered as alternatives.	
24114 PARDEE 230 26098 SYLMAR220 230 1 1	line_MVP_P1_110_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2 -AND- line_MVP_P1_82_Line LUGO 500.0 to VICTORVL 500.0 Circuit 1	P6*	overlapping singles				120.0										
24128 S.CLARA 230 24099 MOORPARK 230 2 1	line_MVP_P1_115_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 -AND- line_MVP_P1_101_Line PARDEE 230.0 to S.CLARA 230.0 Circuit 1	P6*	overlapping singles				112.5										
24393 MESACALS 230 24076 LAGUBELL 230 2 1	line_MVP_P1_30_Line CENTER 230.0 to MESACALS 230.0 Circuit 1 -AND- line_MVP_P1_71_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6*	overlapping singles	102.1												The P6 and all P7 overloads could be eliminated by dispatching available resources including energy storage and demand response in the West LA Basin after the 1st event of P6 contingency and pre-contingency for the P7 contingencies. In the near term, the use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed in the West LA basin. In the long-term, previously approved transmission projects mitigate these concerns.	
24393 MESACALS 230 24076 LAGUBELL 230 2 1	line_MVP_P1_76_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1 -AND- line_MVP_P1_71_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6*	overlapping singles	101.4													
24082 LCENEGA 230 24074 LA FRESA 230 1 1	line_M_P7_0043_Line LA FRESA 230.0 to EL NIDO 230.0 Circuit 3 Line LA FRESA 230.0 to EL NIDO 230.0 Circuit 4	P7	common structure	124.2										124.2			
24021 CENTER 230 24393 MESACALS 230 1 1	line_MVP_P1_71_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 -AND- line_MVP_P1_150_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P6*	overlapping singles	102.6												Rely on the Eldorado-Ivanpah RAS to address the P6 of the loss of Eldorado-Ivanpah and Eldorado2-Primm 230 kV lines. Also, loss of Eldorado SAA bank is addressed by the RAS.	
24030 BARRE-W 230 24044 ELLIS 230 #1 and #2	line_MVP_P1_246_Line BARRE-W 230.0 to ELLIS 230.0 Circuit 2 -AND- line_MVP_P1_27_Line BARRE 230.0 to LEWIS 230.0 Circuit 1	P6*	overlapping singles									102.5					
24701 KRAMER 230 24601 VICTOR 230 1 1	line_MVP_P1_169_Line IVANPAH 230.0 to ELDORDO2 230.0 Circuit 1 -AND- line_MVP_P1_186_Line PRIMM 230.0 to ELDORDO2 230.0 Circuit 1	P6*	overlapping singles	NConv	NConv	NConv		NConv		NConv	NConv	NConv	NConv	NConv	NConv		
24701 KRAMER 230 24601 VICTOR 230 1 1	line_MVP_P1_168_Line ELDORDO2 230.0 to SLOAN CANYON 230.0 Circuit 1 -AND- tran_MVP_P1_305_Tran ELDORDO 500.0 to ELDORDO2 230.0 Circuit SELDOR ST 13.80	P6*	overlapping singles	NConv	NConv	NConv		NConv		NConv	NConv	NConv	NConv	NConv	NConv		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P1	Single Contingency				112.0									The P1 overload could be mitigated by operational mitigation actions, such as curtailing import from out of state resources and generation in the East of Pisgah area. The P6 overloads could be eliminated by operational mitigation actions, such as curtailing the import and the generation, and dispatching available resources including energy storage and demand response in the LA Basin as system adjustment after the first contingency. Stay informed on the future transmission projects to interconnect the out-of-state wind resources and modify the Lugo-Victorville RAS as needed	
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	line_MVP_P1_219_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles			115.7	159.8										
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	line_MVP_P1_90_Line MOHAVE 500.0 to ELDORDO 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles			102.7	146.7										
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1L_NV-AZ058_Line MEAD 500.0 to MARKETPL 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				127.0										
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1L_NV-AZ049_Line H ALLEN 500.0 to MEAD 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				126.7										
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1L_NV-AZ060_Line NAVAJO 500.0 to CRYSTAL 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				122.6										
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1DC_PDC2_PDC1 CONVERTER MONOPOLE #2 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				116.8										
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	G1_603_Gen Alamitos Repower -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P3*	G-1/N-1				113.4										
24086 LUGO 500 26105 VICTORVL 500 1 1	line_MVP_P1_219_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				114.1										
24086 LUGO 500 26105 VICTORVL 500 1 1	line_MVP_P1_90_Line MOHAVE 500.0 to ELDORDO 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				106.5										
24138 SERRANO 500 24137 SERRANO 230 3 1	tran_MVP_P1_312_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 1SERRANIT 13.80 -AND- tran_MVP_P1_313_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 2SERRAN2T 13.80	P6*	overlapping singles	119.9										112.0			
24138 SERRANO 500 24184 serran1 13.8 1 1	tran_MVP_P1_314_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 3 0.00 -AND- tran_MVP_P1_313_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 2SERRAN2T 13.80	P6*	overlapping singles	121.2										113.3			
24138 SERRANO 500 24186 serran2 13.8 2 1	tran_MVP_P1_312_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 1SERRANIT 13.80 -AND- tran_MVP_P1_314_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 3 0.00	P6*	overlapping singles	123.5										115.5			
24156 VINCENT 500 24190 vincer2 13.8 AA Bank #2 or #3	line_T_P4_001_Vincent - Lugo No. 1 500 kV line and Vincent 3AA or 2AA transformer bank	P4	stuck breaker											102.8			Investigate potential mitigations addressing the P4 overloads, such as re-energizing the 230 kV bus tie breaker, re-arrange the Vincent - Lugo 500 kV lines and the Vicent 3AA banks, and/or develop short term emergency rating of Vincent 2AA bank. The P6 overloads could be eliminated by operational mitigation actions, such as curtailing generation in the Northern area, reducing import via Path 26, and along with dispatching available resources including energy storage and demand response in the Western LA Basin, after the first contingency as system adjustment.
24156 VINCENT 500 24155 VINCENT 230 3 1	tran_MVP_P1_320_Tran VINCENT 500.00 to VINCENT 230.00 Circuit 2VINCENT2T 13.80 -AND- line_MVP_P1_136_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6*	overlapping singles	111.3										126.4			
24156 VINCENT 500 24190 vincer2 13.8 2 1	tran_MVP_P1_321_Tran VINCENT 500.00 to VINCENT 230.00 Circuit 3 0.00 -AND- line_MVP_P1_136_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6*	overlapping singles	107.9										123.2			
24386 MESA CAL 500 24390 mesa4 13.8 4 1	tran_MVP_P1_328_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESAZT 13.80 -AND- tran_MVP_P1_329_Tran MESA CAL 500.00 to MESACALS 230.00 Circuit 3MESAST 13.80	P6*	overlapping singles	105.5										104.8		The P6 overloads could be eliminated by operational mitigation actions, such as dispatching available resources including energy storage and demand response in the Western LA Basin after the first contingency as system adjustment.	
24590 MW_VINCNT_12 500 24156 VINCENT 500 1 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	117.4	116.4								116.8	118.9			
24592 MW_VINCNT_22 500 24156 VINCENT 500 2 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	117.6	116.6								117.0	119.0			
30060 MIDWAY 500 24591 MW_VINCNT_11 500 1 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	118.2	117.4								117.8	119.6			
30060 MIDWAY 500 24593 MW_VINCNT_21 500 2 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	118.4	117.7								118.0	119.8			



30060 MIDWAY 500 24593 MW_VINCNT_21 500 2 1	P1DC_PDCI2_PDCI CONVERTER MONOPOLE #2 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	111.9	105.3								106.8	113.5		
24594 MW_WRLWIND_32 500 29402 WRLWIND 500 3 1	line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	N-2	Always Credible Common Corridor	164.1	162.7	113.4					130.7		162.9	165.8		The N-2 overloads for the operating scenarios with heavy Path 26 flow from north to south (B1/B2/B3/B6/S1/S2) could be eliminated by the PG&E Path 26 RAS curtailing generation and the SCE Path 26 RAS dropping loads. The N-2 overloads for the operating scenario with heavy Path 26 flow from south to north (B9) requires further investigation.
30060 MIDWAY 500 24595 MW_WRLWIND_31 500 3 1	line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1 -AND- line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	N-2	Always Credible Common Corridor	112.8	111.2	111.1							111.3	113.2		
21007 CVSUB230 230 21076 RAMON230 230 1 1	line_MVP_P1_293_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1 -AND- P1L-HD4_21113 WIXOM_SS 22356 IMPRLVLY 230 1	P6*	overlapping singles							126.3	116.3	116.5				
21007 CVSUB230 230 21076 RAMON230 230 1 1	G1_610_Gen MountainView Block 1 -AND- line_MVP_P1_293_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1	P3*	G-1/N-1							103.5	102.2					The power import from import should be curtailed for IID to eliminate the P3 and P6 overloads after the 1st event of P6/P3 contingency as system adjustment. The overloads in the long term could be addressed by Path 42 RAS update.
21076 RAMON230 230 24806 MIRAGE 230 1 1	line_MVP_P1_295_Line RAMON230 230.0 to MIRAGE 230.0 Circuit 2 -AND- line_MVP_P1_293_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1	P6*	overlapping singles			124.2	129.3			134.8	161.8	158.9		101.7		
21076 RAMON230 230 24806 MIRAGE 230 2 1	line_MVP_P1_293_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1 -AND- line_MVP_P1_294_Line RAMON230 230.0 to MIRAGE 230.0 Circuit 1	P6*	overlapping singles				102.1			106.8	128.0	125.7				
22357 IV PFC1 230 22358 IV PFC 230 #1 and #2	P1L-SDGE30RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- line_MVP_P1_278_Line ECO 500.0 to MIGUEL 500.0 Circuit 1	P6*	overlapping singles	121.2	109.6			116.8					117.0	132.1		Rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS before completion of the ISO approved Imperial Valley-North of SONGS 500 KV Line project. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency of the P6 events. The Imperial Valley-North of SONGS 500 KV Line project (ISD 2034) mitigate this overload concern in the long term.
22609 OTAYMESA 230 20149 TJI- 230 230 1 1	P1L-SDGE30RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 -AND- line_MVP_P1_278_Line ECO 500.0 to MIGUEL 500.0 Circuit 1	P6*	overlapping singles		125.0			134.5					133.6		106.7	

Note (\*): P6 and P3 results are reported without System adjustment between the two single P1 events  
(\*\*): Loading level in blank cell is less than 100% of applicable rating



[illegible]







Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2: 2029 Summer Peak	B3: 2034 Summer Peak	B7: 2026 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S3: 2026 OP BESS Charging Sensitivity	
01_Lugo500kV - P1.3: 3PH 4 cycle fault at Lugo 500kV w/ loss of Lugo-Victorville 500kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
02_IV500kV - P1.3: 3PH 4 cycle fault at Imperial Valley 500kV w/ loss of Imperial Valley-North Gila 500kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
03_PV500kV - P1.1: 3PH 4 cycle fault at Palo Verde w/ loss of Palo Verde Unit No.1	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
05_Eldorado230kV - P1.3: 3PH 4 cycle fault at Eldorado 230 kV w/ loss of Cima-Eldorado-Pisgah No.1 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
06_Pisgah230kV - P1.3: 3PH 4 cycle fault at Pisgah 230 kV w/ loss of Cima-Eldorado-Pisgah No.1 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
07_Lugo230kV - P1.3: 3PH 4 cycle fault at Lugo 230 kV w/ loss of Lugo-Pisgah No.2 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
12_Eldorado500kV - P1.2: 3PH 4 cycle fault at Eldorado 500kV w/ loss of Eldorado-Mohave 500kV & series cap bypass of Eldordo-Eld_Lugo_11 500kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
13_Eldorado500kV - P1.2: 3PH 4 cycle fault at Eldorado 500kV w/ loss of Eldorado-Mohave 500kV & Lugo-Mohave 500kV line shunt	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
15A_Valley500kV - P1.2: 3PH 4 cycle fault at Valley 500kV w/ loss of Serano-Valley 500kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
16_RanchoVista500kV - P1.2: 3PH 4 cycle fault at Rancho Vista 500kV w/ loss of Rancho Vista-Serrano 500kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
19_SanOnofre230kV - P1.2: 3PH 4 cycle fault at San Onofre 230kV w/ loss of NSONGS-San Onofre No.1 230kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
21_Ellis230kV - P1.2: 3PH 4 cycle fault at Ellis 230kV w/ loss of Ellis-Santiago 230kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
22_NSONGS230kV - P1.2: 3PH 4 cycle fault at NSONGS 230kV w/ loss of NSONGS-Viejo 230kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
24_N.Gila500kV - P1.2: 3PH 4 cycle fault at N.Gila 500kV w/ loss of Hoodoo Wash-N.Gila 500kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
25A_Valley500kV - P1.2: 3PH 4 cycle fault at Valley 500kV w/ loss of Serrano-Valley 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
27_Serrano500kV - P1.2: 3PH 4 cycle fault at Serrano 500kV w/ loss of Mira Loma-Serrano 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
28_Devers500kV - P1.2: 3PH 4 cycle fault at Devers 230kV w/ loss of Devers-Valley No.2 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
29_Devers500kV - P1.2: 3PH 4 cycle fault at Devers 500kV w/ loss of Devers-Red Bluff No.2 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
30_N.Gila500kV - P1.2: 3PH 4 cycle fault at N.Gila 500kV w/ loss of Hoodoo Wash-N.Gila 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
88_Pisgah230kV - P1.3: 3PH 4 cycle fault at Eldorado 230 kV w/ loss of Cima-Eldorado-Pisgah 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
89_Lugo230kV - P1.3: 3PH 4 cycle fault at Lugo 230 kV w/ loss of Lugo-Pisgah 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
001a_P1-2_Sln500kV - P1-2: 3PH 4cycle Sln500kV fault, loss of HAllen-Sloan Cyn 500kV Ckt	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
002_P1-2_HAI500kV - P1-2: 3PH 4cycle HAllen500kV fault, loss of HAllen-Mead 500kV Line [wHAE SC byp]	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
003_P1-2_Cry500kV - P1-2: 3PH 4cycle Crystal500kV fault, loss of Crystal-McCullough 500kV Line [wHAE SC byp]	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
004_P1-2_HAI500kV - P1-2: 3PH 4cycle HAllen500kV fault, loss of HAllen-Crystal N 500kV Line [wHAE SC byp]	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
020_P2-3_Sln500kV - P2-3: CB SC852 HAllen-Sloan + Sloan Cyn 500/230kV Xfmr 1	P2	Internal Breaker Fault	stable	stable	stable	stable	stable	criteria met
47_Sylmar230kV - P4: 3Ph line fault on Pardee-Sylmar No.2 230 kV with stuck breaker at Sylmar followed by loss of Eagle Rock-Sylmar 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
48_Sylmar230kV - P4: 3Ph line fault on Gould-Sylmar 230 kV with stuck breaker at Sylmar followed by loss of Sylmar Bank 'E'	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
50_Sylmar230kV - P4: 3Ph line fault on Pardee-Sylmar No.1 230 kV with stuck breaker at Sylmar followed by loss of Sylmar Bank 'F'	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
56_Lugo500kV - P4: 3Ph line fault on Lugo-Vincent No.2 500 kV with stuck breaker at Lugo followed by loss of Lugo-Victorville 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
57_MiraLoma500kV - P4: 3Ph line fault on Mira Loma-Rancho Vista 500 kV with stuck breaker at Mira Loma followed by loss of Mira Loma-Serrano No.1 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
58_MiraLoma230kV - P4: 3Ph line fault on Mira Loma-Walnut 230 kV with stuck breaker at Mira Loma followed by loss of Chino-Mira Loma No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
59_MiraLoma230kV - P4: 3Ph line fault on Mira Loma-Olinda 230 kV with stuck breaker at Mira Loma followed by loss of Chino-Mira Loma No.3 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2: 2029 Summer Peak	B3: 2034 Summer Peak	B7: 2026 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S3: 2026 OP BESS Charging Sensitivity	
60_MiraLoma230kV - P4: 3Ph line fault on Mira Loma-Rancho Vista No.1 230 kV with stuck breaker at Mira Loma followed by loss of Mira Loma-Vista No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
61_RanchoVista230kV - P4: 3Ph line fault on Etiwanda-Rancho Vista No.1 230 kV with stuck breaker at Rancho Vista followed by loss of Mira Loma-Rancho Vista No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
62_RanchoVista230kV - P4: 3Ph line fault on Padua-Rancho Vista No.1 230 kV with stuck breaker at Rancho Vista followed by loss of Etiwanda-Rancho Vista No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
63_Serrano230kV - P4: 3Ph line fault on Chino-Serrano 230 kV with stuck breaker at Serrano followed by loss of Lewis-Serrano No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
64_Serrano230kV - P4: 3Ph line fault on Lewis-Serrano No.2 230 kV with stuck breaker at Serrano followed by loss of SONGS-Serrano 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
65_Vincent500kV - P4: 3Ph line fault on Mesa-Vincent 500 kV with stuck breaker at Vincent followed by loss of Midway-Vincent No.2 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
66_Vincent500kV - P4: 3Ph line fault on Antelope-Vincent No.1 500 kV with stuck breaker at Vincent followed by loss of Lugo-Vincent No.2 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
67_Vincent230kV - P4: 3Ph line fault on Mesa-Vincent No.2 230 kV with stuck breaker at Vincent followed by loss of Santa Clara-Vincent 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
69_Whirlwind500kV - P4: 3Ph line fault on Midway-Whirlwind 500 kV with stuck breaker at Whirlwind followed by loss of Vincent-Whirlwind 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
70_Chino230kV - P4: 3Ph line fault on Chino-Viejo 230 kV with stuck breaker at Chino followed by loss of Chino-Serrano 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
71_Ellis230kV - P4: 3Ph line fault on BarreW-Ellis No.2 230 kV with stuck breaker at Ellis followed by loss of Ellis-Santiago 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
72_Ellis230kV - P4: 3Ph line fault on Ellis-Johanna 230 kV with stuck breaker at Ellis followed by loss of BarreW-Ellis No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
73_Goodrich230kV - P4: 3Ph line fault on Goodrich-Gould 230 kV with stuck breaker at Goodrich followed by loss of Goodrich-Mesa 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
77_SantaClara230kV - P4: 3Ph line fault on Moorpark-Santa Clara No.1 230 kV with stuck breaker at Santa Clara followed by loss of Goleta-Santa Clara No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
80_Pardee230kV - P4: 3Ph line fault on Bailey-Pardee 230 kV with stuck breaker at Pardee followed by loss of Pardee-Vincent No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
85_VillaPark230kV - P4: 3Ph line fault on BarreW-Villa Park 230 kV with stuck breaker at Villa Park followed by loss of Serrano-Villa Park No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
86_Lewis230kV - P4: 3Ph line fault on Barre-Lewis 230 kV with stuck breaker at Lewis followed by loss of Lewis-Serrano No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
040_P4-2_HAI500kV - P4-2: 3PH line fault at HAllen 500kV, loss of HAE with stuck HAllen CB	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
040a_P4-2_HAI500kV - P4-2: 3PH line fault at HAllen 500kV, loss of HAllen-Sloan with stuck HAllen CB	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
041_P4-2_Eld500kV - P4-2: 3PH line fault at Eldorado 500kV, loss of HAE with stuck Eld CB	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
042_P4-2_Sin500kV - P4-2: 3PH line fault at Sloan 500kV, HAllen-Sloan + Sloan 500/230kV Xfmr [stuck Sloan CB SC852]	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
122_Midway500kV - P6.1: 3PH 4 cycle fault at Midway 500 kV w/ loss of Midway-Vincent No.1 & Midway-Whirlwind No.3 + No RAS	P6	overlapping singles	stable	stable	stable	stable	stable	criteria met
128_IPPDC_bipole - P7.2: SLG fault at Adelanto 500kV followed by loss of IPP Bipole Converters with North-to-South flow	P7	common structure	stable	stable	stable	stable	stable	criteria met
129_PDCI_bipole_SPS - P7.2: SLG fault at Sylmar SCE followed by loss of PDCI Bipole with North-to-South flow	P7	common structure	stable	stable	stable	stable	stable	criteria met
144_MiraLoma500kV - P7.1: 1PH 4 cycle fault at Mira Loma 500kV w/ loss of Mesa-Mira Loma 500kV & Chino-Mira Loma No.3 230kV	P7	common structure	stable	stable	stable	stable	stable	criteria met
070a_P7-1_HAI500kV - P7-1: 3PH 4cycle HAllen500kV fault, loss of HAM + HA-Sin 500kV Lines [No RAS]	P7	common structure	stable	stable	stable	stable	stable	criteria met
071a_P7-1_HAI500kV - P7-1: 3PH 4cycle HAllen500kV fault, loss of HAM + HA-Sin 500kV Lines [wRAS]	P7	common structure	stable	stable	stable	stable	stable	criteria met



Substation	Load Served (MW)															Potential Mitigation Solutions
	2026 Summer Peak	Post Cont. Voltage Deviation % (Baseline Scenarios)										Post Cont. Voltage Deviation % (Sensitivity Scenarios)				
		B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Off Peak	B6: 2034 Winter Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity	S4: 2039 SP LA Basin Hi-gas retirement	

No single source substation with more than 100 MW



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)														Potential Mitigation Solutions
			Post Cont. Voltage Deviation % (Baseline Scenarios)											Post Cont. Voltage Deviation % (Sensitivity Scenarios)			
			B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Off Peak	B6: 2034 Winter Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity	S4: 2039 SP LA Basin Hi-gas retirement	

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



Bus/Substation	Area	Division	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Project & Potential Mitigation Solutions
			2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer Off-Peak	2034 Winter Off-Peak	2026 OP Heavy Renewable & Min Gas Gen	
7th STANDARD 115 kV	Kern	Kern	1.04	1.05	<1.05	1.08	1.04	System adjustments or voltage support if needed
AIRWAYS 115 kV	Greater Fresno	Fresno	1.03	1.06	1.07	<1.05	1.03	System adjustments or voltage support if needed
ALMADEN 60 kV	Greater Bay Area	San Jose	1.06	1.04	<1.05	<1.05	1.06	System adjustments or voltage support if needed
ALMADEN 60 kV	Greater Bay Area	San Jose	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
ALPAUGH 115 kV	Greater Fresno	Fresno	1.04	1.03	<1.05	1.05	1.03	System adjustments or voltage support if needed
ALTO 60 kV	North Coast/North Bay	North Bay	1.02	1.05	<1.05	<1.05	1.03	System adjustments or voltage support if needed
APPLE HILL 115 kV	Central Valley	Sierra	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
ARCO 70 kV	Kern	Kern	1.06	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
ATLANTIC 115 kV	Central Valley	Sierra	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
ATLANTIC 115 kV	Central Valley	Sierra	1.05	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
ATLANTIC 60 kV	Central Valley	Sierra	1.07	1.04	1.05	<1.05	1.07	System adjustments or voltage support if needed
BARTON 115 kV	Greater Fresno	Fresno	1.02	1.05	1.07	<1.05	1.03	System adjustments or voltage support if needed
BELL 115 kV	Central Valley	Sierra	1.05	1.06	1.06	<1.05	1.04	System adjustments or voltage support if needed
BOGUE 115 kV	Central Valley	Sierra	1.04	1.06	1.06	<1.05	1.04	System adjustments or voltage support if needed
BOGUE 115 kV	Central Valley	Sierra	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
BORDEN 70 kV	Greater Fresno	Yosemite	1.08	1.08	1.10	<1.05	1.07	System adjustments or voltage support if needed
BRIGHTON 115 kV	Central Valley	Sacramento	1.08	1.07	1.08	<1.05	1.07	System adjustments or voltage support if needed
BULLARD 115 kV	Greater Fresno	Fresno	1.03	1.05	1.06	<1.05	1.03	System adjustments or voltage support if needed
BULLARD 115 kV	Greater Fresno	Fresno	1.03	1.06	<1.05	1.05	1.03	System adjustments or voltage support if needed
BUTTE 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
CALIFORNIA AVE 115 kV	Greater Fresno	Fresno	1.03	1.08	<1.05	1.07	1.03	System adjustments or voltage support if needed
CARQUINEZ 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
CASCADE 115 kV	North Valley	North Valley	1.10	1.07	1.08	<1.05	1.10	System adjustments or voltage support if needed
CHOWCHILLA 115 kV	Greater Fresno	Yosemite	1.02	1.10	1.09	<1.05	1.02	System adjustments or voltage support if needed
CLAY 60 kV	Central Valley	Stockton	1.04	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
CLAYTON 115 kV	Greater Bay Area	Diablo	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
CLOVERDALE 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.07	1.12	<1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.06	1.12	<1.05	1.04	System adjustments or voltage support if needed
CORCORAN 115 kV	Greater Fresno	Fresno	1.03	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
CORCORAN 70 kV	Greater Fresno	Fresno	1.05	1.08	<1.05	1.07	1.05	System adjustments or voltage support if needed
CORTINA 230 kV	Central Valley	Sacramento	1.02	1.03	1.05	<1.05	1.02	System adjustments or voltage support if needed
CORTINA 230 kV	Central Valley	Sacramento	1.02	1.05	<1.05	1.03	1.01	System adjustments or voltage support if needed
COTATI 60 kV	North Coast/North Bay	N. Coast	1.05	1.04	<1.05	1.03	1.05	System adjustments or voltage support if needed
CROW CREEK SW STA 60 kV	Central Valley	Stanislaus	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
CROWS LANDING 60 kV	Central Valley	Stanislaus	1.05	1.06	1.06	<1.05	1.05	System adjustments or voltage support if needed
CROWS LANDING 60 kV	Central Valley	Stanislaus	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
CURTIS 115 kV	Central Valley	Stanislaus	1.04	1.06	<1.05	1.04	1.05	System adjustments or voltage support if needed
DAVIS 115 kV	Central Valley	Sacramento	1.05	1.07	1.07	<1.05	1.05	System adjustments or voltage support if needed
DIABLO CANYON 500 kV	ISO Bulk System	ISO Bulk System	1.07	1.05	<1.05	1.08	1.06	System adjustments or voltage support if needed
DINUBA 70 kV	Greater Fresno	Fresno	1.07	1.14	<1.05	1.03	1.07	System adjustments or voltage support if needed
DIXON 60 kV	Central Valley	Sacramento	1.04	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
DIXON LANDING 115 kV	Greater Bay Area	San Jose	1.07	1.07	<1.05	<1.05	1.07	System adjustments or voltage support if needed
DRUM #1 PH 115 kV	Central Valley	Sierra	1.06	1.06	1.07	<1.05	1.06	System adjustments or voltage support if needed
EAGLE ROCK 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
EAGLE ROCK 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
EAST MARYSVILLE 115 kV	Central Valley	Sierra	1.06	1.07	1.08	<1.05	1.05	System adjustments or voltage support if needed
EAST NICOLAUS 115 kV	Central Valley	Sierra	1.05	1.06	1.06	<1.05	1.05	System adjustments or voltage support if needed
EDENVALE 115 kV	Greater Bay Area	San Jose	1.07	1.06	<1.05	<1.05	1.07	System adjustments or voltage support if needed
EL DORADO PH 115 kV	Central Valley	Sierra	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
EL PATIO 115 kV	Greater Bay Area	San Jose	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
EVERGREEN 115 kV	Greater Bay Area	San Jose	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
EVERGREEN 60 kV	Greater Bay Area	San Jose	1.06	1.05	<1.05	1.04	1.06	System adjustments or voltage support if needed
EXCELSIOR SW STA 115 kV	Greater Bay Area	San Jose	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
EXCELSIOR SW STA 115 kV	Greater Fresno	Fresno	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
FAMOSO 115 kV	Kern	Kern	1.04	1.04	<1.05	1.05	1.04	System adjustments or voltage support if needed
FROGTOWN 115 kV	Central Valley	Stockton	1.05	1.05	1.06	<1.05	1.06	System adjustments or voltage support if needed



2024-2025 ISO Reliability Assessment - Study Results  
Study Area: Entire PG&E System  
High Voltages Under P0 Conditions



Bus/Substation	Area	Division	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Derated & Potential Mitigation Calculations
FULTON 115 kV	North Coast/North Bay	N. Coast	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
FULTON 60 kV	North Coast/North Bay	N. Coast	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
GATES 500 kV	ISO Bulk System	ISO Bulk System	1.05	1.04	<1.05	1.06	1.07	System adjustments or voltage support if needed
GEYSERS #3 & #4 PP 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
GLASS 70 kV	Greater Fresno	Yosemite	1.07	1.08	1.10	<1.05	1.06	System adjustments or voltage support if needed
GOLD HILL 115 kV	Central Valley	Sierra	1.05	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed
GOLD HILL 115 kV	Central Valley	Sierra	1.05	1.05	<1.05	1.04	1.05	System adjustments or voltage support if needed
GRAND ISLAND 115 kV	Central Valley	Sacramento	1.07	1.08	1.08	<1.05	1.07	System adjustments or voltage support if needed
GREENBRAE 60 kV	North Coast/North Bay	North Bay	1.02	1.05	<1.05	<1.05	1.03	System adjustments or voltage support if needed
GUERNSEY 70 kV	Greater Fresno	Fresno	1.04	1.07	1.06	<1.05	1.04	System adjustments or voltage support if needed
HAMMONDS 115 kV	Greater Fresno	Yosemite	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
HERDLYN 60 kV	Central Valley	Stockton	1.05	1.05	1.06	<1.05	1.06	System adjustments or voltage support if needed
HERNDON 115 kV	Greater Fresno	Fresno	1.04	1.06	<1.05	1.04	1.04	System adjustments or voltage support if needed
HIGGINS 115 kV	Central Valley	Sierra	1.05	1.06	1.07	<1.05	1.05	System adjustments or voltage support if needed
HIGHLANDS 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
HOPLAND 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
HORSESHOE 115 kV	Central Valley	Sierra	1.05	1.05	1.05	<1.05	1.04	System adjustments or voltage support if needed
IGNACIO 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	1.07	1.07	System adjustments or voltage support if needed
JARVIS 115 kV	Greater Bay Area	Mission	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
KENT SW STA 70 kV	Greater Fresno	Fresno	1.05	1.04	1.04	<1.05	1.05	System adjustments or voltage support if needed
KERCKHOFF #1 PH 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
KERN OIL 115 kV	Kern	Kern	1.04	1.05	<1.05	1.07	1.04	System adjustments or voltage support if needed
KERN PP 115 kV	Kern	Kern	1.05	1.05	<1.05	1.08	1.04	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.12	1.12	<1.05	1.09	System adjustments or voltage support if needed
KIRKER 115 kV	Greater Bay Area	Diablo	1.05	1.07	<1.05	1.06	1.04	System adjustments or voltage support if needed
LAMMERS 115 kV	Central Valley	Stockton	1.04	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed
LAMMERS 115 kV	Central Valley	Stockton	1.04	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
LAS GALLINAS A 115 kV	North Coast/North Bay	North Bay	1.06	1.08	<1.05	1.07	1.06	System adjustments or voltage support if needed
LINCOLN 115 kV	Central Valley	Sierra	1.04	1.05	1.06	<1.05	1.04	System adjustments or voltage support if needed
LOS BANOS 500 kV	ISO Bulk System	ISO Bulk System	1.05	1.04	<1.05	1.07	1.07	System adjustments or voltage support if needed
LOS GATOS 60 kV	Greater Bay Area	De Anza	1.05	1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
LOS GATOS 60 kV	Greater Bay Area	De Anza	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
MADERA 70 kV	Greater Fresno	Yosemite	1.08	1.08	1.10	<1.05	1.07	System adjustments or voltage support if needed
MAGUNDEN 115 kV	Kern	Kern	1.03	1.05	<1.05	1.07	1.03	System adjustments or voltage support if needed
MALAGA 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
MALAGA 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.07	1.04	System adjustments or voltage support if needed
MANCHESTER 115 kV	Greater Fresno	Fresno	1.03	1.06	1.07	<1.05	1.03	System adjustments or voltage support if needed
MCCALL 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
MCKEE 115 kV	Greater Bay Area	San Jose	1.05	1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
MCKEE 115 kV	Greater Bay Area	San Jose	1.07	1.07	<1.05	<1.05	1.07	System adjustments or voltage support if needed
MEADOW LANE 115 kV	Greater Bay Area	Diablo	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
MELONES SW STA 115 kV	Central Valley	Stanislaus	1.05	1.06	<1.05	1.04	1.05	System adjustments or voltage support if needed
MENDOCINO 115 kV	North Coast/North Bay	N. Coast	1.05	1.07	<1.05	1.06	1.04	System adjustments or voltage support if needed
MENDOCINO 115 kV	North Coast/North Bay	N. Coast	1.05	1.08	<1.05	<1.05	1.04	System adjustments or voltage support if needed
MERIDIAN 60 kV	Central Valley	Sacramento	1.07	1.04	1.03	<1.05	1.06	System adjustments or voltage support if needed
METCALF 500 kV	ISO Bulk System	ISO Bulk System	1.07	1.06	<1.05	1.06	1.07	System adjustments or voltage support if needed
MIDWAY 115 kV	Kern	Kern	1.05	1.04	<1.05	1.05	1.05	System adjustments or voltage support if needed
MIDWAY 500 kV	ISO Bulk System	ISO Bulk System	1.06	1.06	<1.05	1.06	1.06	System adjustments or voltage support if needed
MI-WUK 115 kV	Central Valley	Stanislaus	1.04	1.06	<1.05	1.04	1.05	System adjustments or voltage support if needed
MONTA VISTA 230 kV	Greater Bay Area	De Anza	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
MORRO BAY SW STA 115 kV	Central Coast/Los Padres	Los Padres	1.00	1.07	<1.05	<1.05	1.00	System adjustments or voltage support if needed
NORD 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
NOTRE DAME 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
OROSI 70 kV	Greater Fresno	Fresno	1.07	1.15	<1.05	1.03	1.07	System adjustments or voltage support if needed
PALERMO 115 kV	North Valley	North Valley	1.06	1.06	1.06	<1.05	1.06	System adjustments or voltage support if needed
PARADISE 115 kV	North Valley	North Valley	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
PIERCY 115 kV	Greater Bay Area	San Jose	1.06	1.06	<1.05	<1.05	1.06	System adjustments or voltage support if needed
PLACER 115 kV	Central Valley	Sierra	1.04	1.05	1.06	<1.05	1.04	System adjustments or voltage support if needed



Bus/Substation	Area	Division	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Detailed & Periodical Mitigation Calculations
PLAINFIELD 60 kV	Central Valley	Sacramento	1.02	1.07	1.12	<1.05	1.03	System adjustments or voltage support if needed
PLEASANT GROVE 115 kV	Central Valley	Sierra	1.04	1.05	1.06	<1.05	1.04	System adjustments or voltage support if needed
RED BLUFF 60 kV	North Valley	North Valley	1.05	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed
REDBUD 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	1.06	1.04	System adjustments or voltage support if needed
REEDLEY 115 kV	Greater Fresno	Fresno	1.02	1.08	1.08	<1.05	1.02	System adjustments or voltage support if needed
REEDLEY 115 kV	Greater Fresno	Fresno	1.02	1.08	<1.05	1.07	1.02	System adjustments or voltage support if needed
REEDLEY 70 kV	Greater Fresno	Fresno	1.08	1.04	1.14	<1.05	1.08	System adjustments or voltage support if needed
RIO ORO 115 kV	Central Valley	Sierra	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
ROUND MTN 500 kV	ISO Bulk System	ISO Bulk System	1.08	1.08	<1.05	1.08	1.07	System adjustments or voltage support if needed
SALADO 60 kV	Central Valley	Stanislaus	1.05	1.05	1.06	<1.05	1.06	System adjustments or voltage support if needed
SAN BENITO 115 kV	Central Coast/Los Padres	Central Coast	1.01	1.05	<1.05	<1.05	1.01	System adjustments or voltage support if needed
SAN JOSE A 115 kV	Greater Bay Area	San Jose	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
SAN LUIS OBISPO 115 kV	Central Coast/Los Padres	Los Padres	1.00	1.07	<1.05	<1.05	1.00	System adjustments or voltage support if needed
SAN RAFAEL 115 kV	North Coast/North Bay	North Bay	1.06	1.08	<1.05	1.07	1.06	System adjustments or voltage support if needed
SANGER 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
SANTA ROSA A 115 kV	North Coast/North Bay	N. Coast	1.05	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed
SANTA TERESA 115 kV	Greater Bay Area	San Jose	1.07	1.06	<1.05	<1.05	1.07	System adjustments or voltage support if needed
SCHINDLER 115 kV	Greater Fresno	Fresno	1.05	1.06	1.05	<1.05	1.05	System adjustments or voltage support if needed
SCHULTE SW STA 115 kV	Central Valley	Stockton	1.04	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
SHAFTER 115 kV	Kern	Kern	1.05	1.04	<1.05	1.05	1.05	System adjustments or voltage support if needed
SHAFTER 115 kV	Kern	Kern	1.05	1.05	1.04	<1.05	1.05	System adjustments or voltage support if needed
SHEPHERD 115 kV	Greater Fresno	Fresno	1.04	1.06	1.07	<1.05	1.04	System adjustments or voltage support if needed
SILVERADO 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
SMYRNA 115 kV	Kern	Kern	1.04	1.04	<1.05	1.05	1.04	System adjustments or voltage support if needed
SOLEDAD 60 kV	Central Coast/Los Padres	Central Coast	1.03	1.05	<1.05	<1.05	1.03	System adjustments or voltage support if needed
STANISLAUS PH 115 kV	Central Valley	Stockton	1.06	1.06	1.07	<1.05	1.06	System adjustments or voltage support if needed
STOCKTON A 115 kV	Central Valley	Stockton	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
STONE 115 kV	Greater Bay Area	San Jose	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
SWIFT 115 kV	Greater Bay Area	San Jose	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
SYCAMORE CREEK 115 kV	North Valley	North Valley	1.05	1.06	1.05	<1.05	1.04	System adjustments or voltage support if needed
TABLE MOUNTAIN 500 kV	ISO Bulk System	ISO Bulk System	1.09	1.09	<1.05	1.09	1.08	System adjustments or voltage support if needed
TEION 70 kV	Kern	Kern	1.03	1.04	1.03	<1.05	1.03	System adjustments or voltage support if needed
TESLA 115 kV	Central Valley	Stockton	1.05	1.06	<1.05	1.05	1.06	System adjustments or voltage support if needed
TESLA 500 kV	ISO Bulk System	ISO Bulk System	1.08	1.07	<1.05	1.08	1.07	System adjustments or voltage support if needed
TIYV VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.05	1.13	<1.05	1.07	System adjustments or voltage support if needed
TIYV VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.04	1.14	<1.05	1.07	System adjustments or voltage support if needed
TIYV VALLEY 70 kV	Greater Fresno	Fresno	1.03	1.06	1.10	<1.05	1.03	System adjustments or voltage support if needed
TUPMAN 115 kV	Kern	Kern	1.05	1.05	1.04	<1.05	1.05	System adjustments or voltage support if needed
UKIAH 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
VACA DIXON 500 kV	ISO Bulk System	ISO Bulk System	1.09	1.08	<1.05	1.09	1.07	System adjustments or voltage support if needed
VACA DIXON 60 kV	Central Valley	Sacramento	1.05	1.06	1.05	<1.05	1.05	System adjustments or voltage support if needed
VALLEY SPRINGS 60 kV	Central Valley	Stockton	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
VALLEY SPRINGS 60 kV	Central Valley	Stockton	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
WAHTOKE 115 kV	Greater Fresno	Fresno	1.03	1.08	1.08	<1.05	1.03	System adjustments or voltage support if needed
WAUKENA SW STA 115 kV	Greater Fresno	Fresno	1.03	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
WEST FRESNO 115 kV	Greater Fresno	Fresno	1.02	1.08	1.08	<1.05	1.02	System adjustments or voltage support if needed
WEST SACRAMENTO 115 kV	Central Valley	Sacramento	1.06	1.07	1.07	<1.05	1.05	System adjustments or voltage support if needed
WESTPARK 115 kV	Kern	Kern	1.04	1.05	<1.05	1.08	1.04	System adjustments or voltage support if needed
WESTPARK 115 kV	Kern	Kern	1.04	1.05	1.05	<1.05	1.04	System adjustments or voltage support if needed
WOODLAND 115 kV	Central Valley	Sacramento	1.05	1.06	1.06	<1.05	1.05	System adjustments or voltage support if needed
WOODWARD 115 kV	Greater Fresno	Fresno	1.04	1.06	1.07	<1.05	1.04	System adjustments or voltage support if needed
WYANDOTTE 115 kV	North Valley	North Valley	1.06	1.06	1.06	<1.05	1.06	System adjustments or voltage support if needed



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Arco-Cholame 70 kV Line	Base Case	P0	Base Case	65	125	74	52	47	33	39	10	40	39	126	Incorrect Power Factor
Atascadero-Cayucos 70 kV Line	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	41	Diverge	29	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	34	Diverge	30	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
Atascadero-San Luis Obispo 70 kV Line	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	25	Diverge	30	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	15	Diverge	31	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	122	103	32	46	58	30	39	13	30	35	106	Project: Estrella Substation Project
	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	115	100	54	48	54	40	48	10	36	46	102	Project: Estrella Substation Project
Callender Sw. Sta-Mesa 115 kV Line	MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	94	Diverge	161	81	86	37	76	63	119	137	Diverge	Existing UVLS
	MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	101	101	NA	59	85	72	57	6	46	57	104	Redundant relay installation recommended previously
	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	42	Diverge	65	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	40	Diverge	65	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
	MORROBAY 230/115KV TB 6 & MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	117	111	136	56	79	94	54	14	43	50	114	Operations solution/ Generation Redispatch
	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	79	119	NA	75	74	92	66	60	110	125	NA	Existing UVLS
	Morro Bay-Mesa and Morro Bay- Diablo 230 kV Lines	P7	DCTL	84	128	144	75	79	37	71	63	115	130	132	Existing UVLS
Coalinga #1-San Miguel 70 kV Line	PASO ROBLES-TEMPLETON 70KV [9400]	P1	N-1	Diverge	Diverge	38	45	51	4	57	25	15	57	Diverge	Project: Estrella Substation Project
	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	10	Diverge	27	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	9	Diverge	27	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
	TEMPLETON 230-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	44	45	51	5	58	25	15	57	Diverge	Project: Estrella Substation Project
	ESTRELLA-CALFLATSSS #1 230KV [0] & TEMPLETON-GATES 230KV [5934]	P6	N-1-1	NA	NA	100	NA	NA	9	NA	NA	NA	NA	NA	Continue to monitor
	Morro Bay-CalFlats SS and Templeton-Gates 230 kV Lines	P7	DCTL	106	104	33	24	22	5	18	38	38	40	106	Project: Estrella Substation Project
Coburn 230/60 kV Bank #1	DIABLOCNYN2 25.00KV GEN UNIT 1 & COBURN 230/60KV TB 2	P3	G-1/ N-1	79	75	NA	91	87	NA	95	8	100	96	74	Sensitivity Only
Crazy Horse-Moss Landing #1 115 kV Line	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	104	112	142	73	83	122	36	9	41	39	114	ISO recommended a RAS
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	104	112	142	73	83	120	36	9	41	39	114	ISO recommended a RAS
Crazy Horse-Moss Landing #2 115 kV Line	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	107	115	146	76	87	126	37	9	43	40	118	ISO recommended a RAS
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	107	115	146	76	87	125	37	9	43	40	118	ISO recommended a RAS
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P1	N-1	106	118	44	69	85	43	35	6	48	31	121	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Crazy Horse-Natividad #1 115 kV Line	MOSS LANDING-SALINAS #2 115KV [2890]	P1	N-1	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	SALINAS-MOSSLSNW-DOLAN RD 115KV [0]	P1	N-1	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910] (NTVD SW2-SOLEDAD)	P2-1	Line Section w/o/ Fault	77	102	66	49	65	50	23	10	31	23	105	Project: Salinas Area Reinforcement
	MOSS LANDING-SALINAS #1 115KV [2880] (MOSSLSNW-DOLAN J1)	P2-1	Line Section w/o/ Fault	105	113	46	69	81	45	39	7	50	37	115	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	CRZY_HRS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	79	104	68	49	66	51	23	10	31	23	107	Project: Salinas Area Reinforcement
	DOLAN RD - 1D 115KV & SALINAS-MOSSLSNW-DOLAN RD LINE	P2-3	Non-Bus-Tie-Breaker Fault	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSSLSNW 115KV - MIDDLE BREAKER BAY 2	P2-3	Non-Bus-Tie-Breaker Fault	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSSLSNW 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	103	110	45	66	78	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	SALINAS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	77	101	66	49	65	50	23	10	31	23	104	Project: Salinas Area Reinforcement
	SALINAS 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie-Breaker Fault	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	DOLAN ROAD 115KV BATT(Failure of Non-Redundant Batt)	P5	Non-Redundant Battery	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSS LANDING 230-115KV BATT(Failure of Non-Redundant Batt)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	23	NA	NA	Diverge	Redundant battery supply installation recommended previously
	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	224	240	105	136	161	100	74	14	92	74	245	ISO recommended a RAS
	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	147	171	48	81	94	41	51	18	54	62	175	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	71	28	Diverge	54	28	Diverge	4	45	Diverge	72	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
Crazy Horse-Soledad 115 kV Line	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	224	240	105	136	161	99	74	14	92	74	245	ISO recommended a RAS
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900]	P1	N-1	106	118	44	69	85	43	35	6	48	31	121	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSS LANDING-SALINAS #2 115KV [2890]	P1	N-1	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	SALINAS-MOSSLSNW-DOLAN RD 115KV [0]	P1	N-1	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900] (NTVD SW1-SOLEDAD)	P2-1	Line Section w/o/ Fault	77	102	66	49	65	50	23	10	31	23	105	Project: Salinas Area Reinforcement
	MOSS LANDING-SALINAS #1 115KV [2880] (MOSSLSNW-DOLAN J1)	P2-1	Line Section w/o/ Fault	105	113	46	69	81	45	39	7	50	37	115	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	CRZY_HRS 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie-Breaker Fault	105	118	43	69	85	43	35	7	48	31	120	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSSLSNW 115KV - MIDDLE BREAKER BAY 2	P2-3	Non-Bus-Tie-Breaker Fault	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSSLSNW 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	103	110	45	66	78	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	SALINAS 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie-Breaker Fault	106	118	44	69	85	43	35	6	48	31	121	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
	DOLAN ROAD 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	102	110	45	67	79	44	36	6	46	34	112	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	23	NA	NA	Diverge	Redundant battery supply installation recommended previously
	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	224	240	105	136	161	100	74	14	92	74	245	ISO recommended a RAS
	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	147	171	48	81	94	41	51	18	54	62	175	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	71	28	Diverge	54	28	Diverge	4	45	Diverge	72	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	224	240	105	136	161	99	74	14	92	74	245	ISO recommended a RAS
Divide-Cabrillo 115 kV Line No. 1	MESA-SISQUOC 115KV [2460] & MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	64	62	166	28	35	41	31	6	28	30	63	Continue to monitor
ESTRELLA-PSA RBLs 70 kV	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NA	NA	Diverge	NA	NA	38	NA	NA	NA	NA	NA	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	NA	Diverge	NA	NA	35	NA	NA	NA	NA	NA	Redundant battery supply installation recommended previously
	MORROBAY-ESTRELLA #1 230KV [0] & TEMPLETON-GATES 230KV [5934]	P6	N-1-1	NA	NA	103	NA	NA	7	NA	NA	NA	NA	NA	Continue to monitor
	Morro Bay-CalFlats SS and Templeton-Gates 230 kV Lines	P7	DCTL	NA	NA	103	NA	NA	7	NA	NA	NA	NA	NA	Continue to monitor
Green Valley 115/60 Transformer #1	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	112	NA	NA	Diverge	Redundant battery supply installation recommended previously
	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	213	Diverge	Diverge	210	238	60	206	238	Diverge	Redundant relay installation recommended previously
	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	86	90	112	74	77	103	38	22	38	39	92	Continue to monitor
	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	27	52	Diverge	62	69	Diverge	28	84	Diverge	27	Project: Morgan Hill Area Reinforcement
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	86	90	112	74	77	102	38	22	38	39	92	Continue to monitor
Green Valley-Morgan Hill 115 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	8	NA	NA	Diverge	Redundant battery supply installation recommended previously
Green Valley-Watsonville 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	73	NA	NA	Diverge	Redundant battery supply installation recommended previously
	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	161	Diverge	Diverge	124	177	43	154	177	Diverge	Redundant relay installation recommended previously
	MOSS LANDING-GREEN VALLEY #2 115KV [2860] & MOSS LANDING-GREEN VALLEY #1 115KV [2850]	P6	N-1-1	Diverge	31	44	Diverge	36	45	Diverge	19	106	Diverge	32	Project: Morgan Hill Area Reinforcement
	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	19	41	Diverge	35	43	Diverge	19	108	Diverge	19	Project: Morgan Hill Area Reinforcement
Lagunitas 60 kV Tap	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	122	NA	NA	Diverge	Redundant battery supply installation recommended previously
	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	190	Diverge	Diverge	150	244	63	233	244	Diverge	Redundant relay installation recommended previously
	MOSS LANDING-GREEN VALLEY #1 115KV [2850] & MOSS LANDING-GREEN VALLEY #2 115KV [2860]	P6	N-1-1	Diverge	83	92	Diverge	77	88	Diverge	21	186	Diverge	84	Project: Morgan Hill Area Reinforcement
	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	83	92	Diverge	77	88	Diverge	21	186	Diverge	84	Project: Morgan Hill Area Reinforcement
Mesa-Santa Maria 115 kV Line	MORROBAY 230/115KV TB 6	P1	N-1	88	88	101	54	70	76	44	7	36	41	89	Continue to monitor
	MORROBAY 230KV SECTION 1D	P2-2	Bus Fault	91	90	100	57	76	82	46	9	39	42	91	Continue to monitor
	MORROBAY 230/115KV TB 6 & CALLENDER SW STA-MESA 115KV [1210]	P6	N-1-1	112	110	129	67	89	99	54	10	44	51	112	Operations solution/ Generation Redispatch
	Mesa-Divide #1 and #2 115 kV Lines	P7	DCTL	76	74	101	51	70	67	36	6	27	33	76	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
	Mesa-Sisquoc and Callender Sw Sta-Mesa 115 kV Lines	P7	DCTL	91	88	102	52	70	76	44	4	36	40	90	Continue to monitor
Morro Bay 230/115 Transformer No. 6	MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	Diverge	Diverge	Diverge	32	Diverge	56	64	3	52	62	Diverge	Existing UVLS
	MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	108	Diverge	145	73	84	32	67	26	89	100	Diverge	Existing UVLS
	MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	131	134	76	76	104	108	65	14	56	66	138	Redundant relay installation recommended previously
	MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	32	Diverge	56	65	1	55	65	Diverge	Install redundant battery supply
	MORRO BAY-DIABLO 230KV [5260] & MORRO BAY-MESA 230KV [5290]	P6	N-1-1	115	145	154	84	96	44	76	41	99	110	149	Existing UVLS
	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	113	146	76	82	95	117	74	39	97	108	65	Existing UVLS
	Morro Bay-Mesa and Morro Bay-Diablo 230 kV Lines	P7	DCTL	115	145	154	83	96	43	76	41	99	110	149	Existing UVLS
Morro Bay-SLO 115 kV Line No. 2	MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	Diverge	Diverge	Diverge	24	Diverge	42	39	2	32	38	Diverge	Existing UVLS
Moss Landing 230/115 kV Bank #1	MOSSLNSW 230/115KV TB 2 & MOSSLNSW 230/115KV TB 4	P6	N-1-1	80	91	100	74	77	111	44	29	58	60	92	Continue to monitor
Moss Landing 230/115 kV Bank #2	MOSSLNSW 230/115KV TB 1 & MOSSLNSW 230/115KV TB 4	P6	N-1-1	80	91	100	74	77	111	44	29	58	60	92	Continue to monitor
Moss Landing 230/115 kV Bank #3	MOSSLNSW 230/115KV TB 1 & MOSSLNSW 230/115KV TB 4	P6	N-1-1	80	91	100	74	77	111	44	29	58	60	92	Continue to monitor
Moss Landing 230/115 kV Bank #4	MOSSLNSW 230/115KV TB 1 & MOSSLNSW 230/115KV TB 2	P6	N-1-1	88	98	111	81	77	111	56	29	65	71	100	Continue to monitor
Moss Landing-Green Valley #1 115 kV Line	MOSS LANDING-GREEN VALLEY #2 115KV [2860] & GREENVALLEY-MRGN HIL #1 115KV [0]	P6	N-1-1	NA	75	85	NA	80	102	NA	10	NA	NA	77	Continue to monitor
Moss Landing-Green Valley #2 115 kV Line	MOSS LANDING-GREEN VALLEY #1 115KV [2850] & GREENVALLEY-MRGN HIL #1 115KV [0]	P6	N-1-1	NA	84	95	NA	82	104	NA	11	NA	NA	86	Continue to monitor
Moss Landing-Q1374 230 kV tie-line	MOSS LANDING-LAS AGUILAS SW STA - 230 KV 230KV [5340] & MOSSLNSW SVD=V	P6	N-1-1	33	0	34	0	50	11	57	91	67	103	0	Sensitivity Only
Moss Landing-Salinas #1 115 kV Line	MOSS LANDING-SALINAS #2 115KV [2890]	P1	N-1	81	86	106	64	71	98	33	6	39	34	88	Continue to monitor
	MOSS LANDING-SALINAS #2 115KV [2890] (MOSSLNSW-DOLAN J2)	P2-1	Line Section w/o/ Fault	81	86	106	64	71	97	33	8	39	34	87	Continue to monitor
	MOSS LANDING-SALINAS #2 115KV [2890] (SALINAS-DOLAN J2)	P2-1	Line Section w/o/ Fault	81	86	106	64	71	98	33	6	39	34	88	Continue to monitor
	MOSSLNSW 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	81	86	107	63	71	98	33	6	39	34	88	Continue to monitor
	SALINAS 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie-Breaker Fault	81	86	106	64	71	98	33	6	39	34	88	Continue to monitor
	MOSS LANDING-CRAZY HORSE CANYON #2 115KV [2983] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	108	115	142	81	92	129	41	10	49	44	117	Operations solution/ Generation Redispatch
	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	108	115	141	79	90	126	41	11	48	44	118	ISO recommended a RAS
	SALINAS-MOSSLNSW-DOLAN RD 115KV [0]	P1	N-1	81	86	106	64	71	98	33	8	39	34	88	Continue to monitor
	MOSS LANDING-SALINAS #1 115KV [2880] (MOSSLNSW-DOLAN J1)	P2-1	Line Section w/o/ Fault	79	84	105	62	69	95	31	7	36	32	86	Continue to monitor
	MOSS LANDING-SALINAS #1 115KV [2880] (SALINAS-DOLAN J1)	P2-1	Line Section w/o/ Fault	77	82	102	60	67	92	29	5	33	30	84	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Moss Landing-Salinas #2 115 kV Line	DOLAN RD - 1D 115KV & SALINAS-MOSSLNSW-DOLAN RD LINE	P2-3	Non-Bus-Tie-Breaker Fault	81	86	106	64	71	98	33	8	39	34	88	Continue to monitor
	MOSSLNSW 115KV - MIDDLE BREAKER BAY 2	P2-3	Non-Bus-Tie-Breaker Fault	81	86	107	64	71	98	33	8	39	34	88	Continue to monitor
	DOLAN ROAD 115KV BATT (FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	81	86	106	64	71	98	33	8	39	34	88	Continue to monitor
	MOSS LANDING-CRAZY HORSE CANYON #1 115KV [2930] MOAS OPENED ON PRNDL J1_PRUNEDLE & SALINAS-MOSSLNSW-DOLAN RD 115KV [0]	P6	N-1-1	108	115	142	82	92	130	41	10	49	44	117	Operations solution/ Generation Redispatch
	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	104	112	137	74	84	118	37	9	43	40	114	ISO recommended a RAS
MOSSLNSW-LASAGUILASS #2 230KV	Base Case	P0	Base Case	43	NA	NA	18	NA	NA	19	NA	137	33	NA	Sensitivity Only
	COBURN-LASAGUILASS #1 230KV [0]	P1	N-1	31	NA	NA	14	NA	NA	11	NA	109	33	NA	Sensitivity Only
	KNGCTYCGN 60/13.8KV TB 1	P1	N-1	30	NA	NA	16	NA	NA	12	NA	100	26	NA	Sensitivity Only
	KNGCTYCGNSTG 13.80KV & KNGCTYCGNCTG 13.80KV GEN UNITS	P1	N-1	30	NA	NA	16	NA	NA	12	NA	100	26	NA	Sensitivity Only
	MOSS LANDING-COBURN 230KV [5330]	P1	N-1	40	NA	NA	24	NA	NA	20	NA	121	22	NA	Sensitivity Only
	MOSSLAND 500/230KV TB 9	P1	N-1	39	NA	NA	13	NA	NA	7	NA	109	35	NA	Sensitivity Only
	COBURN 230KV SECTION 1D	P2-2	Bus Fault	36	NA	NA	20	NA	NA	17	NA	117	26	NA	Sensitivity Only
	COBURN 230KV SECTION 1E	P2-2	Bus Fault	31	NA	NA	14	NA	NA	11	NA	109	33	NA	Sensitivity Only
	MOSSLNSW 230KV - MIDDLE BREAKER BAY 6	P2-3	Non-Bus-Tie-Breaker Fault	50	NA	NA	36	NA	NA	34	NA	121	9	NA	Sensitivity Only
	MOSSLNSW 230KV - MIDDLE BREAKER BAY 7	P2-3	Non-Bus-Tie-Breaker Fault	39	NA	NA	13	NA	NA	7	NA	109	35	NA	Sensitivity Only
	COBURN 230KV - SECTION 1D & 1E	P2-4	Bus-Tie-Breaker Fault	34	NA	NA	17	NA	NA	14	NA	113	29	NA	Sensitivity Only
	Q1374BESS3 0.50KV GEN UNIT 3 & MOSS LANDING-COBURN 230KV [5330]	P3	G-1/ N-1	40	NA	NA	24	NA	NA	20	NA	119	23	NA	Sensitivity Only
	COBURN 230-60KV BATT (FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	34	NA	NA	17	NA	NA	14	NA	113	29	NA	Sensitivity Only
	DIABLO CANYON 500-230KV BATT (FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	29	NA	NA	13	NA	NA	10	NA	103	29	NA	Sensitivity Only
	MOSS LANDING-COBURN 230KV [5330] & MOSSLAND 500/230KV TB 9	P6	N-1-1	51	NA	NA	21	NA	NA	12	NA	135	34	NA	Sensitivity Only
	Crazy Horse - San Benito & Crazy Horse - Hollister 115 kV Lines	P7	DCTL	29	NA	NA	15	NA	NA	12	NA	100	26	NA	Sensitivity Only
	Moss Landing - Coburn & Coburn - PANOCHE 230 kV Lines	P7	DCTL	34	NA	NA	17	NA	NA	14	NA	113	29	NA	Sensitivity Only
	MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	90	Diverge	162	81	88	33	73	67	119	134	Diverge	Existing UVLS
	MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	101	102	7	60	88	74	52	4	44	52	105	Redundant relay installation recommended previously
	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	37	Diverge	69	Diverge	Diverge	Diverge	Redundant relay installation recommended previously



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Oceano-Callender Sw. Sta 115 kV Line	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	35	64	69	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
	MORRO BAY-MESA 230KV [5290] & MORRO BAY-DIABLO 230KV [5260]	P6	N-1-1	82	128	147	77	81	33	69	67	115	128	132	Existing UVLS
	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	76	121	7	75	76	94	65	64	111	123	11	Existing UVLS
	Morro Bay-Mesa and Morro Bay-Diablo 230 kV Lines	P7	DCTL	82	128	146	76	81	33	69	67	115	128	132	Existing UVLS
Salinas 115/60 kV Bank #2	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	13	NA	NA	Diverge	Redundant battery supply installation recommended previously
Salinas-Firestone #1 115 kV Line	Base Case	P0	Base Case	NA	NA	41	NA	NA	35	NA	NA	NA	NA	NA	Project: Salinas Area Reinforcement
	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	NA	NA	47	NA	NA	42	NA	NA	NA	NA	NA	Project: Salinas Area Reinforcement
Salinas-Firestone #1 60 kV Line	Base Case	P0	Base Case	112	108	NA	65	65	NA	39	21	56	39	110	Project: Salinas Area Reinforcement
	SALINAS-FIRESTONE #2 60KV [7910]	P1	N-1	189	190	NA	120	125	NA	56	17	87	56	192	Project: Salinas Area Reinforcement
	MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS & MOSSLAND 500/230KV TB 9	P3	G-1/ N-1	96	109	NA	65	65	NA	39	21	56	39	110	Project: Salinas Area Reinforcement
	MOSSLNSW 230/115KV TB 1 & MOSSLNSW 230/115KV TB 4	P6	N-1-1	96	108	NA	65	65	NA	39	21	56	39	110	Project: Salinas Area Reinforcement
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	104	101	NA	61	61	NA	35	18	49	34	103	Project: Salinas Area Reinforcement
	Base Case	P0	Base Case	NA	NA	32	NA	NA	27	NA	NA	NA	NA	NA	Project: Salinas Area Reinforcement
Salinas-Firestone #2 115 kV Line	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	NA	NA	37	NA	NA	32	NA	NA	NA	NA	NA	Project: Salinas Area Reinforcement
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	NA	NA	37	NA	NA	32	NA	NA	NA	NA	NA	Project: Salinas Area Reinforcement
	Base Case	P0	Base Case	106	105	NA	64	65	NA	34	13	51	34	106	Project: Salinas Area Reinforcement
Salinas-Firestone #2 60 kV Line	SALINAS1-FIRESTNE 60KV [0]	P1	N-1	195	196	NA	121	128	NA	56	17	88	56	198	Project: Salinas Area Reinforcement
	SALINAS-FIRESTONE #2 60KV [7910]	P1	N-1	184	186	NA	117	121	NA	53	16	83	53	187	Project: Salinas Area Reinforcement
	SALINAS-FIRESTONE #2 60KV [7910] (2)	P1	N-1	188	191	NA	119	124	NA	53	16	84	53	192	Project: Salinas Area Reinforcement
	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	100	100	NA	64	65	NA	34	13	51	34	101	Project: Salinas Area Reinforcement
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	100	100	NA	60	61	NA	30	12	45	30	101	Project: Salinas Area Reinforcement
	Base Case	P0	Base Case	80	80	103	48	55	73	28	15	12	28	82	Continue to monitor
Salinas-Laureles 60 kV Line	SALINAS-MOSSLNSW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	75	76	107	48	55	79	28	15	12	28	78	Continue to monitor
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	75	76	107	45	52	78	25	13	10	25	78	Continue to monitor
	Base Case	P0	Base Case	80	80	103	48	55	73	28	15	12	28	82	Continue to monitor
San Luis Obispo-Oceano 115 kV Line	MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	98	Diverge	150	90	100	19	75	47	100	120	Diverge	Existing UVLS
	MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	111	115	55	76	104	99	58	3	43	58	119	Redundant relay installation recommended previously
	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	23	Diverge	49	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	21	Diverge	50	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
	MORRO BAY-DIABLO 230KV [5260] & MORRO BAY-MESA 230KV [5290]	P6	N-1-1	93	133	140	87	96	17	72	47	98	116	137	Existing UVLS
	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	89	131	56	85	92	112	69	45	94	112	46	Existing UVLS
	Morro Bay-Mesa and Morro Bay-Diablo 230 kV Lines	P7	DCTL	93	133	140	86	96	15	72	47	98	116	137	Existing UVLS



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
San Luis Obispo-Santa Maria 115 kV Line	MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	Diverge	Diverge	Diverge	NA	Diverge	NA	102	6	77	102	Diverge	Existing UVLS
	MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	128	Diverge	199	109	119	17	98	65	135	160	Diverge	Existing UVLS
	MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	144	150	NA	91	124	114	76	2	58	76	154	Redundant relay installation recommended previously
	MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	NA	Diverge	NA	102	5	77	101	Diverge	Install redundant battery supply
	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	25	Diverge	67	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	21	Diverge	68	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
	DIABLO-MESA 230KV [4620] & MORRO BAY-MESA 230KV [5290]	P6	N-1-1	115	170	NA	102	109	132	90	62	127	148	NA	Existing UVLS
	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	115	170	NA	103	109	132	90	62	127	149	NA	Existing UVLS
	Morro Bay-Mesa and Morro Bay-Diablo 230 kV Lines	P7	DCTL	120	174	184	104	114	13	94	65	132	153	179	Existing UVLS
San Miguel-Paso Robles 70 kV Line	PASO ROBLES-TEMPLETON 70KV [9400]	P1	N-1	Diverge	Diverge	NA	1	7	NA	38	21	1	38	Diverge	Project: Estrella Substation Project
	TEMPLETON 230-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	NA	1	7	NA	38	21	1	38	Diverge	Project: Estrella Substation Project
Santa Maria-Sisquoc 115 kV Line	MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	Diverge	Diverge	Diverge	NA	Diverge	NA	34	3	31	34	Diverge	Existing UVLS
	MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	NA	Diverge	NA	63	8	42	63	Diverge	Install redundant battery supply
Santa Ynez Sw.Sta-Cabrillo 115 kV Line	MESA-SISQUOC 115KV [2460] & MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	57	57	161	23	31	35	27	5	23	25	58	Continue to monitor
Sisquoc-Santa Ynez Sw.Sta. 115 kV Line	MESA-SISQUOC 115KV [2460] & MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	69	32	119	28	19	19	33	1	24	30	33	Review Project: South of Mesa
Soledad #1 60 kV Line(Gonzales 60 kV Tap #1)	Base Case	P0	Base Case	58	136	NA	40	76	NA	18	36	10	18	137	Project: Salinas Area Reinforcement
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900]	P1	N-1	55	130	NA	38	74	NA	16	32	9	16	132	Project: Salinas Area Reinforcement
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P1	N-1	55	130	NA	38	74	NA	16	32	9	16	132	Project: Salinas Area Reinforcement
	MOSS LANDING-CRAZY HORSE CANYON #1 115KV [2930] MOAS OPENED ON PRNDL J1_PRUNEDLE	P1	N-1	52	123	NA	38	71	NA	16	32	9	16	125	Project: Salinas Area Reinforcement
	MOSS LANDING-SALINAS #2 115KV [2890]	P1	N-1	52	123	NA	38	71	NA	16	32	9	16	125	Project: Salinas Area Reinforcement
	SALINAS-MOSSLSNSW-DOLAN RD 115KV [0]	P1	N-1	52	123	NA	38	71	NA	16	32	9	16	125	Project: Salinas Area Reinforcement
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900] (NTVD SW1-SOLEDAD)	P2-1	Line Section w/o/ Fault	55	130	NA	38	74	NA	16	32	9	16	132	Project: Salinas Area Reinforcement
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910] (NTVD SW2-SOLEDAD)	P2-1	Line Section w/o/ Fault	55	130	NA	38	74	NA	16	32	9	16	132	Project: Salinas Area Reinforcement
	CRZY_HRS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	56	133	NA	38	75	NA	16	32	9	16	136	Project: Salinas Area Reinforcement
	CRZY_HRS 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie-Breaker Fault	55	130	NA	38	74	NA	16	32	9	16	133	Project: Salinas Area Reinforcement
	SALINAS 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie-Breaker Fault	55	130	NA	38	74	NA	16	32	9	16	132	Project: Salinas Area Reinforcement



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
	DOLAN ROAD 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	52	123	NA	38	71	NA	16	32	9	16	125	Project: Salinas Area Reinforcement
	PRUNEDALE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	52	123	NA	38	71	NA	16	32	9	16	125	Project: Salinas Area Reinforcement
	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910] & SALINAS-MOSSLSNW-DOLAN RD 115KV [0]	P6	N-1-1	57	135	NA	38	75	NA	16	32	9	16	138	Project: Salinas Area Reinforcement
	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	57	132	NA	38	74	NA	16	32	9	16	134	Project: Salinas Area Reinforcement
	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	58	135	NA	38	76	NA	16	32	9	16	138	Project: Salinas Area Reinforcement
Soledad-Soledad 4M 60/115 kV Transformer	SOLEDAD 115/115KV TB 1 (2)	P1	N-1	62	109	29	47	82	26	14	32	4	14	112	Project: Salinas Area Reinforcement
	SOLEDAD 115KV - RING R6 & R5	P2-3	Non-Bus-Tie-Breaker Fault	62	109	29	47	82	27	14	32	4	14	112	Project: Salinas Area Reinforcement
	SOLEDAD 115/115KV TB 1	P1	N-1	62	109	29	47	82	26	14	32	2	14	112	Project: Salinas Area Reinforcement
	SOLEDAD 115KV - RING R2 & R1	P2-3	Non-Bus-Tie-Breaker Fault	62	109	29	46	82	27	14	32	4	14	112	Project: Salinas Area Reinforcement
	SOLEDAD 115KV - RING R3 & R2	P2-3	Non-Bus-Tie-Breaker Fault	62	109	29	46	82	27	14	32	4	14	112	Project: Salinas Area Reinforcement
Temblor-San Luis Obispo 115 kV Line	MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	85	Diverge	104	87	100	52	86	68	72	104	Diverge	Existing UVLS
	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	82	Diverge	102	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	72	Diverge	104	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
Templeton 230/70 kV Transformer	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	35	Diverge	19	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	31	Diverge	20	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
Templeton-Atascadero 70 kV Line	MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	Diverge	Diverge	52	Diverge	32	Diverge	Diverge	Diverge	Redundant relay installation recommended previously
	MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	Diverge	42	Diverge	33	Diverge	Diverge	Diverge	Redundant battery supply installation recommended previously
Watsonville-Salinas 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	128	NA	NA	Diverge	Redundant battery supply installation recommended previously
	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	208	Diverge	Diverge	157	249	63	216	249	Diverge	Redundant relay installation recommended previously
	MOSS LANDING-GREEN VALLEY #1 115KV [2850] & MOSS LANDING-GREEN VALLEY #2 115KV [2860]	P6	N-1-1	Diverge	83	92	Diverge	77	88	Diverge	21	188	Diverge	84	Project: Morgan Hill Area Reinforcement
	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	83	92	Diverge	77	88	Diverge	21	188	Diverge	84	Project: Morgan Hill Area Reinforcement



## 2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&amp;E Central Coast &amp; Los Padres

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
SOLEDAD 115 kV	Base Case	P0	Base Case	0.96	0.96	0.94	1.00	0.99	0.95	1.03	1.05	1.01	1.03	0.96	Continue to monitor
LAURELES 60 kV	Base Case	P0	Base Case	0.95	0.98	0.92	0.99	0.99	0.94	1.02	1.04	1.02	1.03	0.98	Continue to monitor
SPENCE 60 kV	Base Case	P0	Base Case	0.93	0.97	NA	0.99	0.98	NA	1.02	1.03	1.00	1.03	0.97	Project: Salinas Area Reinforcement
SPENCE 115 kV	Base Case	P0	Base Case	NA	NA	0.95	NA	NA	0.96	NA	NA	NA	NA	NA	Project: Salinas Area Reinforcement
SOLEDAD 60 kV	Base Case	P0	Base Case	0.96	0.95	0.94	1.01	0.99	0.95	1.03	1.05	1.01	1.03	0.95	Continue to monitor
SAN MIGL 70 kV	Base Case	P0	Base Case	0.94	0.96	0.97	0.98	1.00	0.98	1.02	1.04	1.00	1.02	0.96	Project: Estrella Substation Project
SOLEDAD 115 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900]	P1	N-1	0.91	0.89	0.90	0.98	0.96	0.92	1.02	1.05	0.99	1.02	0.89	Project: Salinas Area Reinforcement
SOLEDAD 60 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900]	P1	N-1	0.91	0.89	0.90	0.99	0.95	0.92	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SOLEDAD 115 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P1	N-1	0.91	0.89	0.90	0.98	0.96	0.92	1.02	1.05	0.99	1.02	0.89	Project: Salinas Area Reinforcement
SOLEDAD 60 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P1	N-1	0.91	0.89	0.90	0.99	0.95	0.92	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SNBENITO 115 kV	CRAZY HORSE CANYON-SAN BENITO 115KV [2152]	P1	N-1	0.93	0.96	0.89	1.01	0.99	0.92	1.01	1.05	1.01	1.01	0.95	Continue to monitor
PSA RBLs 70 kV	PASO ROBLES-TEMPLETON 70KV [9400]	P1	N-1	Diverge	Diverge	0.95	0.85	0.86	0.97	0.95	1.06	0.98	0.95	Diverge	Project: Estrella Substation Project
SAN MIGL 70 kV	PASO ROBLES-TEMPLETON 70KV [9400]	P1	N-1	Diverge	Diverge	0.97	0.85	0.87	0.98	0.96	1.05	0.98	0.96	Diverge	Project: Estrella Substation Project
SPENCE 60 kV	SALINAS-FIRESTONE 60KV [0]	P1	N-1	0.86	0.91	NA	0.97	0.94	NA	1.02	1.03	0.98	1.03	0.91	Project: Salinas Area Reinforcement
SPENCE 60 kV	SALINAS-FIRESTONE #2 60KV [7910]	P1	N-1	0.89	0.94	NA	0.98	0.96	NA	1.02	1.03	0.99	1.03	0.94	Project: Salinas Area Reinforcement
SPENCE 60 kV	SALINAS-FIRESTONE #2 60KV [7910] [2]	P1	N-1	0.87	0.92	NA	0.97	0.95	NA	1.02	1.03	0.98	1.03	0.92	Project: Salinas Area Reinforcement
SAN MIGL 70 kV	SAN MIGUEL-PASO ROBLES 70KV [9390]	P1	N-1	0.80	0.82	NA	0.83	0.89	NA	0.97	1.02	0.97	0.97	0.82	Project: Estrella Substation Project
SAN MIGL 70 kV	SAN MIGL-UNIONPGAE #1 70KV [0]	P1	N-1	NA	NA	0.73	NA	NA	0.82	NA	NA	NA	NA	NA	Potential Network Upgrade (New Line)
SOLEDAD 115 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900] (NTVD SW1-SOLEDAD)	P2-1	Line Section w/o Fault	0.91	0.90	0.90	0.98	0.96	0.92	1.02	1.05	0.99	1.02	0.89	Sensitivity Only
SOLEDAD 60 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV [2900] (NTVD SW1-SOLEDAD)	P2-1	Line Section w/o Fault	0.91	0.89	0.90	0.99	0.95	0.92	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SOLEDAD 115 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910] (NTVD SW2-SOLEDAD)	P2-1	Line Section w/o Fault	0.91	0.90	0.90	0.98	0.96	0.92	1.02	1.05	0.99	1.02	0.89	Sensitivity Only
SOLEDAD 60 kV	CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910] (NTVD SW2-SOLEDAD)	P2-1	Line Section w/o Fault	0.91	0.89	0.90	0.99	0.95	0.92	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SOLEDAD 115 kV	CRZY_HRS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie Breaker	0.89	0.87	0.88	0.98	0.95	0.90	1.01	1.06	0.99	1.01	0.87	Operations solution
SOLEDAD 60 kV	CRZY_HRS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie Breaker	0.89	0.87	0.88	0.98	0.94	0.89	1.02	1.06	0.99	1.01	0.86	Operations Solution
SOLEDAD 115 kV	CRZY_HRS 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie Breaker	0.91	0.89	0.90	0.98	0.96	0.91	1.02	1.05	0.99	1.02	0.89	Operations solution
SOLEDAD 60 kV	CRZY_HRS 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie Breaker	0.91	0.89	0.90	0.99	0.95	0.91	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SNBENITO 115 kV	CRZY_HRS 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie Breaker	0.91	0.93	0.86	1.00	0.98	0.90	1.01	1.05	1.01	1.00	0.93	Continue to monitor
SOLEDAD 115 kV	SALINAS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie Breaker	0.92	0.90	0.91	0.98	0.96	0.93	1.02	1.05	0.99	1.02	0.89	Operations solution
SOLEDAD 60 kV	SALINAS 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie Breaker	0.91	0.89	0.91	0.99	0.96	0.92	1.02	1.05	0.99	1.02	0.89	Project: Salinas Area Reinforcement
SOLEDAD 115 kV	SALINAS 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie Breaker	0.91	0.89	0.90	0.98	0.96	0.92	1.02	1.05	0.99	1.02	0.89	Operations solution
SOLEDAD 60 kV	SALINAS 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie Breaker	0.91	0.89	0.90	0.99	0.95	0.92	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SAN MIGL 70 kV	ESTRELLA 230KV - MIDDLE BREAKER BAY 1	P2-3	Non-Bus-Tie Breaker	NA	NA	0.89	NA	NA	0.94	NA	NA	NA	NA	NA	Potential Network Upgrade (New Line)
SOLEDAD 115 kV	MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS & CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P3	G-1/ N-1	0.91	0.89	0.90	0.98	0.96	0.92	1.02	1.05	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SOLEDAD 60 kV	MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS & CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P3	G-1/ N-1	0.90	0.88	0.90	0.99	0.95	0.92	1.02	1.06	0.99	1.02	0.88	Project: Salinas Area Reinforcement
SPENCE 60 kV	MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS & SALINAS-FIRESTONE 60KV [0]	P3	G-1/ N-1	0.86	0.91	NA	0.97	0.94	NA	1.02	1.03	0.98	1.02	0.91	Project: Salinas Area Reinforcement
SAN MIGL 70 kV	MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS & SAN MIGL-UNIONPGAE #1 70KV [0]	P3	G-1/ N-1	NA	NA	0.73	NA	NA	0.82	NA	NA	NA	NA	NA	Potential Network Upgrade (New Line)
CRZY_HRS 115 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.57	NA	NA	Diverge	Redundant battery supply installation recommended previously
SOLEDAD 115 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.57	NA	NA	Diverge	Redundant battery supply installation recommended previously
SALINAS 115 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.56	NA	NA	Diverge	Redundant battery supply installation recommended previously
SNBENITO 115 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.57	NA	NA	Diverge	Redundant battery supply installation recommended previously



## 2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&amp;E Central Coast &amp; Los Padres

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
SALINAS2 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.44	NA	NA	Diverge	Redundant battery supply installation recommended previously
SALINAS1 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.44	NA	NA	Diverge	Redundant battery supply installation recommended previously
LAURELES 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.45	NA	NA	Diverge	Redundant battery supply installation recommended previously
SPENCE 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	NA	NA	Diverge	NA	NA	1.44	NA	NA	Diverge	Redundant battery supply installation recommended previously
SOLEDAD 60 kV	MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	NA	Diverge	Diverge	NA	Diverge	Diverge	NA	1.57	NA	NA	Diverge	Redundant battery supply installation recommended previously
SALINAS2 60 kV	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	0.36	Diverge	Diverge	0.38	0.44	1.01	0.34	0.44	Diverge	Redundant relay installation recommended previously
SALINAS1 60 kV	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	0.36	Diverge	Diverge	0.38	0.44	1.01	0.34	0.44	Diverge	Redundant relay installation recommended previously
LAURELES 60 kV	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	0.31	Diverge	Diverge	0.33	0.44	1.03	0.34	0.44	Diverge	Redundant relay installation recommended previously
SPENCE 60 kV	SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	NA	Diverge	Diverge	NA	0.44	1.01	0.33	0.44	Diverge	Redundant relay installation recommended previously
PSA RBL 70 kV	TEMPLETON 230-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	Diverge	Diverge	0.95	0.85	0.86	0.97	0.95	1.06	0.98	0.95	Diverge	Project: Estrella Substation Project
SAN MIGL 70 kV	TEMPLETON 230-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery Supply	Diverge	Diverge	0.97	0.85	0.87	0.98	0.96	1.05	0.98	0.96	Diverge	Project: Estrella Substation Project
SISQUOC 115 kV	MESA_PGE-SNTA MRA 115KV [0] & MESA-SISQUOC 115KV [2460]	P6	N-1-1	0.90	0.92	0.47	0.98	0.96	0.97	0.98	1.05	0.98	0.98	Diverge	Continue to monitor
MESA PGE 230 kV	MORRO BAY-MESA 230KV [5290] & DIABLO-MESA 230KV [4620]	P6	N-1-1	1.03	0.79	NA	1.01	1.02	1.00	1.03	1.03	1.03	1.03	Diverge	Existing UVLS
SNTA MRA 115 kV	MORRO BAY-MESA 230KV [5290] & DIABLO-MESA 230KV [4620]	P6	N-1-1	1.02	0.90	NA	1.03	1.02	1.02	1.02	1.04	1.02	1.02	Diverge	Existing UVLS
DIABLOCN 230 kV	MORRO BAY-MESA 230KV [5290] & MORRO BAY-DIABLO 230KV [5260]	P6	N-1-1	1.05	0.87	0.99	1.04	1.04	1.04	1.03	1.03	1.05	1.03	0.87	Existing UVLS
MORRO BY 115 kV	MORROBAY 230/115KV TB 6 & CALLENDER SW STA-MESA 115KV [1210]	P6	N-1-1	0.92	0.92	0.87	0.97	0.95	0.95	0.99	1.07	1.00	0.99	Diverge	Continue to monitor
SN LS OB 115 kV	MORROBAY 230/115KV TB 6 & CALLENDER SW STA-MESA 115KV [1210]	P6	N-1-1	0.93	0.92	0.87	0.97	0.95	0.95	0.99	1.06	1.00	0.99	Diverge	Continue to monitor
OCEANO 115 kV	MORROBAY 230/115KV TB 6 & CALLENDER SW STA-MESA 115KV [1210]	P6	N-1-1	0.90	0.89	0.83	0.95	0.93	0.93	0.97	1.07	0.99	0.97	0.89	Operations Solution/ Generation Redispatch
CALLENDERSS 115 kV	MORROBAY 230/115KV TB 6 & CALLENDER SW STA-MESA 115KV [1210]	P6	N-1-1	0.90	0.89	0.82	0.95	0.93	0.93	0.97	1.07	0.98	0.97	0.88	Operations Solution/ Generation Redispatch
SNBENITO 115 kV	MOSS LANDING-CRAZY HORSE CANYON #2 115KV [2983] & MOSS LANDING-CRAZY HORSE CANYON #1 115KV [2930] MOAS OPENED ON PRNDL J1_PRUNEDLE	P6	N-1-1	0.89	Diverge	0.84	1.00	0.97	0.87	1.02	1.05	1.00	1.01	Diverge	ISO recommended a RAS
SPENCE 60 kV	MOSS LANDING-CRAZY HORSE CANYON #2 115KV [2983] & MOSS LANDING-CRAZY HORSE CANYON #1 115KV [2930] MOAS OPENED ON PRNDL J1_PRUNEDLE	P6	N-1-1	0.93	Diverge	NA	0.98	0.96	NA	1.02	1.03	0.99	1.02	Diverge	Project: Salinas Area Reinforcement
SPENCE 115 kV	MOSS LANDING-CRAZY HORSE CANYON #2 115KV [2983] & MOSS LANDING-CRAZY HORSE CANYON #1 115KV [2930] MOAS OPENED ON PRNDL J1_PRUNEDLE	P6	N-1-1	NA	NA	0.88	NA	NA	0.91	NA	NA	NA	NA	NA	Operations Solution/ Generation Redispatch
GREENVALLEY 115 kV	MOSS LANDING-GREEN VALLEY #2 115KV [2860] & MOSS LANDING-GREEN VALLEY #1 115KV [2850]	P6	N-1-1	Diverge	1.01	0.93	Diverge	1.01	0.93	Diverge	1.04	0.56	Diverge	Diverge	Project: Morgan Hill Area Reinforcement
CMP EVRS 115 kV	MOSS LANDING-GREEN VALLEY #2 115KV [2860] & MOSS LANDING-GREEN VALLEY #1 115KV [2850]	P6	N-1-1	Diverge	1.03	0.93	Diverge	1.03	0.94	Diverge	1.04	0.57	Diverge	Diverge	Project: Morgan Hill Area Reinforcement
PAUL SWT 115 kV	MOSS LANDING-GREEN VALLEY #2 115KV [2860] & MOSS LANDING-GREEN VALLEY #1 115KV [2850]	P6	N-1-1	Diverge	1.03	0.94	Diverge	1.03	0.94	Diverge	1.03	0.57	Diverge	Diverge	Project: Morgan Hill Area Reinforcement
ROB ROY 115 kV	MOSS LANDING-GREEN VALLEY #2 115KV [2860] & MOSS LANDING-GREEN VALLEY #1 115KV [2850]	P6	N-1-1	Diverge	1.02	0.93	Diverge	1.02	0.93	Diverge	1.04	0.57	Diverge	Diverge	Project: Morgan Hill Area Reinforcement
SOLEDAD 115 kV	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P6	N-1-1	0.88	0.87	0.86	0.97	0.94	0.88	1.01	1.06	0.98	1.01	0.86	Operations Solution/ Generation Redispatch



## 2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&amp;E Central Coast &amp; Los Padres

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
SOLEDAD 60 kV	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & CRAZY HORSE CANYON-SALINAS-SOLEDAD #2 115KV [2910]	P6	N-1-1	0.88	0.86	0.86	0.98	0.94	0.88	1.02	1.06	0.98	1.02	0.85	Operations Solution/ Generation Redispatch
LAURELES 60 kV	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & MOSS LANDING-CRAZY HORSE CANYON #1 115KV [2930] MOAS OPENED ON PRNDL J1_PRUNEDLE	P6	N-1-1	0.95	Diverge	0.89	0.98	0.96	0.92	1.02	1.04	1.01	1.02	Diverge	Operations Solution/ Generation Redispatch
SALINAS 115 kV	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	0.88	0.89	0.80	0.98	0.94	0.82	1.02	1.05	0.99	1.02	0.88	Operations Solution/ Generation Redispatch
SALINAS2 60 kV	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	0.93	0.95	0.85	0.98	0.98	0.88	1.02	1.03	0.99	1.02	Diverge	Continue to monitor
SALINAS1 60 kV	SALINAS-MOSSLSNW-DOLAN RD 115KV [0] & MOSS LANDING-SALINAS #2 115KV [2890]	P6	N-1-1	0.93	0.95	0.85	0.98	0.98	0.88	1.02	1.03	0.99	1.02	Diverge	Continue to monitor
SAN MIGL 70 kV	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	0.64	0.78	0.97	0.91	0.94	0.98	0.98	1.05	0.96	0.97	0.76	Project: Estrella Substaion Project
TEMPL7 70 kV	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	0.69	0.81	0.97	0.94	0.95	0.98	0.99	1.05	0.96	0.98	0.80	Project: Estrella Substation Project
PSA RBLS 70 kV	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	0.64	0.78	0.96	0.93	0.95	0.98	0.98	1.07	0.95	0.98	0.77	Project: Estrella Substation Project
ATASCDRO 70 kV	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	0.78	0.88	0.98	0.96	0.97	0.98	1.00	1.05	0.98	1.00	0.86	Project: Estrella Substation Project
CAYUCOS 70 kV	TEMPLETON-GATES 230KV [5934] & MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	0.85	Diverge	0.98	0.97	0.98	0.98	1.00	1.04	0.99	1.00	Diverge	Project: Estrella Substation Project
MESA PGE 230 kV	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	1.03	0.79	NA	1.00	1.03	1.00	1.03	1.03	1.03	1.03	NA	Existing UVLS
SNTA MRA 115 kV	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	1.02	0.90	NA	1.03	1.02	1.02	1.02	1.04	1.02	1.02	NA	Existing UVLS
SNTAMRTP 115 kV	Morro Bay-Mesa and Diablo-Mesa 230 kV Lines	P7	DCTL	1.02	0.90	NA	1.04	1.02	1.02	1.02	1.04	1.02	1.02	NA	Existing UVLS
DIABLOCN 230 kV	Morro Bay-Mesa and Morro Bay-Diablo 230 kV Lines	P7	DCTL	1.05	0.87	0.99	1.03	1.04	1.04	1.03	1.03	1.05	1.03	0.87	Existing UVLS
MESA PGE 230 kV	Morro Bay-Mesa and Morro Bay-Diablo 230 kV Lines	P7	DCTL	1.03	0.84	0.93	1.01	1.03	1.03	1.03	1.03	1.03	1.03	0.84	Existing UVLS
CRZY_HRS 115 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.91	0.92	0.86	1.00	0.97	0.88	1.02	1.05	1.00	1.02	0.92	continue to monitor
SOLEDAD 115 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.88	0.89	0.84	0.99	0.95	0.87	1.02	1.06	0.99	1.02	0.88	ISO recommended a RAS
SALINAS 115 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.93	0.95	0.90	1.01	0.98	0.91	1.03	1.05	1.01	1.03	0.94	continue to monitor
SNBENITO 115 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.89	0.91	0.84	1.00	0.97	0.87	1.02	1.05	1.00	1.01	0.90	ISO recommended a RAS
LAURELES 60 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.95	0.95	0.90	0.98	0.96	0.92	1.02	1.04	1.01	1.03	0.95	continue to monitor
SPENCE 60 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.93	0.94	NA	0.98	0.96	NA	1.02	1.03	0.99	1.03	0.94	Project: Salinas Area Reinforcement
SPENCE 115 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	NA	NA	0.88	NA	NA	0.90	NA	NA	NA	NA	NA	continue to monitor
SOLEDAD 60 kV	Moss Landing - Crazy Horse #1 and #2 115 kV Lines	P7	DCTL	0.88	0.88	0.84	0.99	0.95	0.86	1.02	1.06	0.99	1.02	0.87	ISO recommended a RAS
GREENVALLEY 115 kV	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	1.01	0.93	Diverge	1.01	0.93	Diverge	1.04	0.56	Diverge	1.01	Project: Morgan Hill Area Reinforcement
CMP EVRS 115 kV	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	1.04	0.93	Diverge	1.03	0.94	Diverge	1.04	0.57	Diverge	1.04	Project: Morgan Hill Area Reinforcement
PAUL SWT 115 kV	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	1.03	0.94	Diverge	1.03	0.94	Diverge	1.03	0.57	Diverge	1.03	Project: Morgan Hill Area Reinforcement
ROB ROY 115 kV	Moss Landing - Green Valley #1 and #2 115 kV Lines	P7	DCTL	Diverge	1.02	0.93	Diverge	1.02	0.93	Diverge	1.04	0.57	Diverge	1.02	Project: Morgan Hill Area Reinforcement
CRZY_HRS 115 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.94	0.94	0.89	1.00	0.98	0.91	1.03	1.04	1.01	1.03	0.94	Continue to monitor
SOLEDAD 115 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.87	0.86	0.80	0.98	0.93	0.83	1.02	1.06	0.99	1.02	0.86	ISO recommended a RAS
SALINAS 115 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.88	0.89	0.80	0.98	0.94	0.83	1.02	1.05	0.99	1.02	0.88	ISO recommended a RAS
SNBENITO 115 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.92	0.93	0.87	1.00	0.97	0.89	1.03	1.04	1.01	1.02	0.93	Continue to monitor
SALINAS2 60 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.93	0.95	0.85	0.98	0.98	0.89	1.02	1.03	0.99	1.02	0.94	Continue to monitor
SALINAS1 60 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.93	0.95	0.85	0.98	0.98	0.89	1.02	1.03	0.99	1.02	0.94	Continue to monitor
LAURELES 60 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.89	0.92	0.78	0.97	0.96	0.83	1.01	1.04	0.99	1.01	0.91	Review and monitor power factor
SPENCE 60 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.87	0.91	NA	0.97	0.95	NA	1.01	1.03	0.97	1.02	0.90	Review and monitor power factor
SPENCE 115 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	NA	NA	0.78	NA	NA	0.81	NA	NA	NA	NA	NA	Review and monitor power factor
SOLEDAD 60 kV	Moss Landing - Salinas #1 and #2 115 kV Lines	P7	DCTL	0.86	0.86	0.80	0.98	0.93	0.83	1.02	1.06	0.99	1.02	0.85	ISO recommended a RAS



Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
PSA RBLS 70 kV	PASO ROBLES-TEMPLETON 70KV [9400]	P1	N-1	Diverge	Diverge	4	16	16	3	7	-1	3	7	Diverge	Project: Estrella Substation Project
SAN MIGL 70 kV	PASO ROBLES-TEMPLETON 70KV [9400]	P1	N-1	Diverge	Diverge	0	13	13	0	6	-1	3	6	Diverge	Project: Estrella Substation Project
SAN MIGL 70 kV	SAN MIGL-UNIONPGAE #1 70KV [0]	P1	N-1	NA	NA	25	NA	NA	17	NA	NA	NA	NA	NA	Potential Network Upgrade (New Line)
SAN MIGL 70 kV	SAN MIGUEL-PASO ROBLES 70KV [9390]	P1	N-1	15	14	NA	15	11	NA	5	2	4	5	15	Project: Estrella Substation Project



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
Tran MOSSLNSW 230/115 kV bk 4	P1	N-1	No Issues	Numerical Solution Issue	Numerical Solution Issue	No Issues	No Issues	Simulations with lower timestep resulted in acceptable system response.
Tran MOSSLNSW 500-230 kV bk 9	P1	N-1	No Issues	No Issues	No Issues	No Issues	Numerical Solution Issue	Simulations with lower timestep resulted in acceptable system response.
Line MOSSLNSW to MLPB2 230 kV ckt 1	P2-1	Section w/o Fault	No Issues	No Issues	Consequential Generation Loss	No Issues	No Issues	Consequential Generation Loss.
Bus fault at MOSSLNSW 230 kV	P2-2	Bus Fault	No Issues	Numerical Solution Issue	Numerical Solution Issue	No Issues	Numerical Solution Issue	Simulations with lower timestep resulted in acceptable system response.
Internal fault at non-Bus-tie Breaker 2322 at MOSSLNSW 230 kV	P2-3	Non Tie-Breaker Fault	No Issues	Numerical Solution Issue	Numerical Solution Issue	No Issues	Numerical Solution Issue	Simulations with lower timestep resulted in acceptable system response.
Internal fault at Bue-tie Breaker 502 at MORROBAY 230 kV	P2-4	Tie-Breaker Fault	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Criteria Violations observed with 3-Phase Fault Simulations, working with PTO for SLG fault information.
Stuck Breaker Morro Bay 472 protecting line TEMPLETN to MORROBAY 230 kV ckt 1	P4	Stuck Breaker	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	Criteria Violations observed with 3-Phase Fault Simulations, working with PTO for SLG fault information.
Stuck Bue-tie Breaker 502 protecting Substation Bus MORROBAY 230 kV Section 1E	P4	Stuck Breaker	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Criteria Violations observed with 3-Phase Fault Simulations, working with PTO for SLG fault information.
Stuck Breaker Coburn 52 protecting Gen BAF COG2 13.8 kV Unit 1	P4	Stuck Breaker	No Issues	No Issues	Consequential Generation Loss	No Issues	No Issues	Consequential Generation Loss.
Failure of Mesa 115 kV CB 192 control circuits due to non-redundant DC panel with fault for SVD MESA_PGE 115 kV id v (ALL 115 kV clears remotely)	P5	Non-Redundant DC Panel	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Install Redundant Panel
Failure of non-redundant bus differential relay protecting Substation Bus MORROBAY 230 kV (ALL 230 kV elements clear remotely)	P5	Non-Redundant Relay	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Install Redundant Battery Supply
SLG @ bus [35910] CRZY_HRS 115kV with Outage Local DC Supply	P5	Non-Redundant Battery	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Install Redundant Battery Supply
Failure of non-redundant Station DC Battery Supplying Morro Bay SW 230-115 kV Batt	P5	Non-Redundant Battery	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Install Redundant Battery Supply
Failure of non-redundant relay on Mesa CB 192 protecting SVD MESA_PGE 115 kV id v	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Install Redundant Relay
Fault on Line Morro Bay-Mesa 230 kV Line with Loss of Line Morro Bay - Diablo Canyon 230 kV	P6	N-1-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential Mitigation
Fault on Tran Mesa 230/115 kV bk 2 with Loss of Tran Mesa 230/115 kV bk 3	P6	N-1-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential Mitigation





Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	

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



Substation	Load Served (MW)												Potential Mitigation Solutions
	2026 Summer Peak	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	

No single source substation with more than 100 MW



2024-2025 ISO Reliability Assessment - Study Results

Study Area:

PG&E Central Valley



Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Bellota – Riverbank - Melones SW STA 115 kV Line	P2-4:A11:9_-TESLA 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	165.06	N/A	N/A	N/A	N/A	N/A	NConv	NConv	N/A	Project: Tesla 115 kV Bus Reconfiguration Project
	BELLOTA 230/115KV TB 1 & BELLOTA 230/115KV TB 2	P6	N-1-1	<100	<100	104.37	<100	<100	<100	126.72	107.93	<100	Continue to monitor
	RPN JNCR-RIPON #1 115KV [0] MOAS OPENED ON VLYHMTPT1_VALLY HM & STANISLAUS-MELONES SW STA-MANTECA #1 115KV [3830] MOAS OPENED ON STANISLAUSPH_FRGINTPT1	P6	N-1-1	<100	<100	<100	<100	<100	<100	99.60	100.08	<100	Continue to monitor
Bellota-Riverbank-Melones 115 kV Line	P5-SC:A11:12_-MANTECA 115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	109.64	105.13	104.19	128.72	144.99	147.20	110.52	134.81	103.24	Add Redundant battery
	P5-SA:A11:11_-TESLA 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	62.66	141.15	NConv	36.48	126.19	81.34	NConv	NConv	114.69	Add Redundant relay
Beltoa 230/115 kV Transformer No. 2	P2-4:A11:9_-TESLA 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	44.43	N/A	N/A	N/A	N/A	N/A	NConv	NConv	N/A	Continue to monitor
Brighton - Bellota 230 kV Line	P5-SC:A5:1_-RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	130.99	125.13	N/A	22.68	54.18	12.46	49.98	45.01	131.27	Add Redundant battery
Brighton - Davis 115 kV Line	P4-2:A5:1_-STUCK BREAKER & NO BF RELAY RIO OSO 115KV CB 402 412 422 432 442 462 OR 472	P5	Non-Redundant battery supply/Relay	105.37	105.52	138.15	18.32	51.67	12.70	44.37	42.30	107.37	Add Redundant relay
	WOODLAND-DAVIS 115KV [4210] & BRIGHTN-W-SCRMNO 115KV [0]	P6	N-1-1	147.83	148.14	176.67	<100	<100	<100	<100	<100	150.61	Project: Vaca Dixon Area Reinforcement Project
	BRIGHTN-W-SCRMNO 115KV [0] & WOODLAND-DAVIS 115KV [4210]	P6	N-1-1	127.03	127.57	149.13	<100	<100	<100	<100	<100	130.34	Project: Vaca Dixon Area Reinforcement Project
Brighton 230/115 kV Transformer No. 9	P1-2:A11:4_-BRIGHTON-BELLOTA 230KV [4420]	P1	N-1	69.37	41.00	N/A	95.77	45.50	89.25	105.20	99.20	N/A	Sensitivity only
	RIO OSO-LOCKEFORD 230KV [5620] & BRIGHTON-BELLOTA 230KV [4420]	P6	N-1-1	<100	<100	<100	<100	<100	<100	126.50	<100	<100	Sensitivity only
	P7-1:A11:38_-BRIGHTON-BELLOTA 230KV [4420] & RIO OSO-LOCKEFORD 230KV [5620]	P7	DCTL	69.37	N/A	N/A	N/A	18.87	N/A	102.75	17.50	N/A	Sensitivity only
Colgate-Palermo 60 kV Line	COLGETE1 230/60KV TB 3 & NARROWSPH2 13.80KV GEN UNIT 1	P3	G-1 / N-1	99.79	99.69	101.13	<100	<100	<100	<100	<100	99.88	Continue to monitor
	TABLE MTN-RIO OSO 230KV [5700] & PALERMO-COLGATE 230KV [5360]	P6	N-1-1	99.88	101.49	101.47	<100	<100	<100	<100	<100	101.75	Summer setup
	P7-1:A5:6_Table Mountain-Rio Oso 230 kV Line & Palermo-Colgate 230 kV Line	P7	DCTL	119.50	105.98	109.90	36.36	37.00	39.17	64.76	51.74	108.17	Summer setup
Cortina 230/115/60 kV Transformer No. 1	P1-3:A4:6_-CORTINA 230/115KV TB 4	P1	N-1	100.38	N/A	104.32	16.20	N/A	11.48	65.00	78.88	78.88	Project: Cortina 60KV reinforcement
	CORTINA 115/60KV TB 5 & Q1455SPV 0.60KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	<100	<100	<100	<100	170.73	118.41	<100	Sensitivity only
	CORTINA 115/60KV TB 5 & Q1455C2-Q1455C1 #1 35KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	171.43	118.45	<100	Sensitivity only
Cortina 60 kV Line No. 3	Base Case	P0	N0	200.14	203.45	164.84	23.75	61.02	16.53	144.01	61.13	205.67	Project: Cortina #3 60 kV Reconductoring Project
Delta Switching Yard - Tesla 230 kV Line	P2-3:A4:4_-BOLSWSTA 230KV - MIDDLE BREAKER BAY 2	P2-3	Non-Bus-Tie Breaker	40.19	39.88	54.51	83.06	32.10	60.61	102.23	39.00	39.31	Sensitivity only
Dixon-Vaca #1 60 kV	P1-2:A4:58_-DIXON-VACA #2 60KV [6740]	P1	N-1	120.92	121.08	103.22	16.81	38.18	38.00	89.67	38.32	129.50	Project: Vaca Dixon Area Reinforcement Project
Drum - Grass Valley - Weimar 60 kV Line	P1-2:A5:60_-COLGATE-GRASS VALLEY 60KV [6490]	P1	N-1	<100	111.60	77.58	22.20	11.92	46.80	73.13	11.98	100.73	Existing RAS
	COLGATE-GRASS VALLEY 60KV [6490] & ROLLINS 6.60KV GEN UNIT 1	P3	G-1 / N-1	<100	114.41	<100	<100	<100	<100	<100	<100	117.35	Existing RAS
Drum - Higgins 115 kV Line	P4-2:A5:2_-STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	133.41	135.20	229.62	46.58	24.73	91.68	35.14	24.70	140.34	Add Redundant relay
Drum - Rio Oso 115 kV No. 1 Line	P2-4:A5:19_-GOLDHILL 230KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	NConv	N/A	N/A	N/A	34.14	N/A	59.25	36.55	N/A	Project: Gold Hill 230/115 kV Transformer Additoin Project. Short term: Action Plan
Drum 115/60 kV Transformer No. 1	P4-2:A5:2_-STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	24.78	25.36	51.27	35.41	31.49	104.05	21.40	31.99	25.50	Add Redundant relay
	DRUM-HIGGINS 115KV [4393] MOAS OPENED ON CHCGO PK_HIGGINS & RIO OSO-DRUMPH1-BRUNSWCK 115KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	104.86	<100	<100	<100	Continue to monitor
	PLACER-GOLD HILL #1 115KV [3340] & DRUM-HIGGINS 115KV [4393] MOAS OPENED ON CHCGO PK_HIGGINS	P6	N-1-1	<100	<100	101.24	<100	<100	<100	<100	<100	<100	Continue to monitor
El Dorado-Missouri Flat #1 115KV	P2-1:A5:9_-MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2-1	Line Section w/o Fault	179.18	183.42	261.67	14.62	49.66	47.93	59.34	49.61	189.12	Project: Gold Hill-El Dorado Reinforcement Project
El Dorado-Missouri Flat #2 115KV	P2-1:A5:9_-MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2-1	Line Section w/o Fault	218.48	223.34	318.58	13.07	71.59	39.33	78.98	71.37	229.78	Project: Gold Hill-El Dorado Reinforcement Project



2024-2025 ISO Reliability Assessment - Study Results

Study Area:

PG&E Central Valley

Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Gold Hill 230/115 kV Transformer No. 2	P2-4:A5:4:_GOLDHILL 230KV - SECTION 2E & 2D	P2-4	Bus-Tie-Breaker	N/A	83.54	100.38	15.30	83.54	38.12	N/A	N/A	85.63	Operation solution
Hammer - Country Club 60 kV	P1-2:A11:92:_LOCKEFORD #1 60KV [9461]	P1	N-1	73.66	74.78	40.26	49.76	68.98	58.86	177.35	169.80	73.00	Sensitivity only
	LOCKFORD 230/60KV TB 3 & LOCKFORD 230/60KV TB 2	P6	N-1-1	<100	109.67	<100	<100	<100	<100	<100	<100	110.53	Existing RAS
	P7-1:A11:18:_STAGG-COUNTRY CLUB #1 60KV [8080] & STAGG-COUNTRY CLUB #2 60KV [8090]	P7	DCTL	118.20	76.99	90.68	11.24	52.39	24.00	60.03	46.21	79.06	Existing RAS
Higgins - Bell 115 kV Line	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7	DCTL	94.39	95.60	168.21	25.00	37.94	24.52	40.70	37.69	98.69	Continue to monitor
Kasson - Louise 60 kV Line	P5-5A:A11:14:_KASSON 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	183.64	108.27	116.25	34.38	38.12	24.00	129.04	38.17	108.71	Add Redundant relay
Lockeford - Bellota 230 kV Line	P2-4:A11:22:_STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2-4	Bus-Tie-Breaker	28.53	99.65	N/A	44.03	24.63	44.00	45.00	45.00	100.70	Sensitivity only
	P4-2:A11:1:_STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant battery supply/Relay	21.50	99.22	N/A	43.75	24.63	44.00	45.00	45.00	100.31	Sensitivity only
	STAGG-E 230/60KV TB 4 & STAGG-D 230/60KV TB 1	P6	N-1-1	<100	99.97	<100	<100	<100	<100	<100	<100	101.01	Sensitivity only
Lockeford - Industrial 60 kV Line	P1-2: LOCKFRD-VICTOR-INDUSTRIL 60KV [0]	P1	N-1	100.20	98.40	<100	88.60	<100	83.70	<100	<100	<100	Project: Lockeford – Lodi Area 230 kV Development
	P2-1: LOCKEFORD-LDDI #2 60KV [7440] [LOCKFRD-VICTOR_JCT]	P2-1	Line Section w/o Fault	107.20	106.10	<100	91.50	<100	82.30	<100	<100	<100	Project: Lockeford – Lodi Area 230 kV Development
Lockeford - Lodi 60 kV Line No. 2	P1-2:A11:93:_LOCKEFORD-INDUSTRIAL 60KV [7420]	P1	N-1	100.85	100.52	43.79	87.76	60.71	100.47	129.95	126.71	16.53	Project: Lockeford – Lodi Area 230 kV Development
Lockeford 230/60 kV Transformer No. 3	P4-2:A11:1:_STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant battery supply/Relay	47.13	100.66	69.99	48.73	39.74	31.45	41.78	38.98	101.03	Add Redundant relay
Lockeford No. 1 60 kV Line	P1-2:A11:88:_HAMMER-COUNTRY CLUB 60KV [7010] MOAS OPENED ON MORADAJT_MSHR 60V	P1	N-1	<100	76.95	34.17	67.41	43.94	83.33	113.94	108.40	<100	Sensitivity only
Manteca - Louise 60 kV Line	P5-5A:A11:14:_KASSON 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	118.66	70.27	75.62	23.02	25.39	7.60	83.56	25.42	70.55	Add Redundant relay
Manteca - Vierra 115 kV Lin	P2-4:A11:9:_TESLA 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	41.43	N/A	N/A	N/A	N/A	N/A	NConv	NConv	N/A	Project: Tesla 115 kV Bus Reconfiguration Project
Missouri Flat - Gold Hill 115 kV No. 1 Line	P2-1:A5:9:_MISSOURI FLAT-GOLD HILL #2 115KV [2670] [GOLDHILL-SHPRING2]	P2-1	Line Section w/o Fault	76.54	78.30	112.11	6.16	22.26	20.07	26.10	22.31	80.68	Continue to monitor
New Bellota-Lockeford 230 kV line	P5-5C:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	N/A	N/A	119.12	N/A	N/A	N/A	N/A	N/A	N/A	Add Redundant battery
New Brighton-Lockeford 230 kV Line	P5-5C:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	N/A	N/A	169.30	N/A	N/A	N/A	N/A	N/A	N/A	Add Redundant battery
Nicolaus - Marysville 60 kV Line	P2-3:A5:87:_E.NICOLS 115KV - RING R1 & R5	P2-3	Non-Bus-Tie Breaker	89.21	101.53	139.95	4.74	49.53	34.69	35.61	49.34	105.95	Disable automatics
	E.MRYSV E-MRYSVLE #1 60KV [0] & NARROWSPH2 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	104.14	<100	<100	<100	<100	<100	<100	106.21	Disable automatics
	RIO OSO-NICOLAUS 115KV [3440] & PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E_MRY J2	P6	N-1-1	107.53	<100	<100	<100	<100	<100	<100	<100	<100	Disable automatics
	P7-1:A5:20_Palermo-Pease 115 kV Line amd Pease-Rio Oso 115 kV Line	P7	DCTL	18.68	2.95	31.71	30.18	80.76	28.58	105.48	90.74	3.44	Disable automatics
Placer - Bell 115 kV Line	P2-4:A5:19:_GOLDHILL 230KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	NConv	N/A	N/A	N/A	144.27	N/A	134.48	144.07	N/A	Project: Gold Hill 230/115 kV Transformer Additoin Project. Short term: Action Plan
	P4-2:A5:2:_STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	83.20	84.54	146.99	7.60	34.64	25.05	35.05	34.18	87.35	Add Redundant relay
Placer - Gold Hill 115 kV Line No. 1	PLACER-GOLD HILL #2 115KV [4290] & DRUM-HIGGINS 115KV [4393] MOAS OPENED ON CHCGO PK_HIGGINS	P6	N-1-1	82.62	96.05	114.29	<100	<100	<100	<100	<100	99.06	Continue to monitor
Placer - Gold Hill 115 kV Line No. 2	PLACER-GOLD HILL #1 115KV [3340] & DRUM-HIGGINS 115KV [4393] MOAS OPENED ON CHCGO PK_HIGGINS	P6	N-1-1	94.27	104.77	123.54	<100	<100	<100	<100	<100	107.37	Operation solution
Placer 115/60 kV Transformer No. 1	Base Case	P0	N0	85.07	85.94	108.20	12.67	33.37	34.00	27.48	33.51	88.11	Continue to monitor
Rancho Seco - Bellota 230 kV Line No. 2	RANCHO SECO-BELLOTA #1 230KV [5550] & GOLD HILL - LAKE 230KV [1]	P6	N-1-1	<100	<100	<100	<100	<100	100.21	99.55	<100	<100	Continue to monitor
Rio Oso - Unkonc 115 kV Line	ATLANTIC-GOLD HILL 230KV [4330] & RIO OSO-ATLANTIC 230KV [5590]	P6	N-1-1	114.79	<100	104.47	<100	<100	<100	<100	<100	<100	Operation solution
Rio Oso - Brighton 230 kV Line	P4-2:A5:1:_STUCK BREAKER & NO BF RELAY RIO OSO 115KV CB 402 412 422 432 442 462 OR 472	P5	Non-Redundant battery supply/Relay	92.41	86.71	106.49	16.03	47.25	25.15	65.25	63.79	87.83	Add Redundant relay



2024-2025 ISO Reliability Assessment - Study Results

Study Area:

PG&E Central Valley



Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Rio Oso - West Sacramento 115 kV Line	P2-3:A4:21:_BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2-3	Non-Bus-Tie Breaker	104.29	106.18	58.64	25.60	51.84	8.50	51.63	45.65	108.67	Project: Rio oso-w sacramento reconductoring
	BRIGHTON-BELLOTA 230KV [4420] & RIO OSO-BRIGHTON 230KV [5600]	P6	N-1-1	112.88	117.11	<100	<100	<100	<100	<100	<100	122.33	Project: Rio oso-w sacramento reconductoring
Riverbank Jct - Ripon 115 kV Line	P5-SA:A11:11:_TESLA 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	52.80	105.71	NConv	23.48	79.99	60.89	NConv	NConv	88.17	Add Redundant relay
Riverbank Jct SW STA -Ripon 115 kV	P2-3:A11:26:_TESLA - 1D 115KV & TESLA-SCHULTE SW STA #1 LINE	P2-3	Non-Bus-Tie Breaker	35.20	N/A	N/A	N/A	40.63	N/A	117.81	108.40	N/A	Project: Manteca-Ripon-Riverbank-Melones Area 115 kV Line Reconductoring Stanislaus-Manteca rebuild proiect
	P2-4:A11:9:_TESLA 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	138.93	N/A	N/A	N/A	N/A	N/A	NConv	NConv	N/A	Project: Tesla 115 kV Bus Reconfiguration Project
	MELONES-MANTECA 115KV [0] MOAS OPENED ON STANISLAUSPH_FRGNTNP1 & STANISLAUS-MANTECA #2 115KV [3820]	P6	N-1-1	<100	<100	<100	100.46	<100	89.92	<100	95.02	<100	Continue to monitor
Schulte - Kasson - Manteca 115 kV Line	SCHULTE SW STA-LAMMERS 115KV [3993] & TESLA-LEPRINO_JCT 115KV [0] MOAS OPENED ON LEPRINO_JCT_TRACY JC	P6	N-1-1	136.88	108.79	119.73	<100	<100	<100	<100	<100	104.82	Operation solution
Smartville - Nicolaus 60 kV No. 2 Line	P5-SA:A5:2:_RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	102.58	97.19	108.47	27.81	56.45	32.23	76.67	63.89	98.41	Add Redundant relay
	RIO OSO-NICOLAUS 115KV [3440] & PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON E.MRY J2_E NICOLS	P6	N-1-1	<100	<100	106.11	<100	<100	<100	<100	<100	<100	Continue to monitor
Stagg - Hammer 60 kV Line No 1	LOCKFORD 230/60KV TB 3 & LOCKFORD 230/60KV TB 2	P6	N-1-1	<100	153.67	126.91	101.28	<100	<100	<100	<100	155.17	Existing RAS
	P7-1:A11:18:_STAGG-COUNTRY CLUB #1 60KV [8080] & STAGG-COUNTRY CLUB #2 60KV [8090]	P7	DCTL	141.10	106.09	129.48	18.44	61.52	<100	74.02	56.29	108.81	Existing RAS
	P7-1:A11:24:_RIO OSO-LOCKEFORD 230KV [5620] & LOCKEFORD-BELLOTA 230KV [4990]	P7	DCTL	60.45	153.59	63.88	101.58	26.00	83.96	33.11	25.24	155.09	Existing RAS
Stanislaus - Melones SW STA - Riverbank JCT SW STA 115 kV Line	P1-2:A12:11:_MELONES-MANTECA 115KV [0] MOAS OPENED ON STANISLAUSPH_FRGNTNP1	P1	N-1	37.42	58.75	105.63	34.22	38.75	10.46	<100	<100	108.93	Continue to monitor
	P2-1:A11:35:_RIPON-MANTECA 115KV [1062] (RPNJ2-MANTECA)	P2-1	Line Section w/o Fault	17.40	90.68	51.55	106.83	62.96	137.08	223.20	209.63	35.82	Continue to monitor
	MANTECA-RIPON 115KV [0] & STANISLAUSPH 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	105.76	<100	<100	<100	<100	<100	<100	Continue to monitor
	MANTECA-MELONES 115KV [0] MOAS OPENED ON STANISLAUSPH_FRGNTNP1 & STANISLAUSPH 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	<100	100.34	<100	<100	101.03	96.87	<100	Continue to monitor
	P5-5C:A11:9:_TESLA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	100.87	NConv	NConv	138.75	33.73	49.51	NConv	NConv	150.01	Add Redundant battery
	P5-SA:A11:11:_TESLA 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	92.74	179.82	NConv	115.68	87.13	<100	NConv	NConv	148.34	Add Redundant relay
	BELLOTA 230/115KV TB 2 & BELLOTA 230/115KV TB 1	P6	N-1-1	<100	<100	111.50	<100	<100	<100	<100	<100	<100	Continue to monitor
	P2-4:A11:9:_TESLA 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	126.22	N/A	N/A	N/A	N/A	N/A	NConv	NConv	N/A	Project: Tesla 115 kV Bus Reconfiguration Project
Stanislaus-Melones-Manteca 115 kV Line No. 1	P2-4:A11:1:_BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker	18.02	13.29	116.23	14.00	17.29	13.09	88.21	58.98	25.73	Continue to monitor
	STANISLAUSPH-MELONES-RIVRBKIT 115KV [0] & Q1109BESS 34.50KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	<100	90.27	<100	<100	100.33	100.38	<100	Continue to monitor
	P5-5C:A11:9:_TESLA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	101.92	NConv	NConv	119.52	38.38	40.09	NConv	NConv	143.39	Add Redundant battery
	P5-SA:A11:11:_TESLA 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	96.48	154.55	NConv	109.20	42.10	31.37	NConv	NConv	132.18	Add Redundant relay
	BELLOTA 230/115KV TB 2 & BELLOTA 230/115KV TB 1	P6	N-1-1	<100	<100	108.29	<100	<100	<100	<100	<100	<100	Continue to monitor
	STANISLAUS-MANTECA #2 115KV [3820] & STANISLAUSPH-MELONES-RIVRBKIT 115KV [0]	P6	N-1-1	<100	<100	<100	106.71	<100	101.42	98.88	99.01	<100	Continue to monitor
Stockton 'A' - Lockeford - Bellota 115 kV Line No. 2	P2-3:A11:39:_BELLOTA - 1D 115KV & BELLOTA-RIVERBANK LINE	P2-3	Non-Bus-Tie Breaker	83.35	82.94	112.71	15.25	38.43	14.39	27.03	26.82	84.54	Continue to monitor
Tesla - Salado - Manteca 115 kV Line	P5-SA:A11:14:_KASSON 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	136.74	52.11	71.74	13.91	42.72	<100	94.51	58.01	46.76	Add Redundant relay
Tesla - Schulte 115 kV Line No. 1	P2-3:A11:28:_TESLA - 1D 115KV & TESLA-LAWRENCE LAB LINE	P2-3	Non-Bus-Tie Breaker	47.61	N/A	N/A	N/A	N/A	N/A	121.48	91.59	N/A	Continue to monitor
	TESLA-SCHULTE SW STA #1 115KV [3980] & GWFTRCY3 18.00KV & GWFTRCY1 13.80KV & GWFTRCY2 13.80KV GEN UNITS	P3	G-1 / N-1	104.09	96.70	110.95	<100	<100	<100	<100	<100	93.41	Operation solution
	SCHULTE - GWFTRACY 115KV [1] & TESLA-SCHULTE SW STA #2 115KV [3980]	P6	N-1-1	103.13	95.75	110.60	<100	<100	<100	<100	<100	92.48	Operation solution





Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Tesla - Tracy 115 kV Line	P5-SC:A11:19:_SCHULTE SW STA 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	140.23	106.37	137.93	21.73	51.96	<100	93.27	65.92	102.69	Add Redundant battery
	P5-SA:A11:14:_KASSON 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	53.05	80.60	104.68	14.92	24.23	<100	32.84	23.86	77.52	Add Redundant relay
	SCHULTE SW STA-KASSON-MANTECA 115KV [7472] & SCHULTE SW STA-LAMMERS 115KV [3993]	P6	N-1-1	129.61	101.83	124.79	<100	<100	<100	93.61	<100	99.68	Operation solution
Tesla-Schulte SW STA #2 115 kV Line	TESLA-SCHULTE SW STA #1 115KV [3970] & GWFTRCY3 18.00KV & GWFTRCY1 13.80KV & GWFTRCY2 13.80KV GEN UNITS	P3	G-1 / N-1	103.64	96.25	111.13	<100	<100	<100	<100	<100	92.99	Operation solution
	TESLA-SCHULTE SW STA #1 115KV [3970] & SCHULTE - GWFTRARY 115KV [1]	P6	N-1-1	102.68	95.31	110.22	<100	<100	<100	<100	<100	92.05	Operation solution
Tiger Creek - Electra 230 kV Line	VALLEY SPRINGS-BELLOTA 230KV [5860] & WOODLANDBIOM 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	101.4	<100	<100	<100	<100	<100	<100	Continue to monitor
	P5-SC:A11:1:_TESLA 500KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	109.44	85.66	82.69	43.90	19.55	23.59	105.32	83.49	85.43	Add Redundant battery
Vaca - Parkway 230 kV Line	P5-SC:A11:9:_TESLA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	80.36	NConv	NConv	60.67	37.13	38.18	NConv	NConv	66.06	Add Redundant battery
Valley Springs 230/60 kV Transformer No. 1	VLLY SPS 230/60KV TB 2 & WOODLANDBIOM 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	102.15	<100	<100	<100	<100	<100	<100	Continue to monitor
	VLLY SPS 230/60KV TB 2 & RIO OSO-WOODLAND #2 115KV [3470]	P6	N-1-1	<100	<100	101.90	<100	<100	<100	<100	<100	<100	Continue to monitor
Vierra - Tracy - Kasson 115 kV Line	P1-2:A11:52:_TESLA-LEPRINO_JCT 115KV [0] MOAS OPENED ON LEPRINO_JCT_TRACY JC	P1	N-1	<100	87.98	30.52	42.86	67.00	42.41	113.31	120.14	<100	Sensitivity only
	P5-SC:A11:19:_SCHULTE SW STA 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	135.10	79.60	110.77	8.17	44.58	14.62	94.48	66.54	73.00	Add Redundant battery
	VIERRA-TESLA 115KV [0] & TESLA-LEPRINO_JCT 115KV [0] MOAS OPENED ON LEPRINO_JCT_TRACY JC	P6	N-1-1	<100	91.20	104.46	<100	<100	<100	<100	<100	<100	Continue to monitor
Weber 60 kV Line No. 2 (Weber - French Camp)	P1-2:A11:78:_WEBER-FRENCH CAMP #1 60KV [8320]	P1	N-1	112.41	139.58	27.08	41.14	52.64	36.70	101.54	102.85	19.05	Project: French Camp Reinformenet Project
West Sacramento - Brighton 115 kV Line	P5-SC:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	105.75	97.65	135.21	19.32	43.38	<100	43.56	37.37	102.32	Add Redundant battery
West Sacramento - Davis 115 kV Line	P7-1:A4:17:_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7	DCTL	88.77	89.34	106.32	25.46	39.98	<100	54.53	39.27	91.04	Project: Vaca Dixon Area Reinforcement Project
Woodland-Davis 115 kV Line	P2-3:A4:18:_BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2-3	Non-Bus-Tie Breaker	107.52	75.47	86.68	<100	56.28	<100	44.81	40.66	77.21	Project: Vaca Dixon Area Reinforcement Project
	P5-SA:A4:7:_BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant battery supply/Relay	120.41	101.62	123.71	27.38	59.94	10.73	55.98	53.45	104.18	Add Redundant relay
	RIO OSO-BRIGHTON 230KV [5600] & BRIGHTON-BELLOTA 230KV [4420]	P6	N-1-1	118.53	<100	<100	<100	<100	<100	<100	<100	<100	Project: Vaca Dixon Area Reinforcement Project
	BRIGHTON-BELLOTA 230KV [4420] & RIO OSO-BRIGHTON 230KV [5600]	P6	N-1-1	118.82	100.80	<100	<100	<100	<100	<100	<100	102.43	Project: Vaca Dixon Area Reinforcement Project



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
CARBONA 60 kV	P5-SA:A11:14:_ KASSON 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	0.92	0.95	0.91	1.02	1.05	1.03	0.90	1.01	0.95	System adjustments or voltage support if needed
EL DORADO PH 115 kV	P2-1:A5:9:_ MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2	Line Section w/o Fault	0.89	0.89	0.89	1.05	1.07	1.07	1.01	1.05	0.86	Project: Gold Hill-El Dorado Reinforcement Project
GRAND ISLAND 115 kV	P5-SA:A4:7:_ BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant battery supply/Relay	0.92	0.91	0.92	1.02	1.08	1.07	1.00	1.02	0.89	System adjustments or voltage support if needed
LOCKEFORD 230 kV	P1-2:A11:5:_ LOCKEFORD-BELLOTA 230KV [4990] & P1-1:A5:11:_ COLGATE1 13.80KV GEN UNIT 1	P3	G-1 / N-1	0.89	>.95	>.95	>.95	>.95	>.95	>.95	>.95	>.95	Project: Lockeford-Lodi Area 230 kV Development project
LOCKEFORD 230 kV	P1-2:A11:5:_ LOCKEFORD-BELLOTA 230KV [4990]	P1	N-1	0.90	0.91	0.96	0.96	0.98	0.97	0.94	0.96	0.90	Project: Lockeford-Lodi Area 230 kV Development project
PLACER 115 kV	P4-2:A5:2:_ STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	0.92	0.92	0.60	1.04	1.11	1.10	1.01	1.04	0.91	System adjustments or voltage support if needed
PLACER 115 kV	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7	DCTL	0.92	0.92	0.60	1.04	1.11	1.10	1.01	1.04	0.91	System adjustments or voltage support if needed
BELL 115 kV	P4-2:A5:2:_ STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	0.92	0.92	0.61	1.05	1.10	1.10	1.01	1.04	0.92	System adjustments or voltage support if needed
BELL 115 kV	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7	DCTL	0.92	0.93	0.61	1.05	1.11	1.10	1.01	1.04	0.92	System adjustments or voltage support if needed
WEIMAR 60 kV	P1-1:A5:28:_ ROLLINS 6.60KV GEN UNIT 1	P1	N-1	0.93	0.93	0.90	0.98	1.02	1.01	0.97	0.98	0.93	System adjustments or voltage support if needed
COUNTRY CLUB 60 kV	P2-4:A11:22:_ STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Bus-Tie-Breaker	0.93	0.48	0.37	<.95	1.05	1.00	<.95	<.95	0.48	System adjustments or voltage support if needed
EAST MARYSVILLE 115 kV	P2-1:A5:13:_ PALERMO-NICOLAUS 115KV [3210] (E.MRYSV-E.MRY J2)	P2	Line Section w/o Fault	<.95	1.12	0.88	<.95	1.13	1.14	<.95	<.95	1.12	System adjustments or voltage support if needed
MOSHER 60 kV	P2-4:A11:22:_ STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Bus-Tie-Breaker	0.91	0.56	0.51	<.95	1.05	1.01	<.95	<.95	0.55	System adjustments or voltage support if needed
COUNTRY CLUB 60 kV	P4-2:A11:1:_ STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant battery supply/Relay	<.95	0.48	0.36	<.95	1.05	1.00	<.95	<.95	0.48	System adjustments or voltage support if needed
MOSHER 60 kV	P4-2:A11:1:_ STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant battery supply/Relay	<.95	0.56	0.50	<.95	1.05	1.01	<.95	<.95	0.55	System adjustments or voltage support if needed
SUTTER HOME SWITCHING STATION 60 kV	P4-2:A11:1:_ STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant battery supply/Relay	<.95	0.47	0.33	<.95	1.02	0.97	<.95	<.95	0.46	System adjustments or voltage support if needed
COUNTRY CLUB 60 kV	P7-1:A11:34:_ EIGHT MILE ROAD-STAGG 230KV [5002] & STAGG-TESLA 230KV [5680]	P7	DCTL	<.95	NConv	0.28	<.95	1.05	1.10	<.95	<.95	NConv	System adjustments or voltage support if needed
HAMMER 60 kV	P7-1:A11:34:_ EIGHT MILE ROAD-STAGG 230KV [5002] & STAGG-TESLA 230KV [5680]	P7	DCTL	<.95	NConv	0.29	<.95	1.05	1.10	<.95	<.95	NConv	System adjustments or voltage support if needed
LODI 60 kV	P7-1:A11:24:_ RIO OSO-LOCKEFORD 230KV [5620] & LOCKEFORD-BELLOTA 230KV [4990]	P7	DCTL	<.95	0.34	1.02	<.95	0.46	0.42	<.95	<.95	0.34	Project: Lockeford-Lodi Area 230 kV Development project
GOLD HILL 115 kV	P5-SA:A5:3:_ GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	1.03	1.16	1.05	1.05	1.03	NConv	System adjustments or voltage support if needed
WEST SACRAMENTO 115 kV	P2-3:A4:21:_ BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Non-Bus-Tie Breaker	0.94	0.94	0.90	1.03	1.07	1.05	1.01	1.03	0.93	Continue to monitor
CORTINA 230 kV	P2-3:A4:55:_ CORTINA 230KV - RING R2 & R3	P2	Non-Bus-Tie Breaker	0.94	0.89	0.94	1.01	1.11	1.12	0.96	1.00	0.94	System adjustments or voltage support if needed



[illegible]



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
WEIMAR 60 kV	P1-1:A5:28:_ROLLINS 6.60KV GEN UNIT 1 & P1-1:A11:36:_GWFTRCY3 18.00KV & GWFTRCY1 13.80KV & GWFTRCY2 13.80KV GEN UNITS	P3	G-1 / N-1	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LAMMERS 115 kV	P5-5C:A11:19:_SCHULTE SW STA 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	0.94	0.96	0.88	1.02	1.04	1.05	0.96	1.02	0.97	Continue to monitor
HIGGINS 115 kV	P4-2:A5:2:_STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	0.94	0.94	0.67	1.05	1.10	1.09	1.02	1.05	0.94	Continue to monitor
WOODLAND 115 kV	P4-2:A5:1:_STUCK BREAKER & NO BF RELAY RIO OSO 115KV CB 402 412 422 432 442 462 OR 472	P5	Non-Redundant battery supply/Relay	0.96	0.99	0.81	1.05	1.09	1.07	1.01	1.05	0.98	Continue to monitor
ATLANTIC 230 kV	P5-5C:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	0.96	0.97	0.87	1.03	1.02	1.05	1.00	1.02	0.97	Continue to monitor
BRIGHTON 230 kV	P4-2:A5:1:_STUCK BREAKER & NO BF RELAY RIO OSO 115KV CB 402 412 422 432 442 462 OR 472	P5	Non-Redundant battery supply/Relay	0.96	0.97	0.90	1.01	1.02	1.03	1.00	1.01	0.97	Continue to monitor
DAVIS 115 kV	P4-2:A5:1:_STUCK BREAKER & NO BF RELAY RIO OSO 115KV CB 402 412 422 432 442 462 OR 472	P5	Non-Redundant battery supply/Relay	0.97	1.00	0.84	1.05	1.08	1.07	1.02	1.05	1.00	Continue to monitor
PLEASANT GROVE 115 kV	P5-5C:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	0.98	0.99	0.87	1.04	1.04	1.08	1.02	1.04	0.99	Continue to monitor
LINCOLN 115 kV	P5-5C:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	0.98	1.00	0.86	1.04	1.05	1.08	1.03	1.04	0.99	Continue to monitor
ATLANTIC 115 kV	P5-5C:A5:1:_RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	0.98	1.00	0.88	1.05	1.04	1.07	1.02	1.05	0.99	Continue to monitor
LOCKFORD 230 kV	P5-5C(DC):A4:2:_STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant battery supply/Relay	0.98	0.89	0.97	1.01	0.98	0.97	0.98	1.00	0.89	Project: Lockeford-Lodi Area 230 kV Development project
HALSEY PH 60 kV	P4-2:A5:2:_STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant battery supply/Relay	0.99	0.99	0.58	1.03	1.04	1.03	1.02	1.03	0.99	Continue to monitor
WEST SACRAMENTO 115 kV	P4-2:A5:1:_STUCK BREAKER & NO BF RELAY RIO OSO 115KV CB 402 412 422 432 442 462 OR 472	P5	Non-Redundant battery supply/Relay	1.00	1.03	0.89	1.06	1.08	1.08	1.04	1.06	1.03	Continue to monitor
RIO OSO 230 kV	P5-5A:A5:2:_RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	1.02	1.03	0.87	1.03	1.03	1.03	1.19	1.03	1.03	Continue to monitor
ATLANTIC 115 kV	P1-2:A5:10:_ATLANTIC-GOLD HILL 230KV [4330] & P1-2:A5:6:_RIO OSO-ATLANTIC 230KV [5590]	P6	N-1-1	>.95	>.95	0.86	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
ATLANTIC 115 kV	P1-2:A5:6:_RIO OSO-ATLANTIC 230KV [5590] & P1-2:A5:10:_ATLANTIC-GOLD HILL 230KV [4330]	P6	N-1-1	>.95	>.95	0.86	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
ATLANTIC 230 kV	P1-2:A5:10:_ATLANTIC-GOLD HILL 230KV [4330] & P1-2:A5:6:_RIO OSO-ATLANTIC 230KV [5590]	P6	N-1-1	>.95	>.95	0.83	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
BELL 115 kV	P1-2:A5:16:_PLACER-GOLD HILL #1 115KV [3340] & P1-2:A5:17:_PLACER-GOLD HILL #2 115KV [4290]	P6	N-1-1	>.95	>.95	0.82	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
BELLOTA 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.56	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
BRIGHTON 115 kV	P1-2:A11:114:_LOCKFORD-BRIGHTON 230KV [0] & P1-2:A4:6:_RIO OSO-BRIGHTON 230KV [5600]	P6	N-1-1	>.95	>.95	0.85	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
CLAY 60 kV	P1-2:A11:10:_VALLEY SPRINGS-BELLOTA 230KV [5860] & P1-3:A11:11:_VLLY SP5 230/60KV TB 2	P6	N-1-1	>.95	>.95	0.85	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
CORTINA 230 kV	P1-2:A4:10:_CORTINA-VACA 230KV [4540] & P1-2:A4:2:_DELEVAN-CORTINA 230KV [4384]	P6	N-1-1	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	>.95	System adjustments or voltage support if needed



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
COUNTRY CLUB 60 kV	P1-2:A11:11:_EIGHT MILE ROAD-STAGG 230KV [5002] & P1-2:A11:9:_STAGG-TESLA 230KV [5680]	P6	N-1-1	>.95	>.95	0.28	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
CURTIS 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.78	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
DAVIS 115 kV	P1-2:A11:114:_LOCKFORD-BRIGHTON 230KV [0] & P1-2:A4:6:_RIO OSO-BRIGHTON 230KV [5600]	P6	N-1-1	>.95	>.95	0.86	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
EAST MARYSVILLE 115 kV	P1-2:A5:15:_PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & P1-2:A5:26:_RIO OSO-NICOLAUS 115KV [3440]	P6	N-1-1	>.95	>.95	0.83	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
EAST NICOLAUS 115 kV	P1-2:A5:15:_PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & P1-2:A5:26:_RIO OSO-NICOLAUS 115KV [3440]	P6	N-1-1	>.95	>.95	0.81	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
FROGTOWN 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.82	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
FROGTOWN 115 kV	P1-3:A11:9:_BELLOTA 230/115KV TB 2 & P1-3:A11:8:_BELLOTA 230/115KV TB 1	P6	N-1-1	>.95	>.95	0.82	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
GRAND ISLAND 115 kV	P1-2:A11:114:_LOCKFORD-BRIGHTON 230KV [0] & P1-2:A4:6:_RIO OSO-BRIGHTON 230KV [5600]	P6	N-1-1	>.95	>.95	0.84	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
HALSEY PH 60 kV	P1-2:A5:16:_PLACER-GOLD HILL #1 115KV [3340] & P1-2:A5:17:_PLACER-GOLD HILL #2 115KV [4290]	P6	N-1-1	>.95	>.95	0.83	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
HALSEY PH 60 kV	P1-2:A5:17:_PLACER-GOLD HILL #2 115KV [4290] & P1-2:A5:16:_PLACER-GOLD HILL #1 115KV [3340]	P6	N-1-1	>.95	>.95	0.83	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
HAMMER 60 kV	P1-2:A11:11:_EIGHT MILE ROAD-STAGG 230KV [5002] & P1-2:A11:9:_STAGG-TESLA 230KV [5680]	P6	N-1-1	>.95	>.95	0.29	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
HIGGINS 115 kV	P1-2:A5:16:_PLACER-GOLD HILL #1 115KV [3340] & P1-2:A5:17:_PLACER-GOLD HILL #2 115KV [4290]	P6	N-1-1	>.95	>.95	0.86	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LAMMERS 115 kV	P1-2:A11:43:_SCHULTE SW STA-KASSON-MANTECA 115KV [7472] & P1-2:A11:57:_SCHULTE SW STA-LAMMERS 115KV [3993]	P6	N-1-1	>.95	>.95	0.90	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LEPRINO SW STA 115 kV	P1-2:A11:108:_VIERRA-TRACY-KASSON 115KV [4310] (2) & P1-2:A11:52:_TESLA-LEPRINO_JCT 115KV [0] MOAS OPENED ON LEPRINO_JCT_TRACY JC	P6	N-1-1	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LEPRINO SW STA 115 kV	P1-2:A11:52:_TESLA-LEPRINO_JCT 115KV [0] MOAS OPENED ON LEPRINO_JCT_TRACY JC & P1-2:A11:108:_VIERRA-TRACY-KASSON 115KV [4310] (2)	P6	N-1-1	>.95	>.95	0.90	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LOCKEFORD 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.55	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LODI 60 kV	P1-2:A11:2:_RIO OSO-LOCKEFORD 230KV [5620] & P1-2:A11:5:_LOCKEFORD-BELLOTA 230KV [4990]	P6	N-1-1	>.95	0.34	>.95	>.95	0.47	0.43	>.95	>.95	0.33	Project: Lockeford-Lodi Area 230 kV Development project
MELONES SW STA 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.77	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
MI-WUK 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.80	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
MOSHER 60 kV	P1-2:A11:11:_EIGHT MILE ROAD-STAGG 230KV [5002] & P1-2:A11:9:_STAGG-TESLA 230KV [5680]	P6	N-1-1	>.95	>.95	0.46	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
PLACER 115 kV	P1-2:A5:16:_PLACER-GOLD HILL #1 115KV [3340] & P1-2:A5:17:_PLACER-GOLD HILL #2 115KV [4290]	P6	N-1-1	>.95	>.95	0.81	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
PLAINFIELD 60 kV	P1-4:A4:17:_PLAINFIELDD SVD=V2 & P1-4:A4:18:_PLAINFIELDE SVD=V1	P6	N-1-1	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	0.89	System adjustments or voltage support if needed



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
PLEASANT GROVE 115 kV	P1-2:A5:10:_ATLANTIC-GOLD HILL 230KV [4330] & P1-2:A5:6:_RIO OSO-ATLANTIC 230KV [5590]	P6	N-1-1	>.95	>.95	0.87	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
RIPON 115 kV	P1-2:A11:36:_Q1557-RIPON #1 115KV [0] & P1-2:A11:46:_MANTECA-RIPON 115KV [0]	P6	N-1-1	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
STANISLAUS PH 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.85	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
STOCKTON A 115 kV	P1-3:A11:8:_BELLOTA 230/115KV TB 1 & P1-3:A11:9:_BELLOTA 230/115KV TB 2	P6	N-1-1	>.95	>.95	0.52	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
SUTTER HOME SWITCHING STATION 60 kV	P1-2:A11:11:_EIGHT MILE ROAD-STAGG 230KV [5002] & P1-2:A11:9:_STAGG-TESLA 230KV [5680]	P6	N-1-1	>.95	>.95	0.25	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
TRACY 115 kV	P1-2:A11:108:_VIERRA-TRACY-KASSON 115KV [4310] (2) & P1-2:A11:52:_TESLA-LEPRINO_JCT 115KV [0] MOAS OPENED ON LEPRINO_JCT_TRACY JC	P6	N-1-1	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
VALLEY HOME 115 kV	P1-2:A11:46:_MANTECA-RIPON 115KV [0] & P1-2:A11:64:_BELLOTA-RVRBANK-MELONES-TULLOCH 115KV [0]	P6	N-1-1	>.95	>.95	0.90	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
VALLEY SPRINGS 230 kV	P1-2:A4:31:_WOODLAND-DAVIS 115KV [4210] & P1-2:A11:10:_VALLEY SPRINGS-BELLOTA 230KV [5860]	P6	N-1-1	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
WEIMAR 60 kV	P1-2:A11:107:_VIERRA-TESLA 115KV [0] & P1-3:A5:40:_ROLLINS 60/6.6KV TB 1	P6	N-1-1	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
WEST SACRAMENTO 115 kV	P1-2:A11:114:_LOCKFORD-BRIGHTON 230KV [0] & P1-2:A4:6:_RIO OSO-BRIGHTON 230KV [5600]	P6	N-1-1	>.95	>.95	0.85	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
WOODLAND 115 kV	P1-2:A4:30:_RIO OSO-WOODLAND #1 115KV [3460] & P1-2:A4:32:_RIO OSO-WOODLAND #2 115KV [3470]	P6	N-1-1	>.95	>.95	0.90	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
HIGGINS 115 kV	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7	DCTL	0.94	0.95	0.67	1.05	1.10	1.09	1.02	1.05	0.94	Continue to monitor
WEST SACRAMENTO 115 kV	P7-1:A4:17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7	DCTL	0.95	0.97	0.89	1.05	1.08	1.06	1.02	1.02	0.96	Continue to monitor
WEIMAR 60 kV	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7	DCTL	0.95	0.95	0.86	0.99	1.01	1.02	0.98	0.99	0.95	Continue to monitor
WOODLAND 115 kV	P7-1:A4:16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115 kV Line	P7	DCTL	0.99	1.00	0.90	1.05	1.08	1.07	1.02	1.05	1.00	Continue to monitor
HALSEY PH 60 kV	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7	DCTL	0.99	0.99	0.58	1.03	1.03	1.03	1.02	1.03	0.99	Continue to monitor
BRIGHTON 230 kV	P7-1:A11:12:_LOCKEFORD-BELLOTA 230KV #1 [4990] & LOCKEFORD-BELLOTA 230KV #2 [4990]	P7	DCTL	>.95	>.95	0.89	>.95	>.95	>.95	>.95	>.95	>.95	Continue to monitor
LOCKEFORD 230 kV	P7-1:A11:12:_LOCKEFORD-BELLOTA 230KV #1 [4990] & LOCKEFORD-BELLOTA 230KV #2 [4990]	P7	DCTL	>.95	>.95	0.87	>.95	>.95	>.95	>.95	>.95	>.95	Project: Lockeford-Lodi Area 230 kV Development project



**Study Area:** PG&E Central Valley  
**Voltage Deviation**

[illegible]













Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

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





Substation	Load Served (MW)										Potential Mitigation Solutions
	2026 Summer Peak	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

No single source substation with more than 100 MW



2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&E Greater Fresno

Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Chowchilla-Kerckhoff #2 115 kV Line	Base Case	P0	N-0	83	86	106	12	36	19	43	36	87	Continue to monitor
Adams East-Biomass junction 70kV	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	7	NA	NA	NA	37	NA	52	137	NA	Sensitivity only
	P1-2:A13:61:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON ADERASLRJCT_DAIRYLND & P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	159	<100	<100	<100	95	<100	12	59	<100	Summer setup control point
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	10	NA	NA	NA	58	NA	44	140	NA	Sensitivity only
Adams East-Westland junciton 70kV	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	6	NA	NA	NA	37	NA	14	137	NA	Sensitivity only
	P1-3:A13:6:_PANOCHE 230/115KV TB 2 & P1-3:A13:5:_PANOCHE 230/115KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	<100	Summer setup control point
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	13	NA	NA	NA	58	NA	11	140	NA	Sensitivity only
Adera Solar-Dairyland 115kV	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-3:A13:35:_MENDOTA 115/70KV TB 5	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	<100	Sensitivity only
Atwater-Merced 115 kV Line	P5-5a:A13:1:_WILSON 115 kV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	26	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	10	NConv	24	27	NConv	NConv	Install redundant battery
Barton-Airways-Sanger 115 kV Line	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	30	29	27	21	75	104	13	69	30	Generation Re-dispatch
	P2-3:A14:66:_HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE	P2	Bus/Breaker	30	29	27	21	75	104	13	68	30	Generation Re-dispatch
	P2-3:A14:67:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	29	29	27	21	75	104	13	69	29	Generation Re-dispatch
	P5-5c:A13:1:_Los Banos 500-230-70KV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	14	15	13	NConv	90	NConv	31	40	16	Install redundant battery
	P1-2:A14:81:_HERNDON-WOODWARD 115KV [1790] & P1-2:A14:79:_HERNDON-MANCHESTER 115KV [1780]	P6	N-1-1	<100	<100	<100	<100	<100	101	<100	<100	<100	Generation Re-dispatch
	P1-2:A14:9:_TRANQUILLITY SW STA-KEARNEY 230KV [5380] & P1-2:A14:18:_MUSTANG SW STA-GREGG 230KV [4700]	P6	N-1-1	<100	<100	<100	<100	107	<100	<100	103	<100	Generation Re-dispatch
	P7-1:A14:17:_HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	32	27	26	51	44	105	37	58	29	Sensitivity only
	P7-1:A14:22:_HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DCTL	42	34	42	6	127	85	12	96	NConv	Generation Re-dispatch
Borden-Coppermine 70 kV Line	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	49	42	50	7	132	80	12	100	NConv	Generation Re-dispatch
	P2-4:A14:19:_HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	122	87	83	12	35	71	32	34	88	Project.Coppermine 70kV reinforcement project
	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	110	82	80	11	46	75	40	42	82	Project.Coppermine 70kV reinforcement project
	P1-2:A14:119:_TIVY VALLEY-REEDLEY 70KV [9260] & P1-1:A14:110:_FRIANTDAM 6.60KV GEN UNIT 2	P3	G-1/N-1	102	<100	<100	<100	<100	<100	<100	<100	<100	Summer setup control point
	P5-5c:A14:5:_Herndon 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	75	73	65	14	66	115	16	66	73	Install redundant battery
	P5-5a:A14:2:_HERNDON #1 & 2 115KV BUS (Failure OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	122	87	83	12	35	72	32	35	88	Install redundant relay
	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (Failure OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	83	NConv	6	44	41	36	28	NConv	Install redundant relay
	P5-5c:A14:10:_Mccall 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	122	NConv	NConv	6	43	42	29	28	NConv	Install redundant battery
	P5-5c:A14:5:_Herndon 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	110	81	78	1	48	81	35	45	82	Install redundant battery
	P1-2:A14:16:_GREGG-HERNDON #2 230KV [4840] & P1-2:A14:15:_GREGG-HERNDON #1 230KV [4830]	P6	N-1-1	<100	<100	<100	<100	<100	117	<100	<100	<100	Generation Re-dispatch
California Ave.-Sanger 115 kV Line	P1-3:A14:42:_REEDLEY 115/70KV TB 2 & P1-3:A14:43:_REEDLEY 115/70KV TB 4	P6	N-1-1	263	<100	<100	<100	180	<100	152	180	<100	Project.Coppermine 70kV reinforcement project
	P1-2:A14:76:_MCCALL-WEST FRESNO #2 115KV [2370] & P1-2:A14:70:_CALIFORNIA AVE-MCCALL 115KV [2360]	P6	N-1-1	103	104	102	<100	<100	<100	<100	<100	106	Operating solution
	P7-1:A14:11:_CALIFORNIA AVE-MCCALL 115KV [2360] & MCCALL-WEST FRESNO #2 115KV [2370]	P7	DCTL	103	104	102	26	45	5	72	45	106	Summer setup control point



Chowchilla-Kerckhoff #2 115 kV Line	P2-4:A14:19:_HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	78	75	63	69	28	122	23	12	78	Generation Re-dispatch
	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	68	70	58	37	35	108	13	11	72	Generation Re-dispatch
	P2-3:A14:1:_GREGG 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	19	26	25	123	7	37	87	62	NConv	Generation Re-dispatch
	P5-5c:A14:5:_Herndon 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	57	55	48	47	31	102	19	18	57	Install redundant battery
	P5-5a:A14:2:_HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	77	74	62	70	29	123	24	16	77	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	38	37	32	NConv	60	NConv	63	40	39	Install redundant battery
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	82	NConv	29	55	NConv	NConv	Install redundant battery
	P5-5c:A13:9:_Borden 230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	15	21	NA	109	23	48	77	76	24	Install redundant battery
	P5-5c:A14:21:_Sanger 115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	64	22	15	104	88	125	92	23	23	Install redundant battery
	P5-5c:A14:5:_Herndon 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	73	71	61	61	40	132	25	24	74	Install redundant battery
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	52	NConv	NA	Install redundant relay
	P5-5a:A14:2:_HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	74	70	58	73	31	126	27	17	73	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	34	33	29	NConv	63	NConv	66	38	35	Install redundant battery
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	86	NConv	28	60	NConv	NConv	Install redundant battery
	P5-5c:A13:9:_Borden 230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	12	3	NA	113	21	52	80	74	20	Install redundant battery
	P5-5c:A14:21:_Sanger 115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	67	18	11	107	91	128	95	24	19	Install redundant battery
	P1-2:A14:16:_GREGG-HERNDON #2 230KV [4840] & P1-2:A14:15:_GREGG-HERNDON #1 230KV [4830]	P6	N-1-1	<100	<100	<100	<100	<100	114	<100	<100	<100	Generation Re-dispatch
	P7-1:A13:1:_WILSON-BORDEN 230KV #1 & #2 [9001]	P7	DCTL	15	16	8	108	27	50	78	77	17	Generation Re-dispatch
	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115KV [1900]	P7	DCTL	64	22	15	104	88	123	92	23	23	Generation Re-dispatch
	P7-1:A13:13:_BORDEN-GREGG 230KV #1 & #2 [4400]	P7	DCTL	19	26	25	123	7	37	87	62	NConv	Generation Re-dispatch
	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115KV [1900]	P7	DCTL	67	18	11	107	90	127	94	24	19	Generation Re-dispatch
Coburn-Lasaguiass 230 kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	43	56	64	NConv	87	NConv	66	89	58	Install redundant battery
Coppermine- Tivy Valley 70kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY & P1-1:A14:110:_FRIANTDAM 6.60KV GEN UNIT 2	P3	G-1/N-1	105	99	152	<100	<100	<100	<100	<100	102	Summer setup control point
	P1-3:A14:42:_REEDLEY 115/70KV TB 2 & P1-3:A14:43:_REEDLEY 115/70KV TB 4	P6	N-1-1	139	145	148	<100	117	<100	117	116	144	Summer setup control point
Dinuba-Orosi 70 kV Line	P1-2:A14:123:_REEDLEY-DINUBA #1 70KV [9050]	P1	N-1	118	117	5	17	53	23	52	53	120	Project:Reedley 70kV reinforcement project
	P1-2:A14:123:_REEDLEY-DINUBA #1 70KV [9050]	P1	N-1	127	126	21	19	56	26	60	56	128	Project:Reedley 70kV reinforcement project
Dos Amigos PP-Panoche #3 230 kV Line	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	38	NA	NA	NA	27	NA	107	61	NA	Install redundant relay
	P5-5c:A14:14:_Gates 230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	42	NA	NA	NA	26	NA	107	60	NA	Install redundant battery
	P5-5c:A14:1:_Gates 500kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	29	NA	NA	NA	14	NA	122	74	NA	Install redundant battery
El Capitan-Wilson 115 kV Line	P1-2:A13:49:_WILSON-ATWATER #2 115KV [160] & P1-2:A13:41:_ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED	P6	N-1-1	105	<100	<100	<100	<100	<100	<100	<100	<100	Project:Wilson 115kV reinforcement project
EXCELSIORSS-SCHINDLER #1 115kV Line	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-2:A14:72:_EXCELSIOR SW STA-SCHINDLER #2 115KV [3249]	P6	N-1-1	104	105	<100	<100	<100	<100	<100	<100	106	Project:Gates new bank addition project
EXCELSIORSS-SCHINDLER #2 115kV Line	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-2:A14:71:_EXCELSIOR SW STA-SCHINDLER #1 115KV [3248]	P6	N-1-1	104	105	<100	<100	<100	<100	<100	<100	106	Project:Gates new bank addition project
Exchequer 115/70/13.8 kV Transformer	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	23	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	15	NConv	35	23	NConv	NConv	Install redundant battery
Fernbacher-La Grand 115 kV Line	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	83	NConv	NA	Install redundant relay



LAUREL-TOURNAI 115 KV LINE	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	39	NConv	91	83	NConv	NConv	Install redundant battery
Five point Solar-Cal flax 70kV Line	P1-3:A14:14:_GATES D 230/70kV TB 5	P1	N-1	110	91	34	34	54	63	19	62	92	Project:Gates new bank addition project
	P2-2:A14:21:_GATES D 230kV SECTION 2D	P2	Bus/Breaker	111	92	34	38	55	68	17	64	93	Project:Gates new bank addition project
	P2-4:A13:13:_PANOCH1 SECTION 1D & PANOCH2 SECTION 2D	P2	Bus/Breaker	20	21	39	54	27	69	125	16	21	Sensitivity only
	P2-4:A14:8:_GATES D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	118	100	32	47	58	80	16	72	101	Project:Gates new bank addition project
	P1-3:A14:14:_GATES D 230/70kV TB 5 & P1-1:A14:114:_CHV.COAL 9.11kV GEN UNIT 1	P3	G-1/N-1	<100	99	<100	<100	<100	<100	<100	<100	101	Sensitivity Only
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	121	101	140	49	45	83	17	63	102	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	63	24	34	NConv	133	NConv	48	32	24	Install redundant battery
	P5-5c:A13:4:_Panoche 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	45	51	40	35	107	64	117	131	52	Install redundant battery
Gates-Gregg 230 kV Line	P1-3:A14:14:_GATES D 230/70kV TB 5 & P1-1:A14:114:_CHV.COAL 9.11kV GEN UNIT 1	P6	N-1-1	<100	99	<100	<100	<100	<100	<100	<100	101	Sensitivity only
Gates-Gregg 230 kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	19	14	14	NConv	112	NConv	12	11	14	Install redundant battery
Gates-Gregg 230 kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	24	16	20	NConv	127	NConv	17	8	16	Install redundant battery
Gates-Midway 230kV	P5-5c:A14:1:_Gates 500kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	14	10	59	7	115	33	74	82	10	Install redundant battery
Gates-Tulare Lake 70 kV Line	P1-2:A14:136:_ARCO-TULARE LAKE 70KV [8460] & P1-1:A14:22:_2484-WD 21.00kV GEN UNIT FW	P3	G-1/N-1	104	104	111	<100	<100	<100	<100	<100	105	Disable Automatic load transfer
Guard-Mccall 115kV	P1-2:A14:83:_MCCALL-KINGSBURG #1 115KV [2290] MOAS OPENED ON KINGS J1_KINGS J2 & P1-2:A14:88:_HENRIETTA-LEPRINO SW STA 115KV [1737]	P6	N-1-1	<100	<100	<100	<100	<100	116	<100	<100	<100	Generation Re-dispatch
GWF-Kingsburg 115 kV Line	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	81	76	131	68	10	21	30	59	76	Continue to monitor
	P2-4:A14:4:_MC CALL 230KV - SECTION 2E & 1E	P2	Bus/Breaker	92	89	103	16	70	21	7	33	91	Continue to monitor
	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	70	66	111	59	5	13	27	45	67	Continue to monitor
	P7-1:A14:17:_HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	95	89	103	48	67	69	41	8	92	Continue to monitor
Helms-Gregg 230kV Line No 1	P2-1:A14:6:_HELMS-GREGG #2 230KV [4880] (GREGG-HELMS PP3)	P2	Bus/Breaker	95	96	95	70	72	NConv	92	72	96	Generation Re-dispatch
Helms-Gregg 230kV Line No 2	P2-1:A14:5:_HELMS-GREGG #1 230KV [4870] (GREGG-HELMS PP1)	P2	Bus/Breaker	95	96	95	26	72	NConv	61	72	96	Generation Re-dispatch
Helm-Stroud Sw Station 70 kV Line	P2-2:A14:21:_GATES D 230kV SECTION 2D	P2	Bus/Breaker	101	101	75	28	64	77	53	58	101	Summer setup control point
	P2-3:A14:137:_SCHINDLR 115KV - RING R1 & R3	P2	Bus/Breaker	110	106	116	40	31	86	8	59	106	Summer setup control point
	P2-3:A14:60:_EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	110	106	116	40	31	86	8	60	106	Summer setup control point
	P2-4:A13:13:_PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus/Breaker	65	77	123	106	25	140	95	14	77	Continue to monitor
	P2-4:A13:5:_PANOCH 230KV - SECTION 1D & 2D	P2	Bus/Breaker	68	NA	NA	NA	76	NA	28	169	NA	Sensitivity only
	P2-4:A14:8:_GATES D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	107	108	74	35	68	86	58	64	108	Summer setup control point
	P1-3:A14:28:_HELM 230/70kV TB 1 & P1-1:A14:118:_AGRICO 13.80KV & AGRICO 13.80KV GEN UNITS	P3	G-1/N-1	<100	151	<100	<100	<100	<100	<100	<100	155	Summer setup control point
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	110	108	164	9	31	77	31	32	107	Install redundant relay
	P5-5c:A13:4:_Panoche 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	112	119	120	94	80	151	6	113	119	Install redundant battery
	P5-5c:A13:5:_Tranquility SW STA 230kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	34	9	50	129	17	85	41	5	14	Install redundant battery
	P5-5c:A14:14:_Gates 230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	63	71	119	18	11	42	24	12	70	Install redundant battery
	P5-5c:A14:27:_Excelsior SW STA 115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	109	105	116	41	30	87	11	58	106	Install redundant battery
	P1-2:A14:24:_MUSTANG SW STA-MCCALL 230KV [4710] & P1-2:A14:10:_TRANQUILITY SW STA-HELM 230KV [5370]	P6	N-1-1	<100	<100	<100	96	<100	117	<100	<100	<100	Generation Re-dispatch
	P7-1:A13:14:_EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	109	104	112	81	29	136	58	58	104	Summer setup control point
	P7-1:A13:6:_PANOCH-TRANQLTYSS #1 230KV [0] & PANOCH-TRANQLTYSS #2 230KV [0]	P7	DCTL	56	NA	NA	NA	90	NA	21	177	NA	Sensitivity only



	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	127	122	125	84	40	141	60	69	122	Summer setup control point
	P7-1:A14:23:_TRANQTYSS-HELM #1 230KV [0] & TRANQTYSS-MCMULLNI #1 230KV [0]	P7	DCTL	42	11	46	128	14	86	43	10	15	Generation Re-dispatch
Herndon 230/115kV Bank 2	P2-4:A14:2:_HERNDON 230KV - SECTION 1E & 1D	P2	Bus/Breaker	88	91	100	18	32	101	38	25	NConv	Continue to monitor
Herndon-Ashlan 230 kV Line	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	99	101	76	38	44	41	48	44	71	Install redundant battery
Herndon-Barton 115 kV Line	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	74	73	75	16	55	111	14	49	75	Generation Re-dispatch
	P2-3:A14:66:_HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE	P2	Bus/Breaker	74	73	75	16	55	111	14	49	75	Generation Re-dispatch
	P2-3:A14:67:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	73	73	74	17	55	111	14	49	74	Generation Re-dispatch
	P5-5b:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	3	26	58	36	16	NConv	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	57	59	60	NConv	69	NConv	7	20	61	Install redundant battery
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	95	NConv	NConv	5	18	58	20	11	NConv	Install redundant battery
	P1-2:A14:81:_HERNDON-WOODWARD 115KV [1790] & P1-2:A14:53:_AIRWAYS2-SANGER-LASPALMS-MANCHSTR 115KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	106	<100	<100	<100	Generation Re-dispatch
	P7-1:A14:17:_HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	77	72	75	43	25	112	15	38	75	Generation Re-dispatch
	P7-1:A14:22:_HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DCTL	20	26	27	15	99	102	14	69	NConv	Generation Re-dispatch
	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQTYSS-MCMULLNI #1 230KV [0]	P7	DCTL	15	19	20	16	103	97	13	72	NConv	Generation Re-dispatch
Herndon-Bullard #1 115 kV Line	P2-1:A14:91:_HERNDON-BULLARD #1 115KV [1760] (HERNDON-PNDLIJ)	P2	Bus/Breaker	126	71	83	14	53	14	67	52	73	Project:Herndon-Bullard line reconductoring
	P2-2:A14:46:_HERNDON 115KV SECTION 1D	P2	Bus/Breaker	125	71	83	14	54	14	67	52	72	Project:Herndon-Bullard line reconductoring
Herndon-Bullard #2 115 kV Line	P2-1:A14:90:_HERNDON-BULLARD #2 115KV [1770] (HERNDON-PNDLIJ2)	P2	Bus/Breaker	103	58	65	13	43	10	61	42	59	Project:Herndon-Bullard line reconductoring
	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	104	59	67	13	43	10	61	42	60	Project:Herndon-Bullard line reconductoring
	P2-3:A14:67:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	104	59	67	13	43	10	61	42	60	Project:Herndon-Bullard line reconductoring
Herndon-Manchester 115 kV Line	P5-5b:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	12	33	51	42	19	NConv	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	63	65	66	NConv	57	NConv	9	13	67	Install redundant battery
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	98	NConv	NConv	15	21	51	26	12	NConv	Install redundant battery
	P1-2:A14:77:_HERNDON-BARTON 115KV [1750] & P1-2:A14:82:_WOODWARD-SHEPHERD 115KV [1895]	P6	N-1-1	<100	<100	<100	<100	<100	107	<100	<100	<100	Generation Re-dispatch
	P7-1:A14:17:_HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	81	77	79	35	17	100	12	30	80	Generation Re-dispatch
Herndon-Woodward 115 kV Line	P1-2:A14:79:_HERNDON-MANCHESTER 115KV [1780] & P1-2:A14:55:_BARTON-AIRWAYS-SANGER 115KV [1060]	P6	N-1-1	<100	<100	<100	<100	<100	105	<100	<100	<100	Generation Re-dispatch
	P7-1:A14:16:_HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780]	P7	DCTL	90	86	95	19	41	117	16	41	87	Generation Re-dispatch
	P7-1:A14:25:_HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	75	70	79	21	49	117	8	49	72	Generation Re-dispatch
	P7-1:A14:7:_BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	54	50	56	22	59	111	3	59	51	Generation Re-dispatch
Kerckhoff - Clovis - Sanger #1 115 kV Line (Woodward-Shepherd)	P7-1:A14:22:_HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DCTL	36	37	40	5	101	68	2	86	NConv	Generation Re-dispatch
	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQTYSS-MCMULLNI #1 230KV [0]	P7	DCTL	41	42	46	5	104	65	2	88	NConv	Generation Re-dispatch
Kingsburg-Guard 115kV	P1-2:A14:83:_MCCALL-KINGSBURG #1 115KV [2290] MOAS OPENED ON KINGS J1_KINGS J2 & P1-2:A14:88:_HENRIETTA-LEPRINO SW STA 115KV [1737]	P6	N-1-1	<100	<100	<100	<100	<100	122	<100	<100	<100	Generation Re-dispatch
Kingsriver-Sanger-Reedley 115 kV Line	P1-2:A14:63:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY & P1-2:A14:64:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	132	127	158	<100	<100	<100	<100	<100	132	Operating solution
Las Aguilas Reactor 230kV	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NA	0	0	NConv	NA	NConv	NA	NA	0	Install redundant battery
Lacanalacc-Panocha 230kV Line 1	P2-2:A13:3:_PANOCHE 230KV SECTION 2E	P2	Bus/Breaker	3	17	22	103	4	60	34	28	18	Generation Re-dispatch



	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	41	61	70	NConv	147	NConv	100	106	63	Install redundant battery
Lasaguillass-Panoche 230kV Line 2	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	41	61	70	NConv	148	NConv	101	107	64	Install redundant battery
Le Grand-Chowchilla 115 kV Line	P2-4:A14:19:_HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	52	99	97	53	3	56	5	6	102	Sensitivity only
	P2-3:A14:1:_GREGG 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	9	15	33	106	10	22	23	12	26	Generation Re-dispatch
	P1-2:A14:49:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT & P1-1:A13:38:_CHOWCOGN 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	112	<100	<100	<100	<100	<100	<100	113	Summer setup control point
	P5-5a:A14:2:_HERNDON #1 & 2 115KV BUS (Failure OF NON-REDUNDANT RELAY)	P5	Non-Redundent battery/relay	52	98	97	54	3	57	6	6	101	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	36	69	73	NConv	13	NConv	20	26	72	Install redundant battery
	P5-5c:A14:10:_Mccall 230-115kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	44	NConv	NConv	38	29	21	2	27	NConv	Install redundant battery
	P5-5c:A14:2:_Gregg 230kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	47	94	106	61	5	42	8	24	89	Install redundant battery
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	69	NConv	6	11	NConv	NConv	Install redundant battery
	P1-2:A14:12:_BORDEN-GREGG #2 230KV [4400] & P1-2:A14:11:_BORDEN-GREGG #1 230KV [1082]	P6	N-1-1	<100	<100	<100	106	<100	<100	<100	<100	<100	Generation Re-dispatch
Legrand-Wilson 115kV	P7-1:A13:13:_BORDEN-GREGG 230KV #1 & #2 [4400]	P7	DTCL	9	15	33	106	10	22	23	12	26	Generation Re-dispatch
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	NA	49	51	NConv	NA	NConv	NA	NA	51	Install redundant battery
Los Banos-Canal-Oro Loma 70 kV Line	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	128	31	43	17	43	25	47	44	32	Project:Los Banos 70kV reinforcement project
Los Banos-Livingston Jct-Canal 70 kV Line	P1-2:A13:71:_LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P1	N-1	128	34	48	7	45	18	51	45	34	Project:Los Banos 70kV reinforcement project
	P7-1:A13:11:_LOS BANOS-PANOCHÉ #1 230KV [5030] & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P7	DTCL	128	34	48	9	45	20	51	45	34	Project:Los Banos 70kV reinforcement project
Los Banos-Panoche #2 230 kV Line	P2-2:A13:2:_LOS BANOS 230KV SECTION 2D	P2	Bus/Breaker	30	4	11	75	21	85	104	74	4	Sensitivity only
	P5-5c:A14:1:_Gates 500kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	17	7	15	70	6	71	103	78	4	Install redundant battery
Manchester - Airways - Sanger 115 kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	27	29	29	NConv	90	NConv	24	37	30	Install redundant battery
	P1-2:A14:9:_TRANQUILLITY SW STA-KEARNEY 230KV [5380] & P1-2:A14:18:_MUSTANG SW STA-GREGG 230KV [4700]	P6	N-1-1	<100	<100	<100	<100	102	<100	<100	98	<100	Generation Re-dispatch
	P1-2:A14:81:_HERNDON-WOODWARD 115KV [1790] & P1-2:A14:77:_HERNDON-BARTON 115KV [1750]	P6	N-1-1	<100	<100	<100	<100	<100	114	<100	<100	<100	Generation Re-dispatch
	P7-1:A14:22:_HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DTCL	43	36	42	7	121	87	19	93	NConv	Generation Re-dispatch
	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DTCL	49	43	50	6	125	83	19	96	NConv	Generation Re-dispatch
	P7-1:A14:17:_HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DTCL	46	41	42	51	41	112	31	55	43	Sensitivity only
	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DTCL	30	23	26	8	116	89	14	86	NConv	Generation Re-dispatch
	P1-2:A14:76:_MCCALL-WEST FRESNO #2 115KV [2370] & P1-2:A14:74:_SANGER-CALIFORNIA AVE 115KV [9130]	P6	N-1-1	114	115	109	<100	<100	<100	<100	<100	119	Operating solution
McCall-Kingsburg #1 115 kV Line	P1-2:A14:86:_MCCALL-KINGSBURG #2 115KV [2300] & P1-2:A14:88:_HENRIETTA-LEPRINO SW STA 115KV [1737]	P6	N-1-1	<100	<100	<100	<100	<100	142	<100	<100	<100	Generation Re-dispatch
McCall-Reedley 115 kV Line (McCall-Wahtoke)	P5-5c:A14:21:_Sanger 115kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	95	93	100	11	64	18	40	55	94	Install redundant battery
McCall-Reedley 115 kV Line (Reedley-Wahtoke)	P5-5c:A14:21:_Sanger 115kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	120	116	118	17	90	21	55	74	118	Install redundant battery
	P1-2:A14:63:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLER, REEDLEY & P1-2:A14:61:_KINGS RIVER-SANGER-REEDLEY 115KV [2030]	P6	N-1-1	114	109	112	<100	<100	<100	<100	<100	111	Operating solution
McCall-Sanger #3 115 kV Line	P5-5c:A14:2:_Gregg 230kV Batt(Failure OF NON-REDUNDANT BATT)	P5	Non-Redundent battery/relay	94	89	109	28	43	14	41	31	84	Install redundant battery
	P1-2:A14:18:_MUSTANG SW STA-GREGG 230KV [4700] & P1-2:A14:9:_TRANQUILLITY SW STA-KEARNEY 230KV [5380]	P6	N-1-1	<100	<100	<100	<100	111	<100	<100	<100	<100	Generation Re-dispatch
	P7-1:A14:22:_HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DTCL	64	52	61	7	102	42	4	67	NConv	Generation Re-dispatch
	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DTCL	69	59	67	7	106	38	5	70	NConv	Generation Re-dispatch
McCall-West Fresno 115 kV Line	P1-2:A14:70:_CALIFORNIA AVE-MCCALL 115KV [2360] & P1-2:A14:74:_SANGER-CALIFORNIA AVE 115KV [9130]	P6	N-1-1	101	102	99	<100	<100	<100	<100	<100	105	Operating solution
Mendota-Biomass junction 70kV	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	17	NA	NA	NA	35	NA	54	135	NA	Sensitivity only
	P1-2:A13:61:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON ADERASLRJCT_DAIRYLND & P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	169	<100	<100	<100	106	<100	14	61	<100	Summer setup control point
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DTCL	0	NA	NA	NA	56	NA	46	139	NA	Sensitivity only
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	23	NA	NA	NA	26	NA	26	126	NA	Summer setup control point



Mendota-San Joaquin-Helm 70 kV Line	P2-1:A13:47:_PANOCHE-MENDOTA 115KV [3230] (PANOCHET-PANOCHE1)	P2	Bus/Breaker	94	51	42	41	80	81	102	48	51	Summer setup control point
	P2-2:A13:24:_PANOCHE1 115KV SECTION 1D	P2	Bus/Breaker	93	51	42	41	80	81	102	47	51	Summer setup control point
	P2-3:A13:33:_PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	93	51	42	41	80	81	102	47	51	Summer setup control point
	P2-3:A13:34:_PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	93	51	42	41	80	81	102	47	51	Summer setup control point
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	130	51	42	41	113	81	95	69	51	Summer setup control point
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	44	NA	NA	NA	17	NA	11	113	NA	Summer setup control point
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-1:A13:40_ EXCHQUER 13.80KV GEN UNIT 1	P3	G-1/N-1	100	<100	<100	<100	<100	<100	100	<100	<100	Summer setup control point
	P5-5c:A13:4:_Panoche 230-115KV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	111	51	42	41	70	81	85	14	51	Install redundant battery
	P1-2:A13:61:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON ADERASLRJCT_DAIRYLN D & P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	172	<100	<100	<100	104	<100	17	70	<100	Summer setup control point
Merced 115/70 kV Transformer #2	P1-3:A13:6:_PANOCHE 230/115KV TB 2 & P1-3:A13:5:_PANOCHE 230/115KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	101	<100	<100	Sensitivity Only
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	41	NConv	NA	Project:Wilson 115kV reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	41	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	41	NConv	111	41	NConv	NConv	Install redundant battery
Merced Falls-Exchequer 70 kV Line	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	154	NConv	NA	Project:Wilson 115kV reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	139	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	61	NConv	172	153	NConv	NConv	Install redundant battery
Merced-Merced Falls 70 kV Line	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	130	NConv	NA	Project:Wilson 115kV reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	130	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	53	NConv	122	130	NConv	NConv	Install redundant battery
MERCED-MERCED M #2 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	26	NConv	NA	Project:Wilson 115kV reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	26	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	44	NConv	114	26	NConv	NConv	Install redundant battery
Mercy Springs 70kV line	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	169	42	64	24	50	37	83	50	43	Project:Los Banos 70kV reinforcement project
Mercy Springs -Arbu 70kV line	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	115	16	27	24	35	30	36	35	17	Project:Los Banos 70kV reinforcement project
Mercy Springs-Canal 70 kV Line #1	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	169	42	71	5	50	21	83	50	43	Project:Los Banos 70kV reinforcement project
Mosslanding-Las Aguilas 230kV	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	NA	78	89	NConv	NA	NConv	NA	NA	82	Install redundant battery
	P2-4:A13:1:_LOS BANOS 230KV - SECTION 1D & 2D	P2	Bus/Breaker	11	NA	NA	NA	19	NA	103	46	NA	Sensitivity only
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	50	NA	NA	NA	223	NA	185	140	NA	Install redundant battery
	P5-5c:A14:1:_Gates 500kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	6	NA	NA	NA	6	NA	101	50	NA	Install redundant battery
Oro Loma-Canal #1(Oro Loma-Santa Rita) 70 kV Line	P2-3:A13:50:_LOS BANS - MA 70KV & LOS BANOS-O'NEILL PGP LINE	P2	Bus/Breaker	51	90	119	20	24	18	8	24	91	Continue to monitor
Oro Loma-Canal #1(Oro Loma-Santa Rita) 70 kV Line	P2-4:A13:14:_LOS BANOS 230KV - SECTION 2D & 1D	P2	Bus/Breaker	NA	96	118	4	NA	37	NA	NA	97	Continue to monitor
Oro Loma-Canal #1(Oro Loma-Santa Rita) 70 kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	51	82	104	NConv	24	NConv	8	24	83	Install redundant battery
Oro Loma-Mendota 115kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	14	28	35	NConv	125	NConv	78	20	29	Install redundant battery
	P1-2:A14:9:_TRANQUILITY SW STA-KEARNEY 230KV [5380] & P1-2:A14:18_ MUSTANG SW STA-GREGG 230KV [4700]	P6	N-1-1	<100	<100	<100	<100	105	<100	<100	99	<100	Generation Re-dispatch
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A13:43_ WILSON-LE GRAND 115KV [4170]	P6	N-1-1	81	119	110	72	<100	71	<100	<100	122	Operating solution
	P1-2:A13:45:_WILSON-ORO LOMA 115KV [4200] & P1-2:A13:58_ PANOCHE-ORO LOMA 115KV [3240]	P6	N-1-1	127	<100	<100	<100	<100	<100	<100	<100	<100	Summer setup control point
	P7-1:A14:22_ HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DCTL	59	40	38	49	112	28	22	60	NConv	Generation Re-dispatch
	P7-1:A14:26_ HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	66	49	46	49	117	23	23	64	NConv	Generation Re-dispatch
	P1-2:A13:57_ PANOCHE-MENDOTA 115KV [3230]	P1	N-1	100	121	111	99	66	100	98	59	123	Summer setup control point
	P2-1:A13:47_ PANOCHE-MENDOTA 115KV [3230] (PANOCHET-P2-1:A13:48_ PANOCHE-MENDOTA 115KV [3230] (PANOCHET-	P2	Bus/Breaker	100	120	111	99	66	104	100	59	123	Summer setup control point
	P2-2:A13:24_ PANOCHE1 115KV SECTION 1D	P2	Bus/Breaker	93	115	105	98	60	103	105	53	117	Summer setup control point
	P2-3:A13:33:_PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	93	115	105	98	60	103	105	53	117	Summer setup control point



Oro loma-Poso Junction 70kV line	P2-3:A13:34:_PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	93	115	105	98	60	103	105	53	117	Summer setup control point
	P2-3:A13:35:_PANOCHE1 - 1D 115KV & PANOCHE-MENDOTA LINE	P2	Bus/Breaker	93	115	105	98	60	99	103	53	117	Summer setup control point
	P2-3:A13:37:_MENDOTA 115KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	101	121	117	31	66	48	44	58	123	Summer setup control point
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	14	89	80	96	27	100	107	9	91	Sensitivity only
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-1:A13:20:_WRIGHTFRMNSL 0.55KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	100	<100	100	99	<100	<100	Generation Re-dispatch
	P5-5c:A13:4:_Panoche 230-115KV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	31	94	83	104	17	105	94	45	96	Install redundant battery
PANOCH2-EXCELSIORSS 115kV Line	P1-2:A13:61:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON ADEASLRJCT DAIRYLND & P1-2:A13:57:_PANOCHE-MENDOTA	P6	N-1-1	<100	<100	<100	<100	135	<100	46	100	<100	Generation Re-dispatch
	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-2:A14:51:_PANOCHE-EXCELSIOR SW STA #1 115KV [3250] MOAS OPENED ON	P6	N-1-1	112	113	<100	<100	<100	95	<100	<100	114	Project:Gates new bank addition project
Panoche-Gates 230kV Line No 1	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	81	29	28	NConv	193	NConv	19	48	30	Install redundant battery
	P5-5c:A14:1:_Gates 500kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	25	18	17	157	15	125	63	75	19	Install redundant battery
Panoche-Gates 230kV Line No 2	P2-3:A14:25:_GATES E 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	17	12	32	105	12	97	53	74	12	Generation Re-dispatch
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	86	31	30	NConv	205	NConv	20	51	32	Install redundant battery
	P5-5c:A14:1:_Gates 500kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	26	19	19	166	16	133	67	79	21	Install redundant battery
Panoche-Mendota 115 kV Line	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	34	NConv	NA	Project:Wilson 115kV reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (Failure of Non-Redundent Relay)	P5	Non-Redundent battery/relay	NConv	NA	NA	NA	NConv	NA	34	NConv	NA	Install redundant relay
	P5-5c:A13:2:_Wilson 230-115KV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	NConv	NConv	NConv	44	NConv	74	60	NConv	NConv	Install redundant battery
Panoche-Schindler #1 115kV Line	P1-2:A14:50:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-2:A14:88:_HENRIETTALEPRINO SW STA 115KV [1737]	P6	N-1-1	<100	<100	<100	<100	<100	100	<100	<100	<100	Generation Re-dispatch
	P1-2:A14:50:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-3:A14:14:_GATES D 230/70KV TB 5	P6	N-1-1	110	107	<100	<100	<100	97	<100	<100	108	Project:Gates new bank addition project
Panoche-Schindler #2 115 kV Line	P2-2:A13:24:_PANOCHE1 115KV SECTION 1D	P2	Bus/Breaker	30	16	46	92	30	98	102	13	17	Sensitivity only
	P2-3:A13:33:_PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	30	16	46	92	30	98	102	13	17	Sensitivity only
	P2-3:A13:34:_PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	30	16	46	92	30	98	102	13	17	Sensitivity only
	P2-3:A13:35:_PANOCHE1 - 1D 115KV & PANOCHE-MENDOTA LINE	P2	Bus/Breaker	30	16	46	92	30	98	102	13	17	Sensitivity only
	P2-3:A14:60:_EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	50	55	5	75	50	63	112	50	55	Sensitivity only
	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-2:A14:52:_CANTUA-EXCELSIORSS 115KV [0] MOAS OPENED ON PANOCHE1_KAMM_JCT	P6	N-1-1	<100	<100	<100	87	<100	100	100	<100	<100	Sensitivity only
Panoche-Tranquility 230kV Line No 1	P2-3:A13:7:_TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	29	NA	NA	NA	54	NA	7	107	NA	Sensitivity only
Panoche-Tranquility 230kV Line No 2	P2-2:A13:5:_PANOCHE 230KV SECTION 1D	P2	Bus/Breaker	6	NA	NA	NA	50	NA	19	101	NA	Sensitivity only
Reedley 115/70 kV Transformer #4	P1-3:A14:42:_REEDLEY 115/70KV TB 2 & P1-1:A14:110:_FRIANTDAM 6.60KV GEN UNIT 2	P3	G-1/N-1	101	98	<100	<100	<100	<100	<100	<100	100	Project:Reedley 70kV reinforcement project
Reedley-Dinuba 70 kV Line	P1-2:A14:124:_REEDLEY-OROSI 70KV [9060]	P1	N-1	122	120	28	19	54	26	59	54	123	Project:Reedley 70kV reinforcement project
Reedley-Orosi 70 kV Line	P1-2:A14:123:_REEDLEY-DINUBA #1 70KV [9050]	P1	N-1	121	119	39	19	56	23	60	56	122	Project:Reedley 70kV reinforcement project
Sanger-Reedley 115 kV Line	P1-2:A14:61:_KINGS RIVER-SANGER-REEDLEY 115KV [2030] & P1-2:A14:64:_MCCALL-REEDLEY 115KV [3230] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	105	103	115	<100	<100	<100	<100	<100	105	Operating solution
Schindler 115/70 kV Transformer #1	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	24	26	64	86	15	100	118	15	26	Generation Re-dispatch
	P5-5c:A13:4:_Panoche 230-115KV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	74	76	64	59	39	100	66	43	76	Install redundant battery
	P1-3:A14:28:_HELM 230/70KV TB 1 & P1-3:A14:14:_GATES D 230/70KV TB 5	P6	N-1-1	112	131	<100	<100	<100	89	<100	<100	132	Project:Gates new bank addition project
Schindler-Coalinga #2 70 kV Line	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	74	76	64	60	39	100	67	39	76	Generation Re-dispatch
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	7	15	30	66	15	73	114	27	15	Sensitivity only
	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-1:A14:114:_CHV.COAL 9.1KV GEN UNIT 1	P3	G-1/N-1	101	100	<100	<100	<100	<100	<100	<100	101	Project:Gates new bank addition project
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (Failure of Non-Redundent Relay)	P5	Non-Redundent battery/relay	98	97	136	23	49	52	30	70	98	Install redundant relay
	P5-5c:A13:4:_Panoche 230-115KV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	25	18	29	50	55	69	108	74	19	Install redundant battery
	P5-5c:A14:14:_Gates 230-70kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	111	116	175	14	50	53	72	86	116	Install redundant battery
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	32	12	30	NConv	102	NConv	24	28	12	Install redundant battery
	P5-5c:A14:14:_Gates 230-70kV Batt(Failure of Non-Redundent Batt)	P5	Non-Redundent battery/relay	84	89	144	29	24	74	42	62	89	Install redundant battery
	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-1:A14:114:_CHV.COAL 9.1KV GEN UNIT 1	P6	N-1-1	100	100	<100	<100	<100	<100	<100	<100	101	Project:Gates new bank addition project
	P1-3:A14:28:_HELM 230/70KV TB 1	P1	N-1	102	67	79	12	20	100	100	20	70	Summer setup control point
	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	101	67	80	12	20	100	100	20	70	Summer setup control point
	P2-3:A14:137:_SCHINDLR 115KV - RING R1 & R3	P2	Bus/Breaker	83	78	102	41	32	76	37	49	78	Summer setup control point



Schindler-Crescent 70kV line	P2-3:A14:60; EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	84	78	103	41	32	76	37	50	78	Summer setup control point
	P2-4:A13:13; _PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus/Breaker	40	48	107	107	51	129	62	32	48	Summer setup control point
	P2-4:A13:5; _PANOCH2 230KV - SECTION 1D & 2D	P2	Bus/Breaker	40	NA	NA	NA	100	NA	67	192	NA	Summer setup control point
	P1-3:A14:28; _HELM 230/70KV TB 1 & P1-1:A14:34; _FSNOCGNBESS2 0.69KV GEN UNIT 5	P3	G-1/N-1	<100	<100	<100	<100	<100	100	101	<100	<100	Sensitivity only
	P5-5a:A14:1; _GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	81	79	147	11	12	67	16	11	78	Install redundant relay
	P5-5c:A13:4; _Panoche 230-115KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	85	90	104	94	106	141	34	137	90	Install redundant battery
	P5-5c:A13:5; _Tranquility SW STA 230KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	69	44	35	129	42	97	78	31	49	Install redundant battery
	P5-5c:A14:14; _Gates 230-70KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	34	42	102	18	15	33	18	14	41	Install redundant battery
	P5-5c:A14:27; _Excelsior SW STA 115KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	83	78	103	42	32	77	35	49	77	Install redundant battery
	P1-3:A14:28; _HELM 230/70KV TB 1 & P1-1:A14:34; _FSNOCGNBESS2 0.69KV GEN UNIT 5	P6	N-1-1	<100	<100	<100	<100	<100	100	101	<100	<100	Sensitivity only
	P7-1:A13:14; _EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	79	75	95	82	15	126	16	45	75	Generation Re-dispatch
	P7-1:A13:6; _PANOCH2-TRANQLTYSS #1 230KV [0] & PANOCH2-TRANQLTYSS #2 230KV [0]	P7	DCTL	29	NA	NA	NA	113	NA	60	200	NA	Generation Re-dispatch
Schindler-Huron-Gates 70 kV Line	P7-1:A14:10; _PANOCH2-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	99	93	108	85	36	130	18	58	93	Continue to monitor
	P7-1:A14:23; _TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	79	45	32	128	39	98	79	20	50	Continue to monitor
	P1-3:A14:14; _GATES D 230/70KV TB 5	P1	N-1	111	93	25	62	55	100	23	64	94	Project:Gates new bank addition project
	P2-2:A14:21; _GATES D 230KV SECTION 2D	P2	Bus/Breaker	112	94	25	66	56	104	25	66	95	Project:Gates new bank addition project
	P2-4:A14:8; _GATES D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	120	102	22	74	60	115	32	73	103	Project:Gates new bank addition project
	P1-3:A14:14; _GATES D 230/70KV TB 5 & P1-1:A14:114; _CHV.COAL 9.11KV GEN UNIT 1	P3	G-1/N-1	<100	101	<100	<100	<100	<100	<100	<100	102	Project:Gates new bank addition project
	P5-5c:A13:1; _Los Banos 500-230-70KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	8	14	33	NConv	159	NConv	9	21	14	Install redundant battery
	P5-5c:A13:4; _Panoche 230-115KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	109	85	98	30	130	67	73	156	86	Install redundant battery
	P5-5a:A14:1; _GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	122	103	136	76	46	117	23	64	104	Install redundant relay
	P5-5c:A13:1; _Los Banos 500-230-70KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	63	22	26	NConv	132	NConv	9	32	22	Install redundant battery
	P5-5c:A13:4; _Panoche 230-115KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	43	48	34	3	105	27	81	129	48	Install redundant battery
	P5-5c:A14:1; _Gates 500KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	26	15	7	101	18	84	17	45	16	Install redundant battery
Schindler-PaigeSolar junction 70kV	P1-2:A14:24; _MUSTANG SW STA-MCCALL 230KV [4710] & P1-2:A14:18; _MUSTANG SW STA-GREGG 230KV [4700]	P6	N-1-1	<100	<100	<100	<100	102	<100	<100	<100	<100	Generation Re-dispatch
	P1-3:A14:14; _GATES D 230/70KV TB 5 & P1-1:A14:114; _CHV.COAL 9.11KV GEN UNIT 1	P6	N-1-1	<100	101	<100	<100	<100	<100	<100	<100	102	Project:Gates new bank addition project
	P7-1:A14:10; _PANOCH2-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	102	83	96	33	65	73	44	49	85	Project:Gates new bank addition project
	P2-4:A14:8; _GATES D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	96	101	56	43	66	79	20	83	102	Project:Gates new bank addition project
	P1-3:A14:14; _GATES D 230/70KV TB 5 & P1-1:A14:114; _CHV.COAL 9.11KV GEN UNIT 1	P3	G-1/N-1	101	104	<100	<100	<100	<100	<100	<100	105	Project:Gates new bank addition project
Storey-Borden 230kV Line No 1	P5-5a:A14:1; _GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	100	103	134	45	50	83	17	71	103	Install redundant relay
	P5-5c:A14:14; _Gates 230-70KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	112	120	170	31	51	83	35	87	120	Install redundant battery
	P5-5c:A13:1; _Los Banos 500-230-70KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	12	14	10	NConv	77	NConv	103	109	16	Install redundant battery
Tivy Valley-Reedley 70 kV Line	P1-2:A13:81; _BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	101	101	101	5	48	50	32	26	101	Summer setup control point
	P5-5c:A13:9; _Borden 230-70KV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	100	100	NA	5	48	50	32	25	100	Install redundant battery
	P1-3:A14:43; _REEDLEY 115/70KV TB 4 & P1-3:A14:42; _REEDLEY 115/70KV TB 2	P6	N-1-1	<100	<100	<100	<100	114	<100	120	114	<100	Generation Re-dispatch
Tomatak-Mendota 70kV line	P2-1:A13:49; _PANOCH2-ORO LOMA 115KV [3240] (PANOCH2-PANOCH2)	P2	Bus/Breaker	108	72	82	40	89	27	73	68	73	Summer setup control point
	P2-1:A13:50; _PANOCH2-ORO LOMA 115KV [3240] (PANOCH2-HAMMONDS)	P2	Bus/Breaker	101	70	78	36	82	23	68	62	71	Summer setup control point
	P2-2:A13:24; _PANOCH1 115KV SECTION 1D	P2	Bus/Breaker	37	50	17	88	9	76	103	11	52	Summer setup control point
	P2-2:A13:25; _PANOCH2 115KV SECTION 2D	P2	Bus/Breaker	107	72	82	42	89	29	76	68	73	Summer setup control point
	P2-3:A13:33; _PANOCH1 - 1D 115KV & PANOCH2-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	37	50	17	88	9	76	103	11	52	Summer setup control point
	P2-3:A13:34; _PANOCH1 - 1D 115KV & PANOCH2-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	37	50	17	88	9	76	103	11	52	Summer setup control point
	P2-3:A13:35; _PANOCH1 - 1D 115KV & PANOCH2-MENDOTA LINE	P2	Bus/Breaker	37	50	17	88	9	74	101	11	52	Summer setup control point
	P2-3:A13:40; _PANOCH2 - 2D 115KV & PANOCH2-EXCELSIOR SW STA #2 LINE	P2	Bus/Breaker	105	71	82	41	88	29	76	67	72	Summer setup control point



	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	60	1	56	87	49	75	105	39	2	Summer setup control point
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A14:10:_TRANQUILITY SW STA-HELM 230KV [5370]	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	<100	Summer setup control point
Warnerville - Wilson 230 kV Line	P2-4:A14:33:_HELMS PP2 SECTION 1E & HELMS PP3 SECTION 1F 230KV	P2	Bus/Breaker	86	97	75	45	7	74	12	37	100	Sensitivity only
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	15	32	7	75	51	51	104	85	37	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	76	111	93	NConv	105	NConv	162	131	118	Install redundant battery
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	37	48	27	71	45	56	91	109	52	Install redundant battery
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	13	32	8	75	50	51	104	84	35	Install redundant battery
	P7-1:A14:8:_HELMS-GREGG #1 230KV [4870] & HELMS-GREGG #2 230KV [4880]	P7	DCTL	86	97	75	45	7	74	12	37	100	Sensitivity only
Wilson Reactor 230kV	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	15	32	7	0	0	0	103	0	NA	Install redundant relay
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	75	110	92	NConv	0	NConv	161	130	117	Install redundant battery
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	13	32	8	0	0	0	103	0	35	Install redundant battery
	car repair center	P5	Non-Redundent battery/relay	NA	0	0	70	45	56	NA	108	0	Install redundant battery
Wilson-Atwater #2 115 kV Line	P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510] & P1-2:A13:41:_ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED	P6	N-1-1	115	<100	<100	<100	<100	<100	<100	<100	<100	Project:Wilson 115kV reinforcement project
	P1-2:A13:41:_ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	<100	118	153	<100	<100	<100	<100	<100	120	Operating solution
Wilson-Elcapiton 115kV	P1-2:A13:41:_ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & P1-2:A13:49:_WILSON-ATWATER #2 115KV [4160]	P6	N-1-1	<100	107	136	<100	<100	<100	<100	<100	109	Operating solution
Wilson-Le Grand 115 kV Line	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	16	26	25	NConv	72	NConv	34	8	28	Install redundant battery
Wilson-Melones 230kV Line No 1	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	47	63	55	NConv	84	NConv	44	142	66	Install redundant battery
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	32	40	30	42	59	30	16	123	41	Install redundant battery
Wilson-Merced #1 115 kV Line	P1-2:A14:18:_MUSTANG SW STA-GREGG 230KV [4700] & P1-2:A14:9:_TRANQUILITY SW STA-KEARNEY 230KV [5380]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	102	<100	Sensitivity only
	P2-2:A13:17:_WILSON B 115KV SECTION 2D	P2	Bus/Breaker	110	NA	NA	NA	45	NA	50	46	NA	Project:Wilson 115kV reinforcement project
	P2-3:A13:29:_WILSON B - 2D 115KV & WILSON-ORO LOMA LINE	P2	Bus/Breaker	110	NA	NA	NA	45	NA	50	46	NA	Project:Wilson 115kV reinforcement project
	P1-2:A13:52:_WILSON-MERCED #2 115KV [4190] & P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	106	<100	<100	<100	<100	<100	<100	<100	<100	Project:Wilson 115kV reinforcement project
	P1-2:A13:42:_EXCHEQUER-LE GRAND 115KV [1560] & P1-2:A13:52:_WILSON-MERCED #2 115KV [4190]	P6	N-1-1	<100	99	<100	<100	<100	<100	<100	<100	101	Sensitivity only
Wilson-Merced #2 115 kV Line	P2-2:A13:16:_WILSON A 115KV SECTION 1D	P2	Bus/Breaker	104	NA	NA	NA	36	NA	48	37	NA	Project:Wilson 115kV reinforcement project
	P2-3:A13:28:_WILSON A - 1D 115KV & WILSONSTCOM-WILSON A #1 LINE	P2	Bus/Breaker	104	NA	NA	NA	36	NA	48	37	NA	Project:Wilson 115kV reinforcement project
	P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510] & P1-2:A13:50:_WILSON-MERCED #1 115KV [4180]	P6	N-1-1	110	<100	<100	<100	<100	<100	<100	<100	<100	Project:Wilson 115kV reinforcement project
Wilson-Merced 115kV	P1-2:A13:42:_EXCHEQUER-LE GRAND 115KV [1560] & P1-2:A13:50:_WILSON-MERCED #1 115KV [4180]	P6	N-1-1	<100	102	<100	<100	<100	<100	<100	<100	104	Operating solution
Wilson-Oro Loma 115 kV Line	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	101	63	69	31	48	8	32	50	NA	Project:Wilson-Oro loma Reconductoring
	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	10	49	51	NConv	106	NConv	64	30	50	Install redundant battery
	P1-2:A14:18:_MUSTANG SW STA-GREGG 230KV [4700] & P1-2:A14:9:_TRANQUILITY SW STA-KEARNEY 230KV [5380]	P6	N-1-1	<100	<100	<100	<100	101	<100	<100	<100	<100	Generation Re-dispatch
Wilson-Storey 230kV Line No 1	P5-5c:A13:1:_Los Banos 500-230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	18	35	29	NConv	77	NConv	106	123	39	Install redundant battery
	P1-2:A14:9:_TRANQUILITY SW STA-KEARNEY 230KV [5380] & P1-2:A14:18:_MUSTANG SW STA-GREGG 230KV [4700]	P6	N-1-1	<100	<100	<100	<100	110	<100	<100	100	<100	Generation Re-dispatch
	P7-1:A13:6:_PANOCHE-TRANQTYSS #1 230KV [0] & PANOCHE-TRANQTYSS #2 230KV [0]	P7	DCTL	23	NA	NA	NA	48	NA	56	105	NA	Sensitivity only
	P7-1:A14:26:_HENTAP1-MUSTANGSS #1 230KV [0] & TRANQTYSS-MCMULLN #1 230KV [0]	P7	DCTL	31	34	27	77	87	18	51	101	NConv	Sensitivity only



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
AIRWAYS 115 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.95	0.95	0.90	1.08	1.03	1.09	1.01	1.03	0.95	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	0.94	0.94	0.88	1.09	1.03	1.10	1.03	1.03	0.96	Add redundant battery
ATWATER 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.21	NConv	1.21	0.25	NConv	NConv	Add redundant battery
BARTON 115 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.94	0.95	0.89	1.08	1.02	1.09	1.00	1.03	0.94	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	0.94	0.94	0.87	1.09	1.02	1.10	1.03	1.03	0.95	Add redundant battery
BIOLA 70 kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	1.01	1.01	0.90	1.05	1.05	1.06	1.04	1.05	1.03	Add redundant battery
BULLARD 115 kV	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	0.94	0.95	0.90	1.07	1.03	1.06	1.01	1.03	0.94	Continue to monitor
	P2-3:A14:67:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	0.94	0.95	0.90	1.07	1.03	1.06	1.01	1.03	0.94	Continue to monitor
	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.91	0.91	0.84	1.08	1.03	1.08	0.99	1.03	0.91	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	0.91	0.91	0.82	1.11	1.03	1.12	1.02	1.03	0.93	Add redundant battery
CAL AVE 115 kV	P1-2:A14:74:_SANGER-CALIFORNIA AVE 115KV [9130] & P1-2:A14:76:_MCCALL-WEST FRESNO #2 115KV [2370]	P6	N-1-1	0.77	0.77	0.78	>0.95	NA	>0.95	0.88	NA	0.76	Potential voltage support project
CHWCHILLA 115 kV	P1-2:A13:36:_LE GRAND-CHOWCHILLA 115KV [2110]	P1	N-1	0.92	0.92	0.84	1.09	1.02	1.10	1.00	1.02	0.92	Continue to monitor
	P2-1:A13:15:_LE GRAND-CHOWCHILLA 115KV [2110] (CHWCHILLA-CERTAN T)	P2	Bus/Breaker	0.92	0.92	0.84	1.09	1.02	1.10	1.00	1.02	0.92	Continue to monitor
	P2-3:A13:26:_LE GRAND - MA 115KV & LE GRAND-CHOWCHILLA LINE	P2	Bus/Breaker	0.92	0.92	0.84	1.09	1.02	1.09	1.00	1.02	0.92	Continue to monitor
	P5-5c:A13:11:_Le Grand 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NA	NA	0.84	NA	NA	NA	NA	NA	NA	Add redundant battery
CRESSEY 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.21	NConv	1.21	0.25	NConv	NConv	Add redundant battery
DINUBA 70 kV	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	0.89	NConv	NConv	1.14	1.03	1.04	1.04	1.03	NConv	Add redundant battery
EL CAPTN 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.21	NConv	1.21	0.25	NConv	NConv	Add redundant battery
EXCHEQUOR 70 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.73	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.73	NConv	NA	Add redundant relay



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.06	NConv	1.03	0.73	NConv	NConv	Add redundant battery
GALLO 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (Failure of non-redundent relay)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.21	NConv	1.21	0.25	NConv	NConv	Add redundant battery
HAMMONDS 115 kV	P2-1:A13:49:_PANOCHE-ORO LOMA 115KV [3240] (PANOCHEJ-PANOCHE2)	P2	Bus/Breaker	0.91	0.94	0.87	1.03	0.97	1.04	0.98	0.98	0.94	Continue to monitor
	P2-1:A13:50:_PANOCHE-ORO LOMA 115KV [3240] (PANOCHEJ-HAMMONDS)	P2	Bus/Breaker	0.95	0.98	0.88	1.04	0.99	1.05	1.01	1.00	0.98	Continue to monitor
	P2-2:A13:25:_PANOCHE2 115KV SECTION 2D	P2	Bus/Breaker	0.91	0.94	0.87	1.03	0.97	1.04	0.97	0.98	0.94	Continue to monitor
	P2-3:A13:40:_PANOCHE2 - 2D 115KV & PANOCHE-EXCELSIOR SW STA #2 LINE	P2	Bus/Breaker	0.91	0.94	0.87	1.03	0.97	1.04	0.98	0.98	0.94	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	0.91	0.94	0.87	1.02	0.97	1.03	0.96	0.98	0.94	Continue to monitor
HERNDON 115 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.93	0.93	0.87	1.07	1.03	1.08	1.00	1.03	0.93	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	0.93	0.93	0.86	1.10	1.04	1.11	1.04	1.04	0.95	Add redundant battery
HERNDON 230 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.92	0.92	0.87	1.05	1.01	1.05	0.99	1.01	0.92	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	0.90	0.90	0.83	1.08	1.01	1.08	1.01	1.01	0.93	Add redundant battery
KEARNEY 230 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.93	0.93	0.89	1.04	1.00	1.04	0.99	1.01	0.93	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	0.91	0.91	0.84	1.06	1.00	1.06	1.01	1.01	0.93	Add redundant battery
LIVINGSTON 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (Failure of non-redundent relay)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.25	NConv	NA	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.21	NConv	1.21	0.25	NConv	NConv	Add redundant battery
MERCED 115 kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.26	NConv	NA	Sensitivity only
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (Failure of non-redundent relay)	P5	Non-redundant relay/battery	NConv	NA	NA	NA	NConv	NA	0.26	NConv	NA	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(Failure of non-redundent batt)	P5	Non-redundant relay/battery	NConv	NConv	NConv	1.20	NConv	1.19	0.27	NConv	NConv	Add redundant battery
ORO LOMA 115 kV	P2-1:A13:49:_PANOCHE-ORO LOMA 115KV [3240] (PANOCHEJ-PANOCHE2)	P2	Bus/Breaker	0.91	0.95	0.88	1.03	0.98	1.04	0.98	0.99	0.94	Continue to monitor
	P2-1:A13:50:_PANOCHE-ORO LOMA 115KV [3240] (PANOCHEJ-HAMMONDS)	P2	Bus/Breaker	0.95	0.98	0.89	1.04	1.00	1.05	1.01	1.00	0.98	Continue to monitor
	P2-2:A13:25:_PANOCHE2 115KV SECTION 2D	P2	Bus/Breaker	0.91	0.95	0.88	1.03	0.98	1.04	0.98	0.99	0.94	Continue to monitor
	P2-3:A13:40:_PANOCHE2 - 2D 115KV & PANOCHE-EXCELSIOR SW STA #2 LINE	P2	Bus/Breaker	0.91	0.95	0.88	1.03	0.98	1.04	0.98	0.99	0.94	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	0.91	0.95	0.88	1.02	0.97	1.03	0.97	0.98	0.95	Continue to monitor



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
OROSI 70 kV	P5-5c:A14:10:_Mccall 230-115kV Batt(Failure of Non-Redundent Batt)	P5	Non-redundant relay/battery	0.89	NConv	NConv	1.15	1.03	1.04	1.03	1.03	NConv	Add redundant battery
REEDLEY 115 kV	P5-5c:A14:10:_Mccall 230-115kV Batt(Failure of Non-Redundent Batt)	P5	Non-redundant relay/battery	0.87	NConv	NConv	1.08	0.99	1.10	0.99	0.99	NConv	Add redundant battery
SHEPHERD 115 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	0.96	0.89	1.08	1.04	1.09	1.02	1.04	0.95	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(Failure of Non-Redundent Batt)	P5	Non-redundant relay/battery	0.95	0.95	0.88	1.10	1.03	1.11	1.03	1.04	0.96	Add redundant battery
WAHTOKE 115 kV	P5-5c:A14:10:_Mccall 230-115kV Batt(Failure of Non-Redundent Batt)	P5	Non-redundant relay/battery	0.87	NConv	NConv	1.08	0.99	1.11	0.99	0.99	NConv	Add redundant battery
WOODWARD 115 kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.95	0.95	0.88	1.08	1.04	1.09	1.01	1.04	0.94	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(Failure of Non-Redundent Batt)	P5	Non-redundant relay/battery	0.94	0.94	0.86	1.10	1.03	1.11	1.03	1.04	0.96	Add redundant battery
WST FRSO 115 kV	P1-2:A14:74:_SANGER-CALIFORNIA AVE 115KV [9130] & P1-2:A14:76:_MCCALL-WEST FRESNO #2 115KV [2370]	P6	N-1-1	0.75	0.75	0.76	>0.95	NA	>0.95	0.87	NA	0.74	Potential voltage support project







Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
"P1-2 - Line GREGG to HERNDON 230 kV ckt 1 with RAS	P1	N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Violation occurred at non-bes bus.
"P1-4 - SVD GREGG 230 kV id v" 1.00	P1	N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Violation occurred at non-bes bus.
"P1-2 - Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00	P1	N-1	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"P2-3 - Internal fault at non-Bus-tie breaker Herndon 252 protecting Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00	P2	Bus/Breaker	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Current result is based on 3-phase fault.Working with PTO for SLG fault information
"P2-4 - Internal fault at Bus-tie Breaker 202 at MC CALL 230 kV Bus D" 1.00	P2	Bus/Breaker	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Project: Reedley 70kV reinforcement project
"P2-3 - Internal fault at non-Bus-tie breaker Herndon 252 protecting Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00	P2	Bus/Breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor
"P2-4 - Internal fault at Bus-tie Breaker 302 at MC CALL 230 kV Bus E" 1.00	P2	Bus/Breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor
"P2-3 - Internal fault at non-Bus-tie breaker Herndon 252 protecting Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00	P2	Bus/Breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"P3-2 - Gen HELMS 1 18 kV unit 1 and Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00	P3	N-1/G-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Violation occurred at non-bes bus.
"P3-3 - Gen HELMS 1 18 kV unit 1 and Tran MC CALL 230/115 kV bk 1" 1.00	P3	N-1/G-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Project: Camden 70 kV reinforcement Project
"P3-4 - Gen HELMS 1 18 kV unit 1 and SVD GREGG 230 kV id v" 1.00	P3	N-1/G-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Violation occurred at non-bes bus.
"P3-2 - Gen SUNRISEPR 18 kV (3 units) and Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00	P3	N-1/G-1	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor
"P3-2 - Gen KERCKHOF 13.8 kV unit 1 and Line GREGG to HERNDON 230 kV ckt 1" 1.00	P3	N-1/G-1	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"P4-1 - Stuck 115 kV Breaker 172 protecting Gen KERCKHOF 13.8 kV unit 1" 1.00	P4	Stuck breaker	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Current result is based on 3-phase fault.Working with PTO for SLG fault information
"P5-5c - Failure of non-redundant DC battery supplying Borden 230kV and 70kV Buses" 1.00	P5	Non-Redundent battery/relay	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor





Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

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





Substation	Load Served (MW)										Potential Mitigation Solutions
	2026 Summer Peak	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Birds Landing-CC Sub 230kV Line	GATEWAY1 18.00kV & GATEWAY2 18.00kV & GATEWAY3 18.00kV GEN UNITS and BIRDS LANDING SW STA-CONTRA COSTA PP 230kV [5830]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	102	< 100	NA	Sensitivity only
	BIRDS LANDING SW STA-CONTRA COSTA PP 230kV [5830] and GATEWAY1 18.00kV & GATEWAY2 18.00kV & GATEWAY3 18.00kV GEN UNITS	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	102	< 100	Diverge	Sensitivity only
Contra Costa-Lonetree 230kV Line	C.COSTAPPE - 2E 230kV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	43	< 100	53	46	46	49	116	4	Diverge	3	0	< 100	51	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation	
Contra Costa-Las Positas 230kV Line	MOSSLAND-LOSBANOS 500kV and TESLA-METCALF 500kV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107	< 100	< 100	< 100	< 100	107	Continue to monitor	
Pittsburg-San Ramon 230kV Line	PITSBG D 230KV SECTION 1D	P2	Bus	33	< 100	< 100	49	< 100	< 100	5	< 100	< 100	101	47	< 100	< 100	< 100	Sensitivity only	
Pittsburg-TBC 230kV section	DEC STG1 18.00kV & DEC CTG1 18.00kV & DEC CTG2 18.00kV & DEC CTG3 18.00kV GEN UNITS	P1	N-1	93	93	100	92	92	94	93	92	Diverge	94	93	93	99	Diverge	Continue to monitor	
North Dublin-Cayetano 230kV Cable	TESLA-METCALF 500kV	P1	N-1	81	79	88	50	41	77	44	25	Diverge	57	57	81	103	Diverge	Sensitivity only	
	NEWARK D 230KV SECTION 1D	P2	Bus	86	106	108	55	70	91	48	43	134	64	54	109	121	132	Invalid results. Inaccurate contingency definition.	
	C.COSTAPPE 230KV SECTION 1E	P2	Bus	55	76	73	72	72	80	167	8	Diverge	11	15	67	79	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation	
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	81	83	102	52	52	82	47	28	121	52	53	83	99	94	Continue to monitor	
	DEC STG1 18.00kV & DEC CTG1 18.00kV & DEC CTG2 18.00kV & DEC CTG3 18.00kV GEN UNITS and CONTRA COSTA-LAS POSITAS 230kV [4510]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	105	NA	Sensitivity only	
	TESLA-NEWARK #2 230KV [5354] and CONTRA COSTA-LAS POSITAS 230kV [4510]	P6	N-1-1	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	NA	Continue to monitor	
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	102	83	93	53	50	83	49	27	122	59	53	82	93	105	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation	
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	7	93	101	63	53	98	57	29	Diverge	63	15	91	94	Diverge	Continue to monitor	
North Dublin-Vineyard 230 kV Line	NEWARK D 230KV SECTION 1D	P2	Bus	94	118	86	61	77	75	56	51	105	72	64	122	100	103	Invalid results. Inaccurate contingency definition.	
	C.COSTAPPE 230KV SECTION 1E	P2	Bus	58	82	56	82	82	65	195	14	Diverge	12	22	72	62	Diverge	Project: North Dublin -Vineyard 230 kV Reconductoring	
	C.COSTAPPE 230KV SECTION 2E	P2	Bus	58	82	56	82	82	66	195	15	Diverge	12	22	10	62	Diverge	Project: North Dublin -Vineyard 230 kV Reconductoring	
	C.COSTAPPE - 1E 230kV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	58	82	56	82	82	65	195	14	Diverge	12	22	72	62	Diverge	Project: North Dublin -Vineyard 230 kV Reconductoring	
	C.COSTAPPE - 2E 230kV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	58	82	56	82	82	66	195	15	Diverge	12	22	10	62	Diverge	Project: North Dublin -Vineyard 230 kV Reconductoring	
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	88	91	71	61	57	72	57	40	Diverge	66	68	101	79	Diverge	Sensitivity only	
	C.COSTAPPE 230KV - SECTION 1E & 2E	P2	Breaker	58	82	56	82	82	65	195	14	Diverge	12	22	72	62	Diverge	Project: North Dublin -Vineyard 230 kV Reconductoring	
	ROSSMOOR-MORAGA-C.COSTAPPE 230KV [0] and CONTRA COSTA-LAS POSITAS 230KV [4510]	P6	N-1-1	106	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: North Dublin -Vineyard 230 kV Reconductoring	
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	114	91	73	61	55	68	57	34	95	66	62	90	74	80	Project: North Dublin -Vineyard 230 kV Reconductoring	
Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	22	102	81	72	59	81	66	36	Diverge	71	22	100	75	Diverge	Project: North Dublin -Vineyard 230 kV Reconductoring		
Sobrante 230/115 kV Transformer #3	Base Case	P0	Base Case	NA	NA	101	NA	NA	103	NA	NA	73	NA	NA	NA	103	75	Continue to monitor	
	GRANT 115KV SECTION MD	P2	Bus	NA	NA	98	NA	NA	100	NA	NA	< 100	NA	NA	NA	96	< 100	Continue to monitor	
	MORAGA 230KV - SECTION 2D & 2E	P2	Breaker	NA	NA	99	NA	NA	101	NA	NA	100	NA	NA	NA	99	100	Continue to monitor	
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	NA	NA	103	NA	NA	103	NA	NA	103	NA	NA	NA	104	100	Continue to monitor	
	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	NA	NA	102	NA	NA	104	NA	NA	Diverge	NA	NA	NA	51	Diverge	Continue to monitor	
Moraga 230/115kV Transformer #1	MORAGA.D SECTION 2D & MORAGA.E SECTION 2E 115kV	P2	Breaker	107	91	109	74	78	113	72	45	141	108	70	109	93	141	Project: Moraga 230 kV Bus Upgrade	
	MORAGA 230/115KV TB 2 and MORAGA 230/115KV TB 3	P6	N-1-1	113	108	124	< 100	< 100	128	< 100	< 100	164	113	< 100	125	112	NA	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
Moraga 230/115kV Transformer #3	MORAGA 230KV SECTION 2D	P2	Bus	104	102	115	73	79	122	69	46	149	97	70	117	103	143	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	MORAGA 230KV - SECTION 2D & 2E	P2	Breaker	NA	100	113	NA	75	114	NA	44	134	NA	NA	115	107	128	Project: Moraga 230 kV Bus Upgrade	
	MORAGA 230/115KV TB 1 and MORAGA 230/115KV TB 2	P6	N-1-1	113	107	124	< 100	< 100	128	< 100	< 100	163	113	< 100	125	112	NA	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	TESLA-NEWARK #2 230KV [5354]	P1	N-1	77	73	85	32	30	57	33	21	Diverge	43	53	79	106	Diverge	Sensitivity only	
	NEWARK E 230KV SECTION 2E	P2	Bus	106	85	100	42	29	63	43	20	Diverge	66	72	91	119	Diverge	Project: Moraga-Castro Valley 230 kV Line Capacity Increase	
	NEWARK E - 2E 230kV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	106	86	101	42	29	63	43	20	98	67	73	92	119	96	Project: Moraga-Castro Valley 230 kV Line Capacity Increase	
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	111	72	87	37	26	56	38	14	Diverge	45	61	78	121	Diverge	Project: Moraga-Castro Valley 230 kV Line Capacity Increase	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Moraga-Castro Valley 230kV Line	PITTSBURG-E 230KV - SECTION 1D & 1E	P2	Breaker	NA	62	73	NA	25	47	NA	19	Diverge	NA	NA	68	106	Diverge	Sensitivity only
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	NA	73	87	NA	30	54	NA	20	Diverge	NA	NA	84	128	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and TESLA-NEWARK #2 230KV [5354]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	115	NA	Sensitivity only
	TESLA-NEWARK #2 230KV [5354] and TESLA-NEWARK #1 230KV [5720]	P6	N-1-1	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	124	NA	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	123	78	109	35	35	67	37	29	114	56	57	83	124	110	Project: Moraga-Castro Valley 230 kV Line Capacity Increase
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	101	79	96	34	34	63	37	24	109	49	54	86	116	122	Project: Moraga-Castro Valley 230 kV Line Capacity Increase
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	88	66	93	42	34	70	44	26	Diverge	50	68	73	123	Diverge	Sensitivity only
	Pittsburg-San Mateo 230 KV and Pittsburg-East Shore 230 KV lines	P7	DCTL	68	65	79	31	26	51	31	20	Diverge	35	51	71	109	Diverge	Sensitivity only
San Ramon-Moraga 230kV Line	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	91	57	94	42	33	69	44	24	Diverge	51	71	63	109	Diverge	Sensitivity only
	PITSBG D 230KV SECTION 1D	P2	Bus	19	< 100	< 100	21	< 100	< 100	21	< 100	< 100	130	20	< 100	< 100	< 100	Sensitivity only
Castro Valley-Newark 230kV Line	NEWARK E 230KV SECTION 2E	P2	Bus	107	82	92	36	17	54	42	23	Diverge	71	77	89	114	Diverge	Project: Collinsville 500 kV new Station
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	107	83	92	36	17	54	42	23	Diverge	71	77	89	114	Diverge	Project: Collinsville 500 kV new Station
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	112	65	71	30	13	43	36	17	Diverge	44	63	71	114	Diverge	Project: Collinsville 500 kV new Station
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	NA	65	73	NA	18	41	NA	26	Diverge	NA	NA	78	123	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and TESLA-NEWARK #2 230KV [5354]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	106	NA	Sensitivity only
	CONTRA COSTA-LAS POSITAS 230KV [4510] and TESLA-NEWARK #2 230KV [5354]	P6	N-1-1	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	108	NA	Project: Collinsville 500 kV new Station
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	127	71	99	28	24	57	34	36	Diverge	57	58	77	119	Diverge	Project: Collinsville 500 kV new Station
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	100	72	84	27	23	51	34	30	85	50	55	81	110	90	Sensitivity only
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	85	58	80	35	22	60	42	32	Diverge	51	71	65	118	Diverge	Sensitivity only
	Contra Costa-Brentwood 230 KV and Contra Costa-Delta Switching Yard 230 KV lines	P7	DCTL	56	50	46	24	9	28	27	23	< 100	24	104	59	66	< 100	Sensitivity only
	Brentwood-Kelso 230 KV and Contra Costa-Delta Switching Center 230 KV lines	P7	DCTL	53	46	44	23	9	28	26	23	< 100	23	102	56	64	< 100	Sensitivity only
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	88	46	82	35	22	58	42	31	Diverge	51	75	53	102	Diverge	Sensitivity only
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	86	58	81	35	22	58	43	32	Diverge	51	75	66	102	Diverge	Sensitivity only
Pittsburg-Eastshore 230kV Line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	67	77	100	41	55	70	30	20	Diverge	25	40	78	118	Diverge	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PITTSBURG-SAN MATEO 230KV [5463]	P3	G-1/N-1	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	122	Diverge	Continue to monitor
	SAN LEANDRO-OAKLND J #1 115KV [3520] and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	110	Diverge	Continue to monitor
Eastshore-San Mateo 230kV Line	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	100	94	Diverge	69	78	84	38	18	84	47	72	93	91	64	Project: Collinsville 500 kV new Station
Tassajara-Newark 230kV Line	PITSBG D 230KV SECTION 2D	P2	Bus	84	NA	NA	75	NA	NA	52	NA	NA	48	110	NA	NA	NA	Sensitivity only
	PITSBG D - 2D 230KV & PITSBG D-TBC. PTB1 #1 LINE	P2	Breaker	84	NA	NA	75	NA	NA	52	NA	NA	48	110	NA	NA	NA	Sensitivity only
Brentwood-Kelso 230kV Line	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	76	7	37	31	4	7	24	3	Diverge	22	107	10	18	Diverge	Sensitivity only
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	71	17	16	32	7	17	23	5	Diverge	24	104	23	15	Diverge	Sensitivity only
Cayetano-Lone Tree (Lone Tree-USWP) 230kV Line	TESLA-METCALF 500KV	P1	N-1	94	76	95	45	34	71	43	22	Diverge	62	79	97	101	Diverge	Sensitivity only
	NEWARK D 230KV SECTION 1D	P2	Bus	99	110	119	53	63	89	49	42	137	68	76	132	124	135	Invalid results. Inaccurate contingency definition.
	NEWARK E 230KV SECTION 1E	P2	Bus	86	75	92	46	40	72	43	22	Diverge	51	70	95	100	Diverge	Invalid results. Inaccurate contingency definition.
	C.COSTAPPE 230KV SECTION 2E	P2	Bus	60	72	76	70	68	76	192	8	Diverge	12	7	11	73	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	PITTSBURG-E 230KV SECTION 1E	P2	Bus	NA	71	89	NA	36	68	NA	20	Diverge	NA	NA	90	100	Diverge	Sensitivity only
	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	60	72	76	70	68	75	192	8	Diverge	12	7	78	72	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE - 2E 230KV & BVISTAWNDC1-DELTAMP-C.COSTAPPE LINE	P2	Breaker	60	72	76	70	68	76	192	8	Diverge	12	7	11	73	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	PITTSBURG-E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	NA	71	89	NA	37	69	NA	20	Diverge	NA	NA	90	100	Diverge	Sensitivity only
	NEWARK SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	93	81	98	52	46	85	49	31	Diverge	63	80	110	95	Diverge	Sensitivity only
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	94	82	110	48	44	79	47	24	124	57	74	99	95	92	Continue to monitor
	C.COSTAPPE 230KV - SECTION 1E & 2E	P2	Breaker	60	72	76	70	68	75	192	8	Diverge	12	7	78	72	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	MORAGA 230KV - SECTION 2E & 1E	P2	Breaker	NA	79	96	NA	40	78	NA	23	Diverge	NA	NA	97	103	Diverge	Sensitivity only
GRNRD G 0.69KV GEN UNIT 1 and CONTRA COSTA-LAS POSITAS 230KV [4510]		P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	104	NA	Sensitivity only



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
	TESLA-NEWARK #2 230KV [5354] and CONTRA COSTA-LAS POSITAS 230KV [4510]	P6	N-1-1	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	13	80	100	53	46	86	51	28	Diverge	72	78	109	92	Diverge	Sensitivity only
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	119	82	99	49	44	79	50	23	124	63	75	98	89	101	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	13	92	110	59	47	97	59	26	Diverge	67	7	108	90	Diverge	Continue to monitor
Wind Master - Delta 230 kV Line	C.COSTAPPE 230KV SECTION 1E	P2	Bus	132	108	64	82	19	98	64	47	102	60	143	140	109	79	Project: Contra Costa PP 230 kV Line Terminals Reconfiguration Project
	C.COSTAPPF 230KV SECTION 2F	P2	Bus	52	47	1	60	15	37	56	12	Diverge	28	105	66	35	Diverge	Sensitivity only
	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	132	108	65	82	19	98	64	47	103	60	143	140	109	79	Project: Contra Costa PP 230 kV Line Terminals Reconfiguration Project
	C.COSTAPPF - 2F 230KV & CONTRA COSTA-MORAGA #2 LINE	P2	Breaker	52	47	1	60	15	37	56	12	Diverge	28	105	66	35	Diverge	Sensitivity only
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	144	36	3	66	13	33	65	14	Diverge	3	162	50	25	Diverge	Project: Collinsville 500 kV new Station
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	69	40	27	64	23	57	62	22	Diverge	2	103	53	63	Diverge	Sensitivity only
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	137	60	25	66	25	63	64	21	Diverge	2	157	69	61	Diverge	Project: Collinsville 500 kV new Station
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	72	29	30	64	24	55	62	20	Diverge	2	106	42	59	Diverge	Sensitivity only
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	70	38	27	63	23	54	61	21	Diverge	3	105	54	56	Diverge	Sensitivity only
	TABLE MT-TESLA 500kV and VACA-DIX-TESLA 500kV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	128	< 100	< 100	< 100
Las Positas-Newark 230kV Line	Base Case	P0	Base Case	91	82	87	47	31	93	60	37	100	62	85	94	107	92	Sensitivity only
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	95	92	94	49	41	99	59	40	96	60	81	98	109	98	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NORTH DUBLIN-CAYETANO 230KV [4500]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	104	116	NA	Sensitivity only
	TESLA-NEWARK #1 230KV [5720] and TESLA-NEWARK #2 230KV [5354]	P6	N-1-1	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	118	< 100	< 100	113	119	NA	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation. Operating solutions for long term.
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	39	94	100	53	44	96	64	46	Diverge	83	86	97	104	Diverge	Sensitivity only
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	44	98	93	62	43	98	74	42	Diverge	77	18	149	98	Diverge	Sensitivity only
	MOSSLAND-LOS BANOS 500kV and TESLA-METCALF 500KV	P6	N-1-1	106	< 100	104	< 100	< 100	114	< 100	< 100	111	< 100	< 100	105	114	111	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation. Operating solutions for long term.
Cayetano-Lone Tree (USWP-Cayetano) 230kV Line	Base Case	P0	Base Case	94	96	94	56	42	87	67	33	102	70	97	100	102	98	Continue to monitor
	TESLA-METCALF 500KV	P1	N-1	94	94	95	54	40	82	59	32	Diverge	73	95	98	107	Diverge	Sensitivity only
	NEWARK D 230KV SECTION 1D	P2	Bus	99	128	119	61	68	100	64	52	147	79	92	133	130	144	Invalid results. Inaccurate contingency definition.
	NEWARK E 230KV SECTION 1E	P2	Bus	86	92	92	55	45	83	59	32	Diverge	62	86	96	106	Diverge	Invalid results. Inaccurate contingency definition.
	C.COSTAPPE 230KV SECTION 1E	P2	Bus	60	89	76	78	73	86	208	7	Diverge	3	10	79	78	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE 230KV SECTION 2E	P2	Bus	60	89	76	78	73	86	208	7	Diverge	3	10	12	78	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPD 230KV SECTION 1D	P2	Bus	50	46	82	6	84	102	10	8	Diverge	4	10	36	90	Diverge	Continue to monitor
	PITTSBURG-E 230KV SECTION 1E	P2	Bus	NA	88	89	NA	42	79	NA	30	Diverge	NA	NA	92	106	Diverge	Sensitivity only
	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	60	89	76	78	73	86	208	7	Diverge	3	10	79	78	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE - 2E 230KV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	60	89	76	78	73	86	208	7	Diverge	3	10	12	78	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPD - 1D 230KV & MARSHLD1-C.COSTAPPD #1 LINE	P2	Breaker	50	46	82	6	84	102	10	8	Diverge	4	10	36	90	Diverge	Continue to monitor
	PITTSBURG-E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	NA	88	89	NA	42	79	NA	30	Diverge	NA	NA	92	107	Diverge	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	93	99	98	60	51	96	65	41	Diverge	74	96	112	101	Diverge	Sensitivity only
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	94	100	110	57	49	89	63	34	132	68	90	100	102	100	Continue to monitor
	C.COSTAPPE 230KV - SECTION 1E & 2E	P2	Breaker	60	89	76	78	73	86	208	7	Diverge	3	10	79	78	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPD SECTION 1D & C.COSTAPPE SECTION 1E 230KV	P2	Breaker	99	83	82	60	44	102	64	35	Diverge	79	94	86	90	Diverge	Continue to monitor
	MORAGA 230KV - SECTION 2E & 1E	P2	Breaker	NA	97	96	NA	46	89	NA	33	Diverge	NA	NA	98	109	Diverge	Sensitivity only
	CONTRA COSTA-MORAGA #2 230KV [5453] and ROSSMOOR-MORAGA-C.COSTAPPE 230KV [0]	P6	N-1-1	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	103	110	110	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	14	97	100	61	52	97	67	38	Diverge	84	94	110	98	Diverge	Sensitivity only
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	119	99	87	58	49	90	65	33	133	75	90	99	95	110	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	90	94	96	57	47	86	62	32	Diverge	68	86	98	100	Diverge	Sensitivity only
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	103	110	110	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	TABLE MT-TESLA 500kV and VACA-DIX-TESLA 500kV	P6	N-1-1	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105	107	< 100	< 100	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Tesla-Newark #1 230kV Line	TESLA-RAVENSWOOD 230KV [5730] and TESLA-NEWARK #2 230KV [5354]	P6	N-1-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	NA	Continue to monitor
Newark 230/115 kV Transformer #7	NEWARK E 230/115KV TB 11	P1	N-1	81	63	79	48	38	57	38	13	Diverge	60	52	66	102	Diverge	Sensitivity only
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	69	67	80	49	44	63	39	20	91	61	52	70	106	88	Sensitivity only
	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV Gen Units and NEWARK E 230/115KV TB 11	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	102	NA	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] and NEWARK E 230/115KV TB 11	P6	N-1-1	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	123	Diverge	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
Newark 230/115kV Transformer #11	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	83	69	Diverge	50	48	64	42	20	Diverge	68	50	71	106	Diverge	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	98	70	87	53	36	58	43	14	< 100	70	64	74	111	< 100	Sensitivity only
	NEWARK-LOS ESTEROS 230KV [2970]	P1	N-1	92	64	81	50	32	53	40	11	< 100	64	61	67	105	< 100	Sensitivity only
	COMPONENT_SW-TRIMBLE #1 115KV [0]	P1	N-1	NA	58	73	NA	37	55	NA	14	< 100	NA	NA	61	108	< 100	Sensitivity only
	PIERCY-METCALF 115KV [4318]	P1	N-1	NA	63	79	NA	39	57	NA	13	Diverge	NA	NA	65	105	Diverge	Sensitivity only
	NEWARK D 230/115KV TB 7	P1	N-1	93	72	90	55	43	65	44	14	Diverge	68	60	75	116	Diverge	Sensitivity only
	TESLA-METCALF 500KV	P1	N-1	90	72	89	46	36	60	36	17	Diverge	70	62	76	107	Diverge	Sensitivity only
	SSS-NRSrser SVP 230 kV path	P1	N-1	81	64	80	49	40	57	42	18	< 100	61	54	67	101	< 100	Sensitivity only
	Loss of PST 230 kV Path	P1	N-1	81	64	80	49	40	57	42	18	< 100	61	54	67	101	< 100	Sensitivity only
	NEWARK D 230KV SECTION 1D	P2	Bus	93	96	129	55	73	95	44	33	149	67	51	100	148	145	Invalid results. Inaccurate contingency definition.
	NEWARK E 230KV SECTION 1E	P2	Bus	128	118	146	61	74	96	50	27	151	79	64	121	163	150	Invalid results. Inaccurate contingency definition.
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	130	62	86	71	32	54	59	8	Diverge	89	78	66	102	Diverge	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 115KV	P2	Breaker	95	62	85	50	29	53	40	9	100	65	62	66	137	106	Continue to monitor
	NEWARK D 230KV - SECTION 2D & 1D	P2	Breaker	102	94	120	62	65	91	50	23	138	74	58	99	149	134	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition. Long-term: Potential San Jose area transmission upgrade
	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV Gen Units and NEWARK D 230/115KV TB 7	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	118	NA	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] and NEWARK D 230/115KV TB 7	P6	N-1-1	130	< 100	114	< 100	< 100	< 100	< 100	< 100	116	< 100	< 100	< 100	142	NA	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition. Long-term: Potential San Jose area transmission upgrade
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	97	80	Diverge	58	54	74	49	23	Diverge	78	58	82	124	Diverge	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	103	72	92	55	38	61	47	15	Diverge	75	65	75	119	Diverge	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	84	70	88	51	46	64	42	15	Diverge	62	51	73	118	Diverge	Sensitivity only
Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	78	61	75	46	36	55	37	11	Diverge	57	50	64	109	Diverge	Sensitivity only	
Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	75	58	73	45	35	53	36	11	< 100	54	49	61	105	< 100	Sensitivity only	
METCALF-MOSSLAND 500KV and TESLA-METCALF 500KV	P6	N-1-1	110	< 100	113	< 100	< 100	< 100	< 100	< 100	< 100	117	< 100	< 100	< 100	< 100	132	Potential San Jose area long-term transmission upgrade
Newark-Newark Dist 230kV section	LECEFS1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and LOS ESTEROS-METCALF 230KV [5353]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	105	NA	Sensitivity only
	MOSSLAND-LOSBANOS 500KV and TESLA-METCALF 500KV	P6	N-1-1	120	< 100	113	< 100	< 100	< 100	< 100	< 100	< 100	124	< 100	< 100	< 100	< 100	Potential San Jose area long-term transmission upgrade
Newark-Los Esteros 230 kV Line	LECEFS1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and LOS ESTEROS-METCALF 230KV [5353]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	107	NA	Sensitivity only
	MOSSLAND-LOSBANOS 500KV and TESLA-METCALF 500KV	P6	N-1-1	121	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	128	< 100	< 100	< 100	< 100	Potential San Jose area long-term transmission upgrade
Tesla-Newark #2 230kV Line	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	117	90	96	36	59	61	38	30	110	78	36	91	95	111	Project: Tesla - Newark 230 kV Line No. 2 Reconductoring
	METCALF-MOSSLAND 500KV and TESLA-METCALF 500KV	P6	N-1-1	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	109	Continue to monitor
Martin C - Martin S1 230 kV Line	POTRERO-TBC POT1 #1 115KV [0] and JEFFERSON-EGBERTSWSTA 230KV [0]	P6	N-1-1	< 100	< 100	105	< 100	< 100	104	< 100	< 100	100	< 100	< 100	< 100	< 100	NA	Continue to monitor
Pittsburg-San Mateo 230kV Line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PITTSBURG-EASTSHORE 230KV [5462]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	100	NA	Sensitivity only
	EASTSHORE-SAN MATEO 230KV [4650] and NEWARK-RAVENSWOOD 230KV [5936]	P6	N-1-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	114	< 100	< 100	< 100	105	Diverge	Continue to monitor
San Mateo 230/115 kV Transformer #5	SANMATEO 230/115KV TB 6 and SANMATEO 230/115KV TB 7	P6	N-1-1	113	111	124	< 100	101	121	< 100	< 100	135	< 100	< 100	113	109	NA	Mitigation under development.
San Mateo 230/115kV Transformer #6	SANMATEO 230KV - Section 1D & 1E	P2	Breaker	105	NA	NA	74	NA	NA	47	NA	NA	63	62	NA	NA	NA	Project: Martin 230 kV Bus Extension
	SANMATEO 230/115KV TB 5 and SANMATEO 230/115KV TB 7	P6	N-1-1	114	111	124	< 100	102	121	< 100	< 100	119	< 100	< 100	113	109	NA	Mitigation under development.
San Mateo 230/115kV Transformer #7	SANMATEO 230/115KV TB 5 and SANMATEO 230/115KV TB 6	P6	N-1-1	118	115	129	< 100	105	125	< 100	< 100	109	< 100	< 100	117	113	NA	Mitigation under development.
Monta Vista-Saratoga 230 kV Line	MONTA VISTA-COYOTE SW STA 230KV [5090] and HICKS-METCALF 230KV [4910]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120	< 100	< 100	< 100	103	NA	Continue to monitor
	METCALF 230KV - Section 1D & 1E	P2	Breaker	87	NA	114	61	NA	101	57	NA	146	83	38	NA	118	151	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Monta Vista-Hicks 230 kV Line	METCALF-MONTA VISTA #3 230KV [5091] and MONTA VISTA-COYOTE SW STA 230KV [5090]	P6	N-1-1	< 100	< 100	112	< 100	< 100	103	< 100	< 100	140	< 100	< 100	< 100	115	NA	Continue to monitor	
Saratoga-Vasona 230 kV Line	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	73	NA	NA	59	NA	NA	57	NA	126	70	44	NA	104	127	Continue to monitor	
	MONTAVIS 230KV - Section 1E & 2E	P2	Breaker	68	73	93	49	64	77	52	42	134	60	41	73	100	127	Continue to monitor	
	METCALF 230KV - Section 2D & 2E	P2	Breaker	91	64	104	58	52	103	61	42	130	81	41	64	94	136	Continue to monitor	
	MONTA VISTA-COYOTE SW STA 230KV [5090] and HICKS-METCALF 230KV [4910]	P6	N-1-1	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	145	< 100	< 100	< 100	118	NA	Continue to monitor	
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	72	77	98	51	67	80	54	43	133	64	42	77	106	134	Continue to monitor	
Contra Costa - BDLSWSTA 230 kV Line	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV [6161]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	104	< 100	NA	Sensitivity only	
	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV [6161]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	104	< 100	NA	Sensitivity only	
Contra Costa - Wind Master 230 kV line	C.COSTAPPE 230KV SECTION 2E	P2	Bus	94	83	70	62	27	86	45	35	104	65	89	104	88	85	Continue to monitor	
	C.COSTAPPE - 2E 230KV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	95	83	70	62	27	86	45	35	104	65	89	104	88	85	Continue to monitor	
	CONTRA COSTA-LAS POSITAS 230KV [4510] and CONTRA COSTA-MORAGA #2 230KV [5453]	P6	N-1-1	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113	< 100	< 100	< 100	< 100	NA	Project: Collinsville 500 kV new Station	
Contra Costa-Windmaster 230 kV Line	C.COSTAPPE 230KV SECTION 1E	P2	Bus	124	100	62	86	18	94	58	43	99	55	144	133	107	75	Project: Contra Costa PP 230 kV Line Terminals Reconfiguration Project	
Lawrence - Phillips 115 kV line	C.COSTAPPF 230KV SECTION 2F	P2	Bus	44	40	5	62	15	33	50	7	Diverge	33	106	59	34	Diverge	Sensitivity only	
Contra Costa-Windmaster 230 kV Line	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	124	101	62	86	18	94	58	43	99	55	144	133	107	75	Project: Contra Costa PP 230 kV Line Terminals Reconfiguration Project	
Lawrence - Phillips 115 kV line	C.COSTAPPF - 2F 230KV & CONTRA COSTA-MORAGA #2 LINE	P2	Breaker	44	40	5	62	15	33	50	7	Diverge	33	107	59	34	Diverge	Sensitivity only	
	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV [6161]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	104	< 100	NA	Sensitivity only	
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	61	33	25	66	23	53	56	17	Diverge	8	104	46	61	Diverge	Sensitivity only	
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	129	53	23	68	25	59	58	17	Diverge	6	158	61	59	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation	
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	64	22	29	66	24	52	56	15	Diverge	8	107	35	58	Diverge	Sensitivity only	
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	61	31	26	66	23	50	54	15	Diverge	9	106	47	54	Diverge	Sensitivity only	
	TABLE MT-TESLA 500KV and VACA-DIX-TESLA 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	130	< 100	< 100	< 100	Sensitivity only
Contra Costa - Rossmoor 230 kV line	CONTRA COSTA-LAS POSITAS 230KV [4510] and ROSSMOOR-MORAGA-C.COSTAPPE 230KV [0]	P6	N-1-1	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	< 100	< 100	NA	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation	
Contra Costa - Brentwood 230 kV line	TABLE MT-TESLA 500KV and VACA-DIX-TESLA 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105	< 100	< 100	< 100	Sensitivity only	
Los Esteros-Silicon Switching Station 230 kV Line	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	121	113	NA	101	102	NA	103	117	NA	NA	116	127	119	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.	
	FMC-SAN JOSE B 115KV [2021]	P1	N-1	NA	96	92	NA	78	79	NA	76	Diverge	NA	NA	92	105	Diverge	Sensitivity only	
	KIFER-FMC 115KV [2020]	P1	N-1	NA	93	89	NA	75	76	NA	74	Diverge	NA	NA	88	101	Diverge	Sensitivity only	
	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	NA	98	99	NA	75	83	NA	62	< 100	NA	NA	94	113	< 100	Sensitivity only	
	NORTECH-NORTHERN RECEIVING STATION 115KV [1551]	P1	N-1	NA	93	95	NA	73	80	NA	60	101	NA	NA	89	106	NA	Continue to monitor	
	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	119	111	NA	99	100	NA	101	116	NA	NA	113	127	118	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.	
	NEWARK D 230KV SECTION 1D	P2	Bus	88	101	100	72	82	84	86	77	Diverge	87	85	96	110	Diverge	Invalid results. Inaccurate contingency definition.	
	NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Breaker	NA	125	120	NA	104	107	NA	102	118	NA	NA	119	131	117	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.	
	LS ESTRS 115KV - Middle Breaker Bay 1	P2	Breaker	NA	98	99	NA	75	83	NA	62	< 100	NA	NA	94	113	< 100	Sensitivity only	
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	92	89	90	72	66	71	87	62	Diverge	91	88	85	111	Diverge	Sensitivity only	
	NEWARK D 230KV - SECTION 2D & 1D	P2	Breaker	NA	100	97	NA	79	82	NA	75	Diverge	NA	NA	96	108	Diverge	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.	
	MTCALF E1-25 25.00KV Gen Unit En and NEWARKHVDC-NEWARK D #1 230KV [0]	P3	G-1/N-1	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	122	Diverge	Potential San Jose area long-term transmission upgrade	
	NEWARKHVDC-NEWARK D #1 230KV [0] and FMC-SAN JOSE B 115KV [2021]	P6	N-1-1	< 100	126	120	< 100	107	109	< 100	107	110	< 100	< 100	120	131	NA	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.	
	Newark-Northern Nos. 1 & 2 115 KV lines	P7	DCTL	91	87	88	72	64	69	85	60	< 100	89	88	83	110	< 100	Sensitivity only	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay H-load	2039 Greater Bay area Summer Peak	
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	88	98	93	73	79	80	88	78	Diverge	89	86	93	105	Diverge	Sensitivity only
	Newark - Kifer & FMC - Kifer 115 KV Lines	P7	DCTL	88	94	92	72	75	77	87	71	Diverge	90	85	89	109	Diverge	Sensitivity only
	Newark - Northern #1 & #2 115 KV Lines	P7	DCTL	91	87	88	72	64	69	85	60	< 100	89	88	83	110	< 100	Sensitivity only
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	86	91	86	70	71	72	85	71	Diverge	85	85	87	103	Diverge	Sensitivity only
Metcalf 500/230 kV Trans No. 11	METCALF 500/230KV TB 12 and METCALF 500/230KV TB 13	P6	N-1-1	131	< 100	135	< 100	< 100	105	< 100	< 100	162	114	< 100	< 100	124	Diverge	Potential San Jose area long-term transmission upgrade
Metcalf 500/230 kV Trans No. 12	METCALF 500/230KV TB 11 and METCALF 500/230KV TB 13	P6	N-1-1	135	< 100	138	< 100	< 100	108	< 100	< 100	157	117	< 100	< 100	127	Diverge	Potential San Jose area long-term transmission upgrade
Metcalf 500/230 kV Trans No. 13	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV Gen Units and METCALF 500/230KV TB 12	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Potential San Jose area long-term transmission upgrade
	METCALF 500/230KV TB 11 and METCALF 500/230KV TB 12	P6	N-1-1	137	< 100	141	< 100	< 100	110	< 100	< 100	160	119	< 100	< 100	130	Diverge	Potential San Jose area long-term transmission upgrade
Metcalf-Hicks 230 kV Line	METCALF 230KV - Section 1D & 1E	P2	Breaker	81	86	112	53	77	90	51	34	151	68	37	87	116	152	Continue to monitor
	METCALF-MONTA VISTA #3 230KV [5091] and MONTA VISTA-COYOTE SW STA 230KV [5090]	P6	N-1-1	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	145	< 100	< 100	< 100	114	NA	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	70	75	98	51	68	75	51	38	135	58	40	76	105	136	Continue to monitor
Los Esteros-Metcalf 230 kV Line	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	88	73	92	44	55	63	50	31	111	83	37	72	105	115	Continue to monitor
	NEWARK E 230KV SECTION 1E	P2	Bus	89	73	93	45	55	63	50	32	Diverge	84	37	73	106	Diverge	Invalid results. Inaccurate contingency definition.
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	95	78	102	48	59	68	53	35	Diverge	90	41	78	116	Diverge	Potential San Jose area long-term transmission upgrade
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	97	82	107	48	60	70	53	33	Diverge	89	41	82	124	Diverge	Potential San Jose area long-term transmission upgrade
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	122	< 100	< 100	< 100	116	124	Potential San Jose area long-term transmission upgrade
	NEWARK E-F BUS TIE 230KV [4640] and NEWARKHVDC-NEWARK D #1 230KV [0]	P6	N-1-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	117	Diverge	Potential San Jose area long-term transmission upgrade
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	82	67	90	40	51	60	47	28	Diverge	78	33	67	104	Diverge	Sensitivity only
	TRACY-LOSBANOS 500KV and TESLA-LOSBANOS 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	108	Potential San Jose area long-term transmission upgrade
Metcalf-Moss Landing No.1 230 kV Line	METCALF-MOSSLAND 500kv	P1	N-1	54	45	61	51	67	84	60	35	98	42	10	42	65	103	Continue to monitor
	TESLA-METCALF 500kv and METCALF-MOSSLAND 500kv	P6	N-1-1	< 100	< 100	102	< 100	< 100	109	< 100	< 100	139	< 100	< 100	< 100	109	141	Continue to monitor
METCALF-MOSS LANDING #2 230KV	METCALF-MOSSLAND 500kv	P1	N-1	54	45	61	51	67	84	60	35	98	42	10	42	65	103	Continue to monitor
	TESLA-METCALF 500kv and METCALF-MOSSLAND 500kv	P6	N-1-1	< 100	< 100	102	< 100	< 100	109	< 100	< 100	139	< 100	< 100	< 100	109	141	Continue to monitor
Moss Landing 500/230kv Transformer #9	TESLA-METCALF 500kv and METCALF-MOSSLAND 500kv	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	109	Continue to monitor
	METCALF-MOSSLAND 500kv and TESLA-METCALF 500kv	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	113	Continue to monitor
Moss Landing - Las Aguilas #2 230 kV Line	TESLA-METCALF 500kv and MOSSLAND-LOSBANOS 500kv	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	169	< 100	< 100	< 100	< 100	Sensitivity only
Moss Landing - Las Aguilas #1 230 kV Line	TESLA-METCALF 500kv and MOSSLAND-LOSBANOS 500kv	P6	N-1-1	< 100	< 100	123	< 100	< 100	141	< 100	141	131	< 100	< 100	< 100	141	135	Continue to monitor
Oleum-El Cerrito STA G #1 115kV Line	SOBRANTE-G #1 115KV [3720] and SOBRANTE-G #2 115KV [3730]	P6	N-1-1	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: North Tower 115 kV Looping Project
	Sobranste-G Nos. 1 & 2 115 kV lines	P7	DCTL	117	NA	54	83	NA	62	71	NA	< 100	55	71	NA	50	< 100	Project: North Tower 115 kV Looping Project
Sobranste-El Cerrito STA G #1 115kV Line	CHRISTIE-SOBRANTE 115KV [1260] and SOBRANTE-G #2 115KV [3730]	P6	N-1-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	127	< 100	< 100	< 100	101	NA	Continue to monitor
	SOBRANTE 115KV SECTION 1D	P2	Bus	72	65	109	52	39	95	57	19	144	52	54	85	109	163	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #1 LINE	P2	Breaker	72	65	109	52	39	96	57	19	145	52	54	85	110	164	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-R #1 LINE	P2	Breaker	72	65	109	52	39	95	57	19	145	52	54	85	109	164	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-SAN PBLO-STD. OIL LINE	P2	Breaker	73	66	109	52	40	96	57	19	145	52	54	85	110	163	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-NRTH TWR LINE	P2	Breaker	NA	65	109	NA	39	95	NA	19	145	NA	NA	85	109	163	Continue to monitor
	SOBRANTE 115KV - SECTION 1D & 2D	P2	Breaker	76	67	113	53	41	100	61	18	148	61	57	90	112	163	Continue to monitor
	CHRISTIE-SOBRANTE 115KV [1260] and SOBRANTE-G #1 115KV [3720]	P6	N-1-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	127	< 100	< 100	< 100	102	NA	Continue to monitor
Sobranste-Richmond STA R #1 115kV Line	SOBRANTE-R #2 115KV [3780]	P1	N-1	65	70	85	45	57	104	39	20	117	18	39	71	79	121	Continue to monitor
	RICHMOND 115KV SECTION 1D	P2	Bus	65	70	85	45	57	107	39	20	118	18	39	71	80	121	Continue to monitor
	SOBRANTE 115KV SECTION 2D	P2	Bus	65	70	85	45	57	104	39	20	117	18	39	71	79	120	Continue to monitor
	SOBRANTE - 2D 115KV & SOBRANTE-STANDARD OIL SW STA #1 LINE	P2	Breaker	65	70	85	45	57	104	39	20	117	18	39	71	79	120	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	65	70	85	45	57	104	39	20	116	18	39	71	78	120	Continue to monitor
	RICHMOND1-25 25.00KV GEN UNIT VS and SOBRANTE-R #2 115KV [3780]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Continue to monitor
Sobranste-Richmond STA R #2 115kV Line	SOBRANTE-R #1 115KV [3770]	P1	N-1	66	71	89	58	74	108	39	20	121	18	40	72	82	124	Continue to monitor
	SOBRANTE-R #1 115KV [3770] (ELCRTJ2-SOBRANTE)	P2	Line Section w/o Fault	67	73	86	62	76	106	44	30	119	24	44	74	80	122	Continue to monitor
	SOBRANTE-R #1 115KV [3770] (RICHMOND-ELCRTJ2)	P2	Line Section w/o Fault	66	71	89	58	74	108	39	20	121	18	40	72	82	124	Continue to monitor
	SOBRANTE 115KV SECTION 1D	P2	Bus	68	73	86	62	77	106	44	30	119	24	44	74	80	123	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-R #1 LINE	P2	Breaker	66	72	89	59	74	108	40	20	121	18	40	73	82	125	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions	
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
	SOBRANTE 115KV - SECTION 1D & 1E	P2	Breaker	68	NA	90	62	NA	109	44	NA	124	24	44	NA	83	129	Continue to monitor	
	RICHMOND1-25 25.00KV GEN UNIT V5 and SOBRANTE-R #1 115KV [3770]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Continue to monitor	
Claremont K - Oakland D #1 115kV Cable	K-D #2 115KV [9967] and C-X #2 115KV [9962]	P6	N-1-1	< 100	< 100	105	< 100	< 100	105	< 100	< 100	129	< 100	< 100	< 100	105	NA	Potential North Oakland area long-term transmission upgrade	
Claremont K - Oakland D #2 115kV Cable	K-D #1 115KV [9966] and C-X #2 115KV [9962]	P6	N-1-1	< 100	< 100	103	< 100	< 100	102	< 100	< 100	127	< 100	< 100	< 100	104	NA	Potential North Oakland area long-term transmission upgrade	
Oakland D - Oakland L 115kV Cable	OAK C115 115KV SECTION ME	P2	Bus	88	92	110	73	87	107	65	62	139	75	65	93	104	158	Potential North Oakland area long-term transmission upgrade	
	MORAGA.D 115KV SECTION 2D	P2	Bus	91	106	119	84	106	110	70	83	105	70	67	90	129	94	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	MORAGA.E 115KV SECTION 2E	P2	Bus	101	106	123	84	96	116	74	75	154	90	71	100	107	101	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	OAK C115 - ME 115KV & OAKLAND C-MARITIME LINE	P2	Breaker	88	92	110	73	87	107	65	62	139	75	65	93	104	158	Potential North Oakland area long-term transmission upgrade	
	MORAGA.D 115KV - SECTION 1D & 2D	P2	Breaker	91	106	119	84	106	110	70	83	105	70	67	90	129	95	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	C-X #2 115KV [9962] and C-X #3 115KV [9925]	P6	N-1-1	126	132	148	< 100	123	145	< 100	< 100	172	113	< 100	133	143	NA	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
Oakland C - Oakland L #1 115kV Cable	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	104	108	127	74	95	123	56	52	162	83	56	110	119	169	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	K-D #1 115KV [9966] and K-D #2 115KV [9967]	P6	N-1-1	103	108	118	< 100	< 100	121	< 100	< 100	150	< 100	< 100	109	111	NA	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
Oakland C - Oakland X #2 115kV Cable	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	118	123	144	93	111	135	80	77	177	101	80	125	136	138	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	75	77	100	61	68	87	56	48	Diverge	68	56	88	90	Diverge	Potential North Oakland area long-term transmission upgrade	
	DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS and C-X #3 115KV [9925]	P3	G-1/N-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	101	< 100	Diverge	Potential North Oakland area long-term transmission upgrade	
	C-X #3 115KV [9925] and D-L #1 115KV [9963]	P6	N-1-1	126	132	148	< 100	123	145	< 100	< 100	178	113	< 100	133	143	NA	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
Oakland J - Grant 115kV Line	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	53	110	102	29	62	107	31	43	84	43	31	110	0	74	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
San Leandro-Oakland J 115kV Line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MORAGA-OAKLAND J 115KV [2760]	P3	G-1/N-1	118	< 100	< 100	< 100	< 100	112	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Potential South Oakland area long-term transmission upgrade	
	E. SHORE 230/115KV TB 2 and E. SHORE 230/115KV TB 1	P6	N-1-1	111	117	126	< 100	< 100	108	< 100	< 100	153	< 100	< 100	119	< 100	NA	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
Oakland J - Grant 115kV Line	OAKLAND J-GRANT 115KV [3140] (EDESJCT2-GRANT)	P2	Line Section w/o Fault	63	65	96	37	42	106	44	40	116	52	44	66	70	NA	Potential South Oakland area long-term transmission upgrade	
	GRANT 115KV SECTION MD	P2	Bus	63	65	95	37	42	106	44	40	117	52	44	66	70	NA	Potential South Oakland area long-term transmission upgrade	
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	110	117	133	65	80	134	67	54	Diverge	87	67	119	123	Diverge	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
Christie-Franklin #2 60kV Line	Base Case	P0	Base Case	55	60	99	34	46	102	32	9	163	22	32	61	92	166	Continue to monitor	
	TABLE MT-TESLA 500kV and METCALF-MOSSLAND 500kV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120	Continue to monitor	
Pittsburg 230/115 kV Transformer #12	LMECC2T 18.00KV & LMECC1T 18.00KV & LMECS1T 18.00KV GEN UNITS and PITSBG D 230/115KV TB 13	P3	G-1/N-1	109	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: Pittsburg 230/115 kV Transformer Capacity Increase	
Pittsburg 230/115 kV Transformer #13	LMECC2T 18.00KV & LMECC1T 18.00KV & LMECS1T 18.00KV GEN UNITS and PITSBG D 230/115KV TB 12	P3	G-1/N-1	127	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: Pittsburg 230/115 kV Transformer Capacity Increase	
	MORAGA-LAKEWOOD 115KV [3741] and PITSBG D 230/115KV TB 12	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	101	< 100	< 100	< 100	NA	Sensitivity only	
Pittsburg-Clayton # 4 115 kV Line	PITTSBURG-CLAYTON #3 115KV [3290] and PITTSBURG-CLAYTON #1 115KV [3280]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor. Results updated after RAS review.	
Pittsburg - Los Medanos 115 kV Line	PITTSBURG-LOS MEDANOS #2 115KV [3305]	P1	N-1	100	100	100	100	100	100	60	24	Diverge	30	100	100	127	Diverge	Continue to monitor	
	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV Gen Units and PITTSBURG-LOS MEDANOS #2 115KV [3305]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	127	NA	Sensitivity only
	PITTSBURG-LOS MEDANOS #1 115KV [3304]	P1	N-1	100	100	100	100	100	100	60	24	Diverge	30	100	100	127	Diverge	Continue to monitor	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Pittsburg - Kirker 115 kV Line	PITTSBURG-CLAYTON #4 115KV [3291] and PITTSBURG-CLAYTON #1 115KV [3280]	P6	N-1-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	138	< 100	< 100	< 100	103	NA	Continue to monitor	
Pittsburg-Clayton #1 115kV Line	PITTSBURG-CLAYTON #4 115KV [3291] and PITTSBURG-CLAYTON #3 115KV [3290]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor. Results updated after RAS review.	
Pittsburg-Kirker-Columbia Steel #1 115 kV Line	Base Case	P0	Base Case	103	106	107	28	36	111	51	10	179	70	51	108	108	183	Mitigation under development.	
	KIRKER 2-25 25.00KV GEN UNIT E4	P1	N-1	NA	NA	112	NA	NA	99	NA	NA	162	NA	NA	NA	113	166	Mitigation under development.	
	TESLA-LOS BANOS 500kV and METCALF-MOSSLAND 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	136	Mitigation under development.	
Lakewood-Clayton 115kV Line	CLAYTN 115KV SECTION 1D	P2	Bus	90	97	124	57	74	109	49	20	159	47	53	102	123	162	Continue to monitor. Results updated after RAS review.	
	CLAYTN - 1D 115KV & PITTSBURG-CLAYTON #3 LINE	P2	Breaker	90	97	124	57	74	109	49	20	159	47	53	102	123	162	Continue to monitor. Results updated after RAS review.	
Pittsburg-Clayton #3 115 kV Line	PITTSBURG-CLAYTON #4 115KV [3291] and PITTSBURG-CLAYTON #1 115KV [3280]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor. Results updated after RAS review.	
Lakewood-Meadow Lane-Clayton 115kV Line	CLAYTON-MEADOW LANE 115KV [1270] and LAKEWOOD-CLAYTON 115KV [2082]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor. Results updated after RAS review.	
	LAKEWOOD-CLAYTON 115KV [2082]	P1	N-1	68	82	102	43	57	89	40	17	128	21	45	81	101	120	Continue to monitor. Results updated after RAS review.	
	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and LAKEWOOD-CLAYTON 115KV [2082]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	101	NA	Sensitivity only	
Moraga-Lakewood 115kV Line (Lakewood Reactors)	PITSBG E 230KV SECTION 1E	P2	Bus	38	NA	NA	21	NA	NA	31	NA	NA	141	11	NA	NA	NA	Continue to monitor. Results updated after RAS review.	
	CLAYTN 115KV SECTION 2D	P2	Bus	66	99	122	14	11	116	40	28	Diverge	86	35	101	121	Diverge	Continue to monitor. Results updated after RAS review.	
	PITSBG D 230KV SECTION 1D	P2	Bus	21	NA	NA	43	NA	NA	27	NA	NA	189	36	NA	NA	NA	Sensitivity only	
	PITSBG E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	38	NA	NA	21	NA	NA	31	NA	NA	141	11	NA	NA	NA	Sensitivity only	
	PITTSBURG-D 115KV - SECTION 2D & 1D	P2	Breaker	82	60	122	28	17	116	50	23	Diverge	75	52	63	122	Diverge	Continue to monitor. Results updated after RAS review.	
	CLAYTN 115KV - SECTION 2D & 1D	P2	Breaker	94	99	121	54	65	116	79	59	Diverge	87	79	101	120	Diverge	Continue to monitor. Results updated after RAS review.	
	Lakewood-Clayton and Lakewood-Meadow Lane-Clayton 115 kV lines	P7	Breaker	94	99	122	54	65	116	79	43	Diverge	87	79	101	121	Diverge	Continue to monitor. Results updated after RAS review.	
	PITTSBURG-CLAYTON #4 115KV [3291] and PITTSBURG-CLAYTON #1 115KV [3280]	P6	N-1-1	94	99	122	54	65	116	79	43	Diverge	87	79	101	121	Diverge	Continue to monitor. Results updated after RAS review.	
	Pittsburg-Clayton Nos. 3 & 4 115 kV lines	P7	DCTL	54	99	122	8	4	116	34	26	Diverge	81	28	101	121	Diverge	Continue to monitor. Results updated after RAS review.	
Marinez-Noth Tower 115kv (Nrth twr to Alhamtp1 115kv)(New)	PITSBG E 230KV SECTION 1E	P2	Bus	6	NA	NA	28	NA	NA	14	NA	NA	120	28	NA	NA	NA	Sensitivity only	
	SOBRANTE 230KV SECTION 1D	P2	Bus	50	82	122	38	66	92	25	7	147	17	30	86	111	133	Continue to monitor	
	PITSBG D 230KV SECTION 2D	P2	Bus	63	NA	NA	87	NA	NA	42	NA	NA	93	102	NA	NA	NA	Sensitivity only	
	PITSBG D 230KV SECTION 1D	P2	Bus	21	NA	NA	48	NA	NA	8	NA	NA	156	60	NA	NA	NA	Sensitivity only	
	SOBRANTE - 1D 230KV & IGNACIO-SOBRANTE LINE	P2	Breaker	49	81	122	37	66	91	24	7	147	18	29	85	111	133	Continue to monitor	
	PITSBG D - 2D 230KV & PITSBG D-TBC_PTB1 #1 LINE	P2	Breaker	63	NA	NA	87	NA	NA	42	NA	NA	93	102	NA	NA	NA	Sensitivity only	
	PITSBG E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	6	NA	NA	28	NA	NA	14	NA	NA	120	28	NA	NA	NA	Sensitivity only	
	PITSBG D 230KV - SECTION 2D & 1D	P2	Breaker	41	NA	NA	17	NA	NA	28	NA	NA	139	19	NA	NA	NA	Sensitivity only	
	PITSBG E 230KV - SECTION 1E & 2E	P2	Breaker	8	NA	NA	29	NA	NA	13	NA	NA	115	26	NA	NA	NA	Sensitivity only	
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	43	79	120	36	65	91	18	4	148	25	24	82	109	134	Continue to monitor	
	PITSBG D 230/115KV TB 12 and PITSBG D 230/115KV TB 13	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	131	< 100	< 100	< 100	NA	Sensitivity only	
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	15	56	106	17	50	66	10	36	Diverge	69	3	54	81	Diverge	Continue to monitor	
	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrannte 230 KV lines	P7	DCTL	12	55	105	15	49	65	13	37	Diverge	70	4	53	80	Diverge	Continue to monitor	
Oleum-Martinez 115kV Line	PITSBG E 230KV SECTION 1E	P2	Bus	11	NA	NA	43	NA	NA	7	NA	NA	111	45	NA	NA	NA	Sensitivity only	
	SOBRANTE 230KV SECTION 1D	P2	Bus	59	71	115	52	61	84	43	12	123	12	47	85	99	101	Continue to monitor	
	PITSBG D 230KV SECTION 2D	P2	Bus	71	NA	NA	93	NA	NA	59	NA	NA	86	114	NA	NA	NA	Sensitivity only	
	PITSBG D 230KV SECTION 1D	P2	Bus	31	NA	NA	59	NA	NA	14	NA	NA	147	75	NA	NA	NA	Sensitivity only	
	SOBRANTE - 1D 230KV & IGNACIO-SOBRANTE LINE	P2	Breaker	58	70	115	51	60	83	42	12	123	13	46	84	98	101	Continue to monitor	
	PITSBG D - 2D 230KV & PITSBG D-TBC_PTB1 #1 LINE	P2	Breaker	71	NA	NA	93	NA	NA	59	NA	NA	86	114	NA	NA	NA	Sensitivity only	
	PITSBG E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	11	NA	NA	43	NA	NA	7	NA	NA	111	45	NA	NA	NA	Sensitivity only	
	PITSBG D 230KV - SECTION 2D & 1D	P2	Breaker	26	NA	NA	34	NA	NA	6	NA	NA	128	36	NA	NA	NA	Sensitivity only	
	PITSBG E 230KV - SECTION 1E & 2E	P2	Breaker	16	NA	NA	44	NA	NA	9	NA	NA	106	43	NA	NA	NA	Sensitivity only	
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	52	67	113	49	60	82	37	7	124	24	42	80	96	102	Continue to monitor	
PITSBG D 230/115KV TB 12 and PITSBG D 230/115KV TB 13	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	122	< 100	< 100	< 100	NA	Sensitivity only		
Sobrannte-G Nos. 1 & 2 115 kV lines	P7	DCTL	75	66	102	64	58	88	56	5	128	4	62	79	89	117	Continue to monitor		
	SOBRANTE-GRIZZLY-CLAREMONT #2 115KV [3750]	P1	N-1	77	88	105	53	68	83	60	79	< 100	60	58	85	100	< 100	Potential North Oakland area long-term transmission upgrade	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Sobrante-Grizzly-Claremont #1 115kV Line (Hillside-Grizzly JCT)	SOBRANTE-GRIZZLY-CLAREMONT #2 115KV [3750] (GRIZLYJ2-SOBRANTE)	P2	Line Section w/o Fault	79	92	108	52	72	87	58	81	97	57	56	82	108	NA	Potential North Oakland area long-term transmission upgrade
	SOBRANTE 115KV SECTION 2E	P2	Bus	66	76	103	43	60	82	48	71	< 100	48	46	65	102	< 100	Potential North Oakland area long-term transmission upgrade
	CLARMNT - 2D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #2 LINE	P2	Breaker	84	94	114	57	72	92	65	81	104	65	63	93	107	91	Potential North Oakland area long-term transmission upgrade
	HILLSIDE - 2D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #2 LINE	P2	Breaker	77	88	105	53	68	83	60	79	< 100	60	58	85	100	< 100	Potential North Oakland area long-term transmission upgrade
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	65	76	102	42	59	82	48	71	< 100	51	46	64	102	< 100	Potential North Oakland area long-term transmission upgrade
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	108	82	99	61	57	84	73	61	106	92	74	83	97	111	Project: Moraga 230 kV Bus Upgrade
	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and SOBRANTE-GRIZZLY-CLAREMONT #2 115KV [3750]	P3	G-1/N-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	104	Diverge	Potential North Oakland area long-term transmission upgrade
Sobrante-Grizzly-Claremont #2 115kV Line (Hillside-Grizzly JCT)	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	104	71	83	54	48	74	62	46	100	84	62	63	90	102	Project: Moraga 230 kV Bus Upgrade
	SOBRANTE-GRIZZLY-CLAREMONT #1 115KV [3740]	P1	N-1	79	91	109	53	71	86	60	81	< 100	59	57	86	106	< 100	Potential North Oakland area long-term transmission upgrade
	SOBRANTE-GRIZZLY-CLAREMONT #1 115KV [3740] (GRIZLYJ1-SOBRANTE)	P2	Line Section w/o Fault	82	95	112	54	75	90	60	83	101	58	57	84	113	NA	Potential North Oakland area long-term transmission upgrade
	HILLSIDE - 1D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #1 LINE	P2	Breaker	80	91	110	53	71	86	59	80	NA	59	57	87	106	NA	Potential North Oakland area long-term transmission upgrade
	SOBRANTE - 1D 115KV & SOBRANTE-G #1 LINE	P2	Breaker	68	79	107	45	62	87	51	75	97	49	49	66	110	NA	Potential North Oakland area long-term transmission upgrade
	SOBRANTE - 1D 115KV & SOBRANTE-SAN PBLO-STD. OIL LINE	P2	Breaker	70	82	110	47	64	89	52	76	101	51	50	68	112	NA	Potential North Oakland area long-term transmission upgrade
	SOBRANTE 115KV - SECTION 1D & 2D	P2	Breaker	79	91	126	52	71	101	58	75	114	57	55	91	121	99	Potential North Oakland area long-term transmission upgrade
	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and SOBRANTE-GRIZZLY-CLAREMONT #1 115KV [3740]	P3	G-1/N-1	< 100	100	105	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	111	Diverge	Interim: Local generation. Long-term: Potential long term North Oakland area transmission solution.
	SOBRANTE-MORAGA 115KV [3742] and SOBRANTE-GRIZZLY-CLAREMONT #1 115KV [3740]	P6	N-1-1	< 100	102	105	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	120	NA	Interim: Local generation. Long-term: Potential long term North Oakland area transmission solution.
Martinez-Sobrante 115kV Line	PITSBG E 230KV SECTION 1E	P2	Bus	29	NA	NA	19	NA	NA	28	NA	NA	135	16	NA	NA	NA	Sensitivity only
	PITSBG D 230KV SECTION 1D	P2	Bus	12	NA	NA	36	NA	NA	20	NA	NA	170	47	NA	NA	NA	Sensitivity only
	PITSBG E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	29	NA	NA	19	NA	NA	28	NA	NA	135	16	NA	NA	NA	Sensitivity only
	PITSBG D 230KV - SECTION 2D & 1D	P2	Breaker	66	NA	NA	9	NA	NA	41	NA	NA	153	7	NA	NA	NA	Sensitivity only
	PITSBG E 230KV - SECTION 1E & 2E	P2	Breaker	26	NA	NA	19	NA	NA	28	NA	NA	130	15	NA	NA	NA	Sensitivity only
	PITSBG D 230/115KV TB 12 and PITSBG D 230/115KV TB 13	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	143	< 100	< 100	< 100	NA	Sensitivity only
Martinez-Oleum 115kV Line	PITSBG D 230KV SECTION 1D	P2	Bus	26	NA	NA	59	NA	NA	12	NA	NA	123	63	NA	NA	NA	Sensitivity only
	PITSBG D 230KV - SECTION 2D & 1D	P2	Breaker	22	NA	NA	34	NA	NA	5	NA	NA	108	30	NA	NA	NA	Sensitivity only
	PITSBG D 230/115KV TB 12 and PITSBG D 230/115KV TB 13	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	103	< 100	< 100	< 100	NA	Sensitivity only
Moraga-Claremont #1 115kV Line	MORAGA.C 115KV SECTION 2C	P2	Bus	99	87	124	81	77	123	69	44	158	82	73	94	102	143	Potential North Oakland area long-term transmission upgrade
	PITTSBURG-F 230KV - SECTION 2F & 1F	P2	Breaker	NA	56	104	NA	51	82	NA	12	Diverge	NA	NA	71	73	Diverge	Potential North Oakland area long-term transmission upgrade
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	90	92	128	70	77	113	64	45	146	75	63	112	112	140	Potential North Oakland area long-term transmission upgrade
	C-X #3 115KV [9925] and C-X #2 115KV [9962]	P6	N-1-1	< 100	< 100	107	< 100	< 100	103	< 100	< 100	Diverge	< 100	< 100	110	< 100	Diverge	Potential North Oakland area long-term transmission upgrade
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	50	56	103	41	51	81	28	12	Diverge	19	30	70	73	Diverge	Potential North Oakland area long-term transmission upgrade
	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	47	55	101	39	50	80	27	13	Diverge	18	28	69	71	Diverge	Potential North Oakland area long-term transmission upgrade
Moraga-Claremont #2 115kV Line	SOBRANTE 230KV SECTION 1D	P2	Bus	89	91	127	69	77	113	63	43	147	71	62	112	111	141	Potential North Oakland area long-term transmission upgrade
	MORAGA.E 115KV SECTION 2E	P2	Bus	85	83	101	63	66	100	59	39	Diverge	78	59	97	82	Diverge	Potential North Oakland area long-term transmission upgrade
	SOBRANTE - 1D 230KV & IGNACIO-SOBRANTE LINE	P2	Breaker	89	91	127	69	77	113	63	43	147	72	62	112	112	141	Potential North Oakland area long-term transmission upgrade
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	91	92	128	70	77	113	64	45	147	75	63	113	112	140	Potential North Oakland area long-term transmission upgrade
Sobrante-Moraga 115kV Line	SOBRANTE 230KV SECTION 1D	P2	Bus	92	86	144	67	63	117	71	32	156	78	69	124	118	165	Project: Moraga-Sobrante 115 kV line reconductoring project (on-hold)
	SOBRANTE - 1D 230KV & IGNACIO-SOBRANTE LINE	P2	Breaker	93	86	144	67	63	117	71	NA	156	78	69	124	119	165	Project: Moraga-Sobrante 115 kV line reconductoring project (on-hold)



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions	
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Sobrante-Moraga 115kV Line	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	96	88	146	68	63	118	74	NA	156	86	72	126	120	164	Project: Moraga-Sobrante 115 kV line reconductoring project (on-hold)	
	SOBRANTE 230/115KV TB 2 and SOBRANTE 230/115KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	121	< 100	NA	Sensitivity only	
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	125	NA	74	65	NA	61	71	NA	Diverge	103	72	NA	91	Diverge	Project: Collinsville 500 kV new Station	
Moraga 230/115kV Transformer #2	MORAGA 230/115KV TB 1 and MORAGA 230/115KV TB 3	P6	N-1-1	113	108	124	< 100	< 100	128	< 100	< 100	164	113	< 100	125	112	NA	Interim: Local generation and OCEI project. Long-term: Potential long-term North Oakland area transmission solution.	
Moraga-Station X 115 kV #1 Line	MORAGA.E 115KV SECTION 2E	P2	Bus	151	56	66	92	45	64	101	29	81	133	99	59	54	71	Project: Moraga-Oakland X line rebuild	
	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	113	42	51	72	37	50	74	23	< 100	90	74	43	48	< 100	Project: Moraga-Oakland X line rebuild	
	K-D #1 115KV [9966] and K-D #2 115KV [9967]	P6	N-1-1	114	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: Moraga-Oakland X line rebuild	
Moraga-Station X 115 kV #3 Line	MORAGA.D 115KV SECTION 1D	P2	Bus	170	60	72	97	45	72	114	29	94	161	112	68	65	87	Project: Moraga-Oakland X line rebuild	
	MORAGA.E 115KV SECTION 2E	P2	Bus	225	84	92	106	58	82	128	42	108	200	118	85	61	103	Project: Moraga-Oakland X line rebuild	
	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	112	42	51	71	36	49	73	23	< 100	89	73	42	48	< 100	Project: Moraga-Oakland X line rebuild	
Moraga - Station X 115 kV Line	K-D #1 115KV [9966] and K-D #2 115KV [9967]	P6	N-1-1	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	< 100	NA	Project: Moraga-Oakland X line rebuild
	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	112	42	51	71	36	49	73	23	< 100	89	73	42	48	< 100	Project: Moraga-Oakland X line rebuild	
	K-D #1 115KV [9966] and K-D #2 115KV [9967]	P6	N-1-1	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	< 100	NA	Project: Moraga-Oakland X line rebuild
Moraga-Oakland J 115kV Line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	87	89	153	56	65	90	47	41	Diverge	63	58	92	0	Diverge	Potential South Oakland area long-term transmission upgrade	
	PITTSBURG-EASTSHORE 230KV [5462]	P1	N-1	76	79	140	41	53	78	47	46	Diverge	69	41	82	0	Diverge	Potential South Oakland area long-term transmission upgrade	
	MORAGA-SAN LEANDRO #1 115KV [2770]	P1	N-1	73	101	113	41	50	101	45	44	Diverge	69	41	105	0	NA	Potential South Oakland area long-term transmission upgrade	
	MORAGA-SAN LEANDRO #2 115KV [2780]	P1	N-1	73	101	113	41	51	101	45	44	Diverge	69	41	105	0	NA	Potential South Oakland area long-term transmission upgrade	
	MORAGA-SAN LEANDRO #3 115KV [2790]	P1	N-1	74	101	113	41	51	101	46	45	Diverge	70	42	105	0	NA	Potential South Oakland area long-term transmission upgrade	
	OAKLAND J-GRANT 115KV [3140] (EDESJCT2-GRANT)	P2	Line Section w/o Fault	73	77	274	53	64	302	47	41	358	59	47	79	87	331	Potential South Oakland area long-term transmission upgrade	
	GRANT 115KV SECTION MD	P2	Bus	73	77	272	53	64	302	47	41	265	59	47	79	87	238	Potential South Oakland area long-term transmission upgrade	
	NEWARK D 230KV - SECTION 2D & 1D	P2	Breaker	NA	83	153	NA	55	86	NA	46	Diverge	NA	NA	87	0	Diverge	Potential South Oakland area long-term transmission upgrade	
	PITTSBURG-E 230KV - SECTION 1D & 1E	P2	Breaker	NA	86	152	NA	57	82	NA	48	Diverge	NA	NA	88	0	Diverge	Potential South Oakland area long-term transmission upgrade	
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	NA	92	166	NA	61	86	NA	49	Diverge	NA	NA	149	0	Diverge	Potential South Oakland area long-term transmission upgrade	
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and DUMBARTON-NEWARK 115KV [1460]	P3	G-1/N-1	< 100	< 100	162	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Potential South Oakland area long-term transmission upgrade	
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN LEANDRO-OAKLND J #1 115KV [3520]	P6	N-1-1	106	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Potential South Oakland area long-term transmission upgrade	
	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	< 100	208	264	< 100	< 100	205	< 100	< 100	Diverge	< 100	< 100	213	< 100	Diverge	Potential South Oakland area long-term transmission upgrade	
	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	92	402	386	64	274	420	55	59	330	73	55	401	0	309	Potential South Oakland area long-term transmission upgrade	
	Pittsburg-San Mateo 230 KV and Pittsburg-East Shore 230 KV lines	P7	DCTL	85	88	160	46	59	86	51	48	Diverge	73	45	91	0	Diverge	Potential South Oakland area long-term transmission upgrade	
Moraga-San Leandro Nos. 1 & 2 115 KV lines	P7	DCTL	86	101	114	49	66	101	53	51	NA	80	48	105	0	NA	Potential South Oakland area long-term transmission upgrade		
Moraga-San Leandro #1 115kV Line	SN LNDRO 115KV SECTION ME	P2	Bus	142	88	55	83	67	62	82	72	104	126	77	47	49	62	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MORAGA-SAN LEANDRO #3 115KV [2790]	P3	G-1/N-1	115	120	< 100	< 100	< 100	111	< 100	< 100	NA	< 100	< 100	122	< 100	NA	Potential South Oakland area long-term transmission upgrade	
	MORAGA-SAN LEANDRO #3 115KV [2790] and MORAGA-SAN LEANDRO #2 115KV [2780]	P6	N-1-1	145	120	129	< 100	< 100	107	< 100	< 100	212	128	< 100	122	< 100	NA	Potential South Oakland area long-term transmission upgrade	
	Moraga-Oakland J 115 KV and Moraga-San Leandro No. 3 115 KV lines	P7	DCTL	116	60	69	67	45	56	68	61	Diverge	104	63	61	60	Diverge	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
	MORAGA.E 115KV SECTION 1E	P2	Bus	137	88	55	80	67	62	80	68	105	123	75	47	49	61	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
	MORAGA.D SECTION 1D & MORAGA.E SECTION 1E 115KV	P2	Breaker	143	88	55	84	67	62	83	73	104	127	77	47	49	62	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Moraga-San Leandro #2 115kV Line	RUSCTYECST1 18.00kV & RUSCTYECCT2 15.00kV & RUSCTYECCT1 15.00kV GEN UNITS and MORAGA-SAN LEANDRO #3 115kV [2790]	P3	G-1/N-1	116	121	< 100	< 100	< 100	112	< 100	< 100	NA	< 100	< 100	123	< 100	NA	Potential South Oakland area long-term transmission upgrade	
	DEC STG1 18.00kV & DEC CTG1 18.00kV & DEC CTG2 18.00kV & DEC CTG3 18.00kV GEN UNITS and MORAGA-SAN LEANDRO #3 115kV [2790]	P3	G-1/N-1	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Potential South Oakland area long-term transmission upgrade	
	MORAGA-SAN LEANDRO #3 115kV [2790] and MORAGA-SAN LEANDRO #1 115kV [2770]	P6	N-1-1	146	120	129	< 100	< 100	107	< 100	< 100	213	129	< 100	122	< 100	NA	Potential South Oakland area long-term transmission upgrade	
	Moraga-Oakland J 115 kV and Moraga-San Leandro No. 3 115 kV lines	P7	DCTL	117	60	69	68	46	57	69	62	Diverge	105	64	61	61	Diverge	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
Moraga - San Leandro 115 kV Line	RUSCTYECST1 18.00kV & RUSCTYECCT2 15.00kV & RUSCTYECCT1 15.00kV GEN UNITS and MORAGA-SAN LEANDRO #2 115kV [2780]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	102	< 100	NA	Sensitivity only	
	MORAGA-SAN LEANDRO #1 115kV [2770] and MORAGA-SAN LEANDRO #2 115kV [2780]	P6	N-1-1	118	< 100	101	< 100	< 100	< 100	< 100	< 100	173	105	< 100	< 100	< 100	NA	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
	Moraga-San Leandro Nos. 1 & 2 115 kV lines	P7	DCTL	116	96	111	68	72	90	67	59	150	103	63	98	97	165	Interim: Moraga - Oakland J - San Leandro RAS. Long-term: Potential South Oakland long-term transmission upgrade.	
Willow Pass-Contra Costa 60kV Line	Base Case	P0	Base Case	82	87	130	20	26	39	38	2	205	48	38	89	132	200	Continue to monitor	
	DVRaGT1 13.80kV & DVRbGT2 13.80kV & DVRaST3 13.80kV Gen Units	P1	N-1	70	75	112	18	24	34	33	2	Diverge	41	33	76	114	Diverge	Continue to monitor	
	TESLA-METCALF 500kV	P1	N-1	70	75	112	18	24	34	33	2	Diverge	41	33	76	114	Diverge	Continue to monitor	
	METCALF-MOSSLAND 500kV	P1	N-1	70	75	112	18	24	34	33	2	Diverge	41	33	76	114	Diverge	Continue to monitor	
	TABLE MT-VACA-DIX 500kV	P1	N-1	70	75	112	18	24	34	33	2	178	41	33	76	114	180	Continue to monitor	
	TABLE MT-TESLA 500kV	P1	N-1	70	75	112	18	24	34	33	2	Diverge	41	33	76	114	Diverge	Continue to monitor	
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	70	75	112	18	24	34	33	2	Diverge	41	33	76	114	Diverge	Continue to monitor	
Potrero-Larkin #1 (AY-1) 115kV Cable	TESLA-METCALF 500kV and TABLE MT-VACA-DIX 500kV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144	< 100	< 100	< 100	< 100	< 100	Continue to monitor	
	X-Y #1 115kV [9960]	P1	N-1	NA	53	75	NA	85	101	NA	49	89	NA	NA	54	74	89	Continue to monitor	
	LARKIN E 115kV Section 1E	P2	Bus	88	53	75	60	85	101	48	49	Diverge	83	48	54	74	Diverge	Continue to monitor	
	LARKIN F 115kV Section 1F	P2	Bus	88	53	75	60	85	101	48	49	89	83	48	54	74	89	Continue to monitor	
	MISSION 115kV - Middle Breaker Bay 4	P2	Breaker	NA	53	76	NA	85	101	NA	49	89	NA	NA	54	74	100	Continue to monitor	
Mission-Larkin (XY-1) 115kV Cable	LARKIN E Section 1E & LARKIN F Section 1F 115kV	P2	Breaker	88	53	75	60	85	101	48	49	89	83	48	54	74	89	Continue to monitor	
	A-Y #1 (UNDERGROUND IDLE) 115kV [9952] and H-Y #1 115kV [9956]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	103	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Continue to monitor	
	A-X #1 115kV [9951]	P1	N-1	NA	78	108	NA	74	106	NA	56	126	NA	NA	79	101	126	Continue to monitor	
	POTRERO 115kV Section 1D	P2	Bus	85	69	96	56	70	101	56	53	114	75	55	70	90	111	Continue to monitor	
	POTRERO 115kV Section 2D	P2	Bus	93	84	117	65	77	110	66	63	131	78	64	85	108	131	Continue to monitor	
Potrero-Larkin #2 (AY-2) 115kV Cable	MISSION 115kV - Middle Breaker Bay 3	P2	Breaker	NA	73	101	NA	70	102	NA	53	118	NA	NA	74	95	117	Continue to monitor	
	POTRERO - 1D 115kV & A-Y #1 (UNDERGROUND IDLE) line	P2	Breaker	NA	69	96	NA	70	101	NA	53	114	NA	NA	70	90	111	Continue to monitor	
	Base Case	P0	Base Case	89	83	113	71	86	105	60	56	141	74	59	84	106	142	Continue to monitor	
	P-X #1 115kV [9958]	P1	N-1	NA	82	110	NA	87	106	NA	53	133	NA	NA	83	105	133	Continue to monitor	
	P-X #2 (UNDERGROUND) 115kV [9959]	P1	N-1	NA	81	110	NA	85	105	NA	52	132	NA	NA	82	104	132	Continue to monitor	
Potrero-Mission (AX) 115kV Cable	A-P #1 115kV [9932]	P1	N-1	NA	82	113	NA	82	102	NA	59	< 100	NA	NA	83	104	< 100	Continue to monitor	
	X-Y #1 115kV [9960]	P1	N-1	NA	79	107	NA	69	85	NA	42	Diverge	NA	NA	80	100	Diverge	Continue to monitor	
	LARKIN E 115kV Section 1E	P2	Bus	68	79	107	57	69	85	48	42	Diverge	52	46	80	100	Diverge	Continue to monitor	
	LARKIN F 115kV Section 1F	P2	Bus	68	79	107	57	69	85	48	42	Diverge	52	46	80	100	Diverge	Continue to monitor	
	MISSION 115kV - Middle Breaker Bay 4	P2	Breaker	59	70	95	50	60	77	43	38	114	44	41	70	88	113	Continue to monitor	
	LARKIN E Section 1E & LARKIN F Section 1F 115kV	P2	Bus	68	79	107	57	69	85	48	42	Diverge	52	46	80	100	Diverge	Continue to monitor	
	A-Y #1 (UNDERGROUND IDLE) 115kV [9952] (LARKIN D-POTRERO)	P2	Line Section w/o Fault	NA	87	120	NA	96	120	NA	61	Diverge	NA	NA	88	113	Diverge	Continue to monitor	
	LARKIN D 115kV Section 1D	P2	Bus	100	87	120	77	96	120	65	61	Diverge	86	64	88	113	Diverge	Continue to monitor	
	POTRERO 115kV Section 2E	P2	Bus	93	87	138	49	69	125	50	33	157	48	47	87	124	160	Continue to monitor	
	POTRERO - 2E 115kV & POTRERO-TBC_POT1 #1 line	P2	Breaker	NA	87	138	NA	69	125	NA	33	157	NA	NA	87	124	160	Continue to monitor	
	MARTIN C2-25 25.00kV Gen Unit En and A-Y #1 (UNDERGROUND IDLE) 115kV [9952]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	103	NA	Sensitivity only	
	P-X #1 115kV [9958] and P-X #2 (UNDERGROUND) 115kV [9959]	P6	N-1-1	< 100	< 100	123	< 100	108	132	< 100	< 100	148	< 100	< 100	< 100	119	NA	Continue to monitor	
Martin 115/60kV Transformer #6	MILLBRAE-SAN MATEO #1 115kV [2640] and MARTIN-MILLBRAE #1 115kV [2230]	P6	N-1-1	117	128	121	< 100	< 100	< 100	< 100	< 100	136	< 100	< 100	129	103	NA	Existing reverse power relay.	
Martin-Sneath Lane 60kV Line	MILLBRAE-SAN MATEO #1 115kV [2640] and MARTIN-MILLBRAE #1 115kV [2230]	P6	N-1-1	224	245	112	< 100	141	< 100	122	< 100	125	171	122	247	< 100	NA	Existing reverse power relay.	
Millbrae-San Mateo #1 115kV Line	SAN MATEO-MARTIN 230kV [9980] and JEFFERSN-EGBERTSWSTA 230kV [0]	P6	N-1-1	< 100	< 100	100	< 100	< 100	106	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor	
	MARTIN-EAST GRAND 115kV [2220]	P1	N-1	78	81	93	50	68	91	55	52	115	70	55	82	104	115	Continue to monitor	
	MARTIN C 115kV - Middle Breaker Bay 5	P2	Breaker	NA	81	93	NA	68	91	NA	52	118	NA	NA	82	103	114	Continue to monitor	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
San Mateo-Martin #2 115kV Line	SAN MATEO-MARTIN 230KV [9980] and JEFFERSN-EGBERTSWSTA 230KV [0]	P6	N-1-1	< 100	< 100	112	< 100	< 100	113	< 100	< 100	102	< 100	< 100	< 100	< 100	NA	Continue to monitor
	Martin-East Grand No. 2 115 KV and San Mateo-Martin No. 3 115 KV lines	P7	DCTL	78	81	93	50	68	91	55	52	115	70	55	82	104	116	Continue to monitor
	Martin-East Grand 115 KV and San Mateo-Martin No. 6 115 KV lines	P7	DCTL	78	81	93	50	68	91	55	52	119	70	55	82	104	115	Continue to monitor
San Mateo-Bay Meadows #1 115kV Line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN MATEO-BAY MEADOWS #2 115KV [3560]	P3	G-1/N-1	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	105	Diverge	Continue to monitor
San Mateo-Bay Meadows #2 115kV Line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN MATEO-BAY MEADOWS #1 115KV [3550]	P3	G-1/N-1	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	105	Diverge	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN MATEO-BAY MEADOWS #2 115KV [3560]	P6	N-1-1	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	105	NA	Continue to monitor
San Mateo-Belmont 115kV Line	RAVENSWD 230/115KV TB 1 and RAVENSWD 230/115KV TB 2	P6	N-1-1	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	107	< 100	NA	Project: Redwood City Area 115 kV System Reinforcement
	Ravenswood-Bair Nos. 1 & 2 115 KV lines	P7	DCTL	96	103	65	52	63	40	48	25	< 100	70	51	105	57	< 100	Project: Redwood City Area 115 kV System Reinforcement
Ravenswood-Bair #2 115kV Line	RVNSWD D 115KV Section 1D	P2	Bus	NA	NA	100	NA	NA	88	NA	NA	121	NA	NA	NA	87	121	Continue to monitor
	RVNSWD E Section 1E & RVNSWD D Section 1D 115KV	P2	Breaker	NA	90	101	NA	59	89	NA	36	121	NA	NA	91	88	119	Continue to monitor
	SAN MATEO-BELMONT 115KV [3570] and RAVENSWOOD-BAIR #1 115KV [3380]	P6	N-1-1	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	122	< 100	< 100	< 100	< 100	NA	Continue to monitor
Ravenswood-Cooley Landing #2 115kV Line	RVNSWD E 115KV Section 1E	P2	Bus	56	63	106	32	50	81	33	24	127	53	23	63	82	121	Continue to monitor
	CLY LND 115KV Section 1D	P2	Bus	NA	NA	102	NA	NA	62	NA	NA	128	NA	NA	NA	78	128	Continue to monitor
	RVNSWD E Section 1E & RVNSWD F Section 1F 115KV	P2	Breaker	NA	63	106	NA	50	81	NA	24	127	NA	NA	63	82	121	Continue to monitor
	RVNSWD E Section 1E & RVNSWD D Section 1D 115KV	P2	Breaker	NA	86	117	NA	63	85	NA	36	146	NA	NA	87	105	146	Continue to monitor
	RAVENSWOOD-COOLEY LANDING #1 115KV [3390] and RAVENSWOOD-PALO ALTO #1 115KV [3410]	P6	N-1-1	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	124	< 100	< 100	< 100	< 100	145	Continue to monitor
Ravenswood-Ames #1 115 kV Line	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	122	< 100	< 100	109	< 100	< 100	111	106	< 100	< 100	< 100	NA	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	92	99	Diverge	52	91	97	59	60	107	111	32	95	99	100	Continue to monitor
Ravenswood-Ames #2 115kV Line	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	122	< 100	< 100	109	< 100	< 100	110	106	< 100	< 100	< 100	NA	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	92	99	Diverge	52	91	97	59	60	107	110	32	95	99	100	Continue to monitor
Ravenswood-Palo Alto #1 115kV Line	RVNSWD E 115KV Section 2E	P2	Bus	96	103	150	64	84	118	69	59	177	92	60	104	135	175	Potential Ravenswood 115 kV bus upgrade
	RVNSWD E Section 2E & RVNSWD F Section 2F 115KV	P2	Breaker	NA	103	150	NA	84	118	NA	59	177	NA	NA	104	135	175	Potential Ravenswood 115 kV bus upgrade
	RVNSWD E Section 2E & RVNSWD D Section 2D 115KV	P2	Breaker	NA	101	148	NA	83	116	NA	58	175	NA	NA	102	134	174	Potential Ravenswood 115 kV bus upgrade
	RAVENSWOOD-PALO ALTO #2 115KV [3420] and COOLEY LANDING-PALO ALTO 115KV [1300]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	< 100	115	NA	Continue to monitor
	Ravenswood-Cooley Landing Nos. 1 & 2 115 KV lines	P7	DCTL	79	83	108	53	62	78	55	45	124	68	55	84	107	135	Continue to monitor
Ravenswood-Palo Alto #2 115kV Line	RAVENSWOOD-PALO ALTO #1 115KV [3410] and COOLEY LANDING-PALO ALTO 115KV [1300]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	< 100	115	NA	Continue to monitor
	Ravenswood-Cooley Landing Nos. 1 & 2 115 KV lines	P7	DCTL	78	83	107	53	62	78	55	45	124	68	54	83	106	134	Continue to monitor
	Ravenswood-Palo Alto No. 1 115 KV and Cooley Landing-Palo Alto 115 KV lines	P7	DCTL	83	84	94	73	74	83	80	80	111	83	79	84	120	112	Continue to monitor
Cooley Landing - Ravenswood 115 kV Line (Tap CLY LND2)	CLY LND 115/60KV TB 1 and RAVENSWOOD-COOLEY LANDING #2 115KV [3400]	P6	N-1-1	< 100	< 100	126	< 100	< 100	< 100	< 100	< 100	145	< 100	< 100	< 100	< 100	Diverge	Continue to monitor
Cooley Landing-Palo Alto 115kV Line	RAVENSWOOD-COOLEY LANDING #2 115KV [3400] and RAVENSWOOD-COOLEY LANDING #1 115KV [3390]	P6	N-1-1	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor
	Ravenswood-Cooley Landing Nos. 1 & 2 115 KV lines	P7	DCTL	80	88	132	36	51	79	38	16	154	57	37	89	100	168	Continue to monitor
	Ravenswood-Palo Alto Nos. 1 & 2 115 KV lines	P7	DCTL	89	91	101	73	74	89	86	86	121	89	85	91	130	122	Continue to monitor
Ravenswood-Bair #2 115kV Line	Ravenswood-San Mateo 115 KV and Ravenswood-Bair No. 1 115 KV lines	P7	DCTL	79	79	105	35	54	92	43	30	104	76	38	80	79	136	Continue to monitor
Ravenswood-Bair #1 115kV Line	BAIR-RVNSWD D-LONESTAR 115KV [0] and SAN MATEO-BELMONT 115KV [3570]	P6	N-1-1	106	112	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	113	< 100	NA	Project: Redwood City Area 115 kV System Reinforcement. Operating solutions in the interim
Ravenswood-Cooley Landing #1 115kV Line	RAVENSWOOD-COOLEY LANDING #2 115KV [3400] and RAVENSWOOD-PALO ALTO #1 115KV [3410]	P6	N-1-1	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	149	< 100	< 100	< 100	< 100	146	Continue to monitor
Millbrae-Sneath Lane 60kV Line	MILLBRAE-SAN MATEO #1 115KV [2640] and MARTIN-MILLBRAE #1 115KV [2230]	P6	N-1-1	153	166	< 100	< 100	< 100	< 100	< 100	< 100	NA	130	< 100	167	< 100	NA	Project: Martin - Millbrae 60 kV Area Reinforcement
	MARTIN-SNEATH LANE 60KV [7210]	P1	N-1	91	101	52	44	60	39	40	9	< 100	56	40	101	34	< 100	Project: Martin - Millbrae 60 kV Area Reinforcement
	MARTIN C 115/60KV TB 6	P1	N-1	91	101	52	44	60	39	40	9	< 100	56	40	101	33	< 100	Project: Martin - Millbrae 60 kV Area Reinforcement
	MARTIN C 115KV - Middle Breaker Bay B	P2	Breaker	NA	101	52	NA	60	39	NA	9	< 100	NA	NA	102	33	< 100	Project: Martin - Millbrae 60 kV Area Reinforcement
San Mateo-Hillsdale JCT 60kV Line	MONTAVIS 230KV - Section 1E & 2E	P2	Breaker	90	97	128	71	96	126	56	35	192	57	55	99	120	175	Continue to monitor
	JEFFERSN 230/60KV TB 1 and JEFFERSN 230/60KV TB 2	P6	N-1-1	168	183	235	< 100	169	207	119	< 100	Diverge	< 100	119	186	232	Diverge	Operating solution.
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	79	93	116	61	87	112	47	26	155	46	46	91	108	167	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
San Mateo-Bair 60kV Line	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	79	93	116	61	87	112	47	26	Diverge	46	46	91	108	Diverge	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	90	97	127	71	96	123	56	35	170	57	55	99	119	174	Continue to monitor
	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	138	153	185	<100	<100	110	<100	<100	205	<100	<100	155	148	Diverge	Operating solution.
San Mateo-Hillsdale JCT 60kV Line (Beresford-Hillsdale)	MONTAVIS 230KV - Section 1E & 2E	P2	Breaker	98	107	137	77	105	135	60	42	200	66	60	109	128	191	Operating solution.
	JEFFERSN 230/60KV TB 2 and JEFFERSN 230/60KV TB 1	P6	N-1-1	190	207	262	<100	190	232	136	<100	Diverge	110	136	209	260	Diverge	Operating solution.
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	87	99	124	65	94	119	50	31	Diverge	52	50	97	114	Diverge	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	87	99	124	65	94	119	50	31	161	52	50	97	114	183	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	99	107	137	77	105	132	60	42	178	66	60	109	127	191	Operating solution.
San Mateo-Hillsdale JCT 60kV Line (Hillsdale-Hillsdale JCT)	MONTAVIS 230KV - Section 1E & 2E	P2	Breaker	90	97	122	70	95	119	57	43	167	63	56	99	113	177	Continue to monitor
	JEFFERSN 230/60KV TB 2 and JEFFERSN 230/60KV TB 1	P6	N-1-1	181	197	245	<100	179	217	132	<100	Diverge	108	132	199	242	Diverge	Operating solution.
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	79	89	109	58	84	104	46	32	Diverge	50	45	87	100	Diverge	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	79	89	109	58	84	104	46	32	136	50	45	87	100	170	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	90	97	122	70	95	117	57	43	153	64	56	99	113	177	Continue to monitor
Jefferson-Hillsdale JCT 60kV Line	JEFFERSN 230/60KV TB 2 and JEFFERSN 230/60KV TB 1	P6	N-1-1	153	163	205	<100	123	147	119	<100	Diverge	100	119	165	203	Diverge	Operating solution.
Oracle-San Carlos 60kV Line	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	145	161	197	<100	<100	103	<100	<100	<100	<100	<100	163	156	Diverge	Operating solution.
San Mateo-Bair 60kV Line (San Carlos-Bair)	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	NA	<100	<100	<100	<100	Diverge	Continue to monitor
Bair 115/60kV Transformer #1	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	160	173	220	<100	123	160	<100	<100	<100	116	<100	175	170	Diverge	Operating solution.
Bair-Cooley Landing #1 60kV Line	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	104	115	144	<100	<100	<100	<100	<100	<100	<100	<100	116	113	Diverge	Operating solution.
Bair-Cooley Landing #2 60kV Line	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	136	148	179	<100	<100	<100	<100	<100	<100	102	<100	150	128	Diverge	Operating solution.
	BAIR 115/60KV TB 1	P1	N-1	<100	<100	105	<100	<100	62	<100	<100	115	<100	<100	<100	70	114	Continue to monitor
	BAIR 115KV Section 1D	P2	Bus	73	78	108	26	46	67	24	14	120	60	21	79	73	118	Continue to monitor
	BAIR - 1D 115KV & BAIR-RVNSWD D-LONESTAR line	P2	Breaker	NA	NA	108	NA	NA	67	NA	NA	120	NA	NA	NA	73	118	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and BAIR 115/60KV TB 1	P3	G-1/N-1	<100	<100	103	<100	<100	<100	<100	<100	Diverge	<100	<100	<100	<100	Diverge	Continue to monitor
Bair-Cooley Landing #1 60kV Line	Ravenswood-Bair Nos. 1 & 2 115 KV lines	P7	DCTL	71	75	105	32	48	71	21	21	102	63	17	76	70	123	Continue to monitor
	BAIR-REDWOOD-CLY LNDG 60KV [0]	P1	N-1	70	76	103	33	45	64	28	20	120	57	26	77	72	116	Continue to monitor
	BAIR 115/60KV TB 1	P1	N-1	<100	<100	103	<100	<100	66	<100	<100	111	<100	<100	<100	75	110	Continue to monitor
	BAIR 115KV Section 1D	P2	Bus	73	79	105	33	48	68	30	15	113	59	28	80	76	112	Continue to monitor
	BAIR - 1D 115KV & BAIR-RVNSWD D-LONESTAR line	P2	Breaker	NA	NA	105	NA	NA	68	NA	NA	113	NA	NA	NA	76	112	Continue to monitor
Cooley Landing 115/60kV Transformer #2	Ravenswood-Bair Nos. 1 & 2 115 KV lines	P7	DCTL	72	78	103	33	49	70	29	18	103	60	26	79	75	116	Continue to monitor
	CLY LND 115/60KV TB 1	P1	N-1	<100	<100	105	<100	<100	68	<100	<100	126	<100	<100	<100	81	125	Continue to monitor
	CLY LND 115KV Section 1D	P2	Bus	NA	NA	103	NA	NA	66	NA	NA	121	NA	NA	NA	80	120	Continue to monitor
	BAIR 115/60KV TB 1 and CLY LND 115/60KV TB 1	P6	N-1-1	<100	<100	117	<100	<100	<100	<100	<100	Diverge	<100	<100	<100	<100	Diverge	Continue to monitor
	CLY LND2 115/60KV TB 2	P1	N-1	<100	<100	105	<100	<100	68	<100	<100	126	<100	<100	<100	81	125	Continue to monitor
Cooley Landing 115/60kV Transformer #1	CLY LND2 115KV Section 1E	P2	Bus	NA	NA	103	NA	NA	66	NA	NA	122	NA	NA	NA	79	121	Continue to monitor
Cooley Landing-Stanford 60kV Line (Cooley Landing-SRI)	BAIR 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	<100	<100	117	<100	<100	<100	<100	<100	Diverge	<100	<100	<100	<100	Diverge	Continue to monitor
	Base Case	P0	Base Case	61	70	105	30	41	75	33	12	153	26	33	71	89	180	Continue to monitor
	SRI INTL 9.11KV Gen Unit 1	P1	N-1	61	69	100	34	48	73	34	1	<100	29	34	70	85	<100	Continue to monitor
	TESLA-LOSBANOS 500kV and METCALF-MOSSLAND 500kV	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	128	<100	<100	<100	<100	128	Continue to monitor
	Base Case	P0	Base Case	60	67	106	30	42	75	33	9	171	23	33	68	105	177	Continue to monitor
Jefferson-Las Pulgas 60kV Line (Jefferson-Woodside)	METCALF-MOSSLAND 500kV and TESLA-LOSBANOS 500kV	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	129	<100	<100	<100	<100	<100	Continue to monitor
San Leandro - Edes 115 kV Line	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV Gen Units and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	NA	<100	<100	<100	102	NA	Sensitivity only
	E. SHORE 230/115KV TB 2 and E. SHORE 230/115KV TB 1	P6	N-1-1	111	118	127	<100	<100	108	<100	<100	154	<100	<100	120	<100	NA	Potential South Oakland area long-term transmission upgrade
Grant-Eastshore #1 115kV Line	GRANT-EASTSHORE #2 115KV [1701] (2)	P1	N-1	NA	70	103	NA	67	93	NA	26	153	NA	NA	71	89	144	Potential South Oakland area long-term transmission upgrade
	EASTSHRE 115KV SECTION MD	P2	Bus	38	61	118	33	59	84	18	25	147	28	21	62	83	138	Potential South Oakland area long-term transmission upgrade
	STACKSS 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	70	103	NA	67	93	NA	26	153	NA	NA	71	89	144	Potential South Oakland area long-term transmission upgrade
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	90	99	112	63	81	111	53	43	Diverge	71	53	101	103	Diverge	Potential South Oakland area long-term transmission upgrade
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and GRANT-EASTSHORE #2 115KV [1701] (2)	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	NA	<100	<100	<100	173	NA	Sensitivity only
	SAN LEANDRO-OAKLND J #1 115KV [3520] and GRANT-EASTSHORE #2 115KV [1701] (2)	P6	N-1-1	<100	162	180	<100	<100	177	<100	<100	131	<100	<100	164	173	NA	Potential South Oakland area long-term transmission upgrade
	E. SHORE 230/115KV TB 2	P1	N-1	67	76	113	55	64	76	26	11	135	31	46	78	111	133	Potential South Oakland area long-term transmission upgrade



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Eastshore 230/115kV Transformer #1	E. SHORE 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	67	76	113	55	64	76	26	11	135	31	46	78	111	132	Potential South Oakland area long-term transmission upgrade
	EASTSHORE-SAN MATEO 230KV [4650] and E. SHORE 230/115KV TB 2	P6	N-1-1	110	114	122	< 100	104	110	< 100	< 100	133	< 100	< 100	115	124	Diverge	Potential South Oakland area long-term transmission upgrade
Eastshore 230/115kV Transformer #2	E. SHORE 230/115KV TB 1	P1	N-1	67	75	113	54	64	76	26	12	134	30	47	77	111	132	Potential South Oakland area long-term transmission upgrade
	EASTSHRE 115KV SECTION MD	P2	Bus	65	73	114	53	61	71	25	10	133	28	46	74	106	130	Potential South Oakland area long-term transmission upgrade
	E. SHORE 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	67	75	113	54	64	76	26	12	134	30	47	77	111	132	Potential South Oakland area long-term transmission upgrade
	EASTSHORE-SAN MATEO 230KV [4650] and E. SHORE 230/115KV TB 1	P6	N-1-1	109	114	121	< 100	104	109	< 100	< 100	133	< 100	< 100	114	123	Diverge	Potential South Oakland area long-term transmission upgrade
East Shore - Stack SS 115 kV line	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	NA	39	72	NA	34	54	NA	27	Diverge	NA	NA	40	101	Diverge	Sensitivity only
	SAN LEANDRO-OAKLND J #1 115KV [3520]	P1	N-1	NA	88	102	NA	57	107	NA	38	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	GRANT-EASTSHORE #1 115KV [1700]	P1	N-1	NA	74	105	NA	70	97	NA	31	152	NA	NA	74	92	144	Potential South Oakland area long-term transmission upgrade
	MORAGA-OAKLAND J 115KV [2760]	P1	N-1	NA	88	102	NA	55	107	NA	33	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	SAN LEANDRO-OAKLND J #1 115KV [3520] (STATIN J-EDESJCT1)	P2	Line Section w/o Fault	NA	88	102	NA	57	107	NA	38	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	SN LNDRO 115KV SECTION MD	P2	Bus	NA	88	102	NA	57	107	NA	38	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	EASTSHRE 115KV SECTION ME	P2	Bus	NA	72	103	NA	66	91	NA	25	148	NA	NA	73	95	140	Potential South Oakland area long-term transmission upgrade
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	NA	43	102	NA	41	57	NA	22	Diverge	NA	NA	43	98	Diverge	Potential South Oakland area long-term transmission upgrade
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	NA	119	138	NA	100	136	NA	63	Diverge	NA	NA	121	129	Diverge	Potential South Oakland area long-term transmission upgrade
	MORAGA.D SECTION 1D & MORAGA.E SECTION 1E 115KV	P2	Breaker	NA	88	101	NA	57	107	NA	32	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	MORAGA.D SECTION 2D & MORAGA.E SECTION 2E 115KV	P2	Breaker	NA	88	101	NA	63	107	NA	37	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and GRANT-EASTSHORE #1 115KV [1700]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	173	NA	Sensitivity only
	SAN LEANDRO-OAKLND J #1 115KV [3520] and GRANT-EASTSHORE #1 115KV [1700]	P6	N-1-1	< 100	162	180	< 100	< 100	177	< 100	< 100	134	< 100	< 100	164	173	NA	Potential South Oakland area long-term transmission upgrade
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	NA	45	102	NA	42	59	NA	23	Diverge	NA	NA	46	98	Diverge	Potential South Oakland area long-term transmission upgrade
	Moraga-Oakland J 115 KV and Moraga-San Leandro No. 3 115 KV lines	P7	DCTL	NA	88	101	NA	77	107	NA	36	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
	Moraga-Oakland J 115 KV and San Leandro-Oakland J #1 115 KV lines	P7	DCTL	NA	88	102	NA	77	107	NA	57	Diverge	NA	NA	89	98	Diverge	Potential South Oakland area long-term transmission upgrade
Newark 115/60kV Transformer #1	PITTSBURG-SAN RAMON 230KV [5490] and SAN RAMON-MORAGA 230KV [5660]	P6	N-1-1	< 100	< 100	124	< 100	< 100	< 100	< 100	< 100	166	< 100	< 100	< 100	102	NA	Continue to monitor
Newark-Northern Receiving Station #1 115kV Line	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	97	28	64	32	31	13	32	49	< 100	64	60	30	120	< 100	Sensitivity only
	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	36	74	NA	30	43	NA	33	98	NA	NA	38	145	115	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	9	50	NA	28	12	NA	43	Diverge	NA	NA	12	112	Diverge	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	< 100	6	50	< 100	35	31	< 100	68	< 100	< 100	< 100	24	114	< 100	Sensitivity only
	SSS 230/230KV TB 1	P1	N-1	82	33	67	42	27	34	47	39	< 100	66	60	33	126	< 100	Sensitivity only
	DVRaGT1 13.80KV & DVRbGT2 13.80KV & DVRaST3 13.80KV Gen Units	P1	N-1	62	6	43	30	30	10	31	47	Diverge	46	43	9	102	Diverge	Sensitivity only
	SSS-NRSrser SVP 230 kV path	P1	N-1	82	33	67	42	27	34	47	39	< 100	66	60	33	126	< 100	Sensitivity only
	Loss of PST 230 kV Path	P1	N-1	82	33	67	42	27	34	47	39	< 100	66	60	33	126	< 100	Sensitivity only
	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	34	71	NA	26	41	NA	33	Diverge	NA	NA	36	142	Diverge	Sensitivity only
	LS ESTRS 230KV - Middle Breaker Bay 8	P2	Breaker	82	33	67	42	27	34	47	39	< 100	66	60	33	126	< 100	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	102	21	50	35	34	22	33	53	Diverge	65	61	21	105	Diverge	Potential San Jose area long-term transmission upgrade
	NEWARK E SECTION 1E & NEWARK F SECTION 1F 115KV	P2	Breaker	72	32	48	35	44	37	34	67	< 100	49	51	30	124	< 100	Sensitivity only
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	83	32	52	32	52	36	34	82	Diverge	59	50	29	154	Diverge	Sensitivity only
Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	55	6	43	26	30	10	27	47	Diverge	41	36	9	103	Diverge	Sensitivity only	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140	NA	Sensitivity only
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	59	12	56	31	26	31	32	43	Diverge	47	39	15	122	Diverge	Sensitivity only
	Trimble - San Jose B & Kifer - FMC 115 KV Lines	P7	DCTL	51	21	48	28	28	14	28	47	Diverge	42	28	9	109	Diverge	Sensitivity only
	Newark - Kifer & FMC - Kifer 115 KV Lines	P7	DCTL	63	3	51	32	33	12	32	57	Diverge	51	40	6	122	Diverge	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	137	52	106	49	21	43	53	39	102	102	75	54	175	117	Potential San Jose area long-term transmission upgrade
Newark-Ames 115 kV Line No. 1	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	83	89	Diverge	56	76	87	53	52	88	82	50	87	80	78	Continue to monitor
Newark-Ames 115 kV Line No. 3	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	112	< 100	< 100	107	< 100	< 100	101	< 100	< 100	< 100	< 100	NA	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	90	96	Diverge	61	83	95	57	57	95	89	55	94	87	85	Continue to monitor
Newark-Ames 115 kV Line No. 2	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	115	< 100	< 100	110	< 100	< 100	103	< 100	< 100	< 100	< 100	NA	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	92	99	Diverge	62	84	97	59	58	98	91	56	96	89	87	Continue to monitor
Newark 230/115kV Transformer #11	NEWARK-RAVENSWOOD 230KV [5936]	P1	N-1	84	68	87	51	45	67	42	17	Diverge	65	53	71	102	Diverge	Sensitivity only
Newark-Lawrence 115 kV Line	Newark-Applied Materials & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	81	82	81	43	53	68	46	42	109	75	46	83	111	111	Continue to monitor
	BRITTON-MONTA VISTA 115KV [1170]	P1	N-1	76	77	81	48	70	91	43	49	104	69	42	78	138	112	Continue to monitor
Newark-Applied Materials 115 kV Line	MNTA VSA 115KV - Middle Breaker Bay 2	P2	Breaker	77	77	82	48	70	91	43	49	103	69	42	78	139	103	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and BRITTON-MONTA VISTA 115KV [1170]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	120	NA	Sensitivity only
	PIERCY-METCALF 115KV [4318] and BRITTON-MONTA VISTA 115KV [1170]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	120	NA	Sensitivity only
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	77	77	81	48	70	91	43	49	Diverge	69	42	78	138	Diverge	Sensitivity only
Newark-Dixon Landing 115 kV Line	PIERCY-METCALF 115KV [4318]	P1	N-1	115	< 100	< 100	52	< 100	< 100	56	< 100	168	71	56	< 100	< 100	169	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	MTCALF E 115KV Section 2E	P2	Bus	< 100	81	109	< 100	50	63	< 100	15	169	< 100	< 100	83	171	170	Potential San Jose area long-term transmission upgrade
	MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Breaker	< 100	81	109	< 100	50	63	< 100	15	170	< 100	< 100	83	173	170	Potential San Jose area long-term transmission upgrade
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	132	NA	Sensitivity only
	PIERCY-METCALF 115KV [4318] and COMPONENT_SW-TRIMBLE #1 115KV [0]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	147	< 100	< 100	< 100	141	NA	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	115	81	110	52	50	63	56	15	170	71	56	83	179	169	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
Newark-Kifer 115 kV Line(Newark-Zinker J2)	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	23	54	NA	17	28	NA	22	85	NA	NA	28	108	101	Sensitivity only
	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	22	52	NA	14	27	NA	21	84	NA	NA	26	106	100	Sensitivity only
	NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Breaker	NA	22	58	NA	16	27	NA	20	Diverge	NA	NA	27	113	Diverge	Sensitivity only
	NRS 400 115 kv bus tie breaker to NRS 300 115 kv bus	P2	Breaker	227	NA	NA	137	NA	NA	160	NA	NA	209	173	NA	NA	NA	Project: NRS rebuild
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	103	NA	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] and LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Potential San Jose area long-term transmission upgrade
	Newark-Northern Nos. 1 & 2 115 KV lines	P7	DCTL	61	19	36	25	36	19	30	67	< 100	51	37	15	106	< 100	Sensitivity only
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	51	18	52	29	12	25	35	25	Diverge	51	34	22	103	Diverge	Sensitivity only
	Newark - Northern #1 & #2 115 KV Lines	P7	DCTL	61	19	36	25	36	19	30	67	< 100	51	37	15	106	< 100	Sensitivity only
Newark-Trimble 115 kV Line	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	100	38	82	39	11	31	47	27	94	83	54	43	131	107	Potential San Jose area long-term transmission upgrade
	COMPONENT_SW-TRIMBLE #1 115KV [0]	P1	N-1	NA	25	51	NA	23	50	NA	25	< 100	NA	NA	25	310	< 100	Sensitivity only
	TRIMBLE 115KV Section 1F	P2	Bus	0	25	51	0	23	50	0	25	< 100	0	0	25	307	< 100	Sensitivity only
	COMPONENT_SW 115KV - Middle Breaker Bay 2	P2	Breaker	NA	25	51	NA	23	50	NA	25	< 100	NA	NA	25	310	< 100	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and COMPONENT_SW-TRIMBLE #1 115KV [0]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	211	NA	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] and LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Potential San Jose area long-term transmission upgrade



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Newark-Northern Receiving Station #2 115kV Line	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	96	40	68	25	3	20	32	3	Diverge	75	42	41	126	Diverge	Sensitivity only
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	72	47	60	26	14	31	26	2	82	54	38	49	222	83	Sensitivity only
	Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	45	24	34	16	15	18	14	22	< 100	30	26	25	180	< 100	Sensitivity only
	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	18	54	NA	17	25	NA	27	83	NA	NA	14	109	101	Sensitivity only
	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	16	52	NA	14	24	NA	27	82	NA	NA	18	107	100	Sensitivity only
	NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Breaker	NA	16	59	NA	17	23	NA	24	Diverge	NA	NA	18	117	Diverge	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	106	NA	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] and LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	136	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	113	< 100	< 100	< 100	Diverge	Potential San Jose area long-term transmission upgrade
Newark F - Ringswood 115 kV Line	Newark - Kifer & FMC - Kifer 115 KV Lines	P7	DCTL	47	15	38	18	31	13	23	60	Diverge	45	24	13	101	Diverge	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	117	36	92	37	10	28	44	36	101	96	51	39	145	115	Potential San Jose area long-term transmission upgrade
	SWIFT-METCALF 115KV [3900] and NEWARK-MILPITAS #1 115KV [3070] MOAS OPENED ON NEWARK F. BARTRC. J	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113	< 100	< 100	< 100	117	NA	Continue to monitor
San Ramon-Radum 60kV Line	CONTRA COSTA-LAS POSITAS 230KV [4510]	P1	N-1	88	42	88	47	48	58	37	19	Diverge	36	53	43	100	Diverge	Sensitivity only
	LS PSTAS 230/60KV TB 4	P1	N-1	82	74	101	47	54	63	38	18	143	42	48	78	106	147	Continue to monitor
	LS PSTAS 230KV SECTION 1G	P2	Bus	82	74	101	47	54	63	38	18	143	42	48	78	106	147	Continue to monitor
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	111	56	72	33	35	36	23	9	Diverge	23	35	57	103	Diverge	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	LS PSTAS 230KV - SECTION 1F & 1G	P2	Breaker	85	77	104	50	55	66	40	20	133	44	51	81	110	133	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	62	62	88	32	40	39	22	15	Diverge	20	36	65	110	Diverge	Sensitivity only
	C.COSTAPPD 230KV - SECTION 1D & 2D	P2	Breaker	83	79	92	46	48	60	36	21	Diverge	41	54	86	105	Diverge	Sensitivity only
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	NA	64	81	NA	44	44	NA	9	Diverge	NA	NA	69	111	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and LS PSTAS 230/60KV TB 4	P3	G-1/N-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	113	Diverge	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	107	51	76	26	35	37	19	14	Diverge	20	29	53	88	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	87	42	97	52	53	66	42	22	Diverge	41	58	43	118	Diverge	Sensitivity only
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	88	42	97	52	53	65	42	21	Diverge	41	60	43	109	Diverge	Sensitivity only
Newark-Livermore 60kV Line	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	87	44	96	52	53	65	42	22	Diverge	41	60	45	108	Diverge	Sensitivity only
	LAS POSITAS-NEWARK 230KV [4980] and CONTRA COSTA-LAS POSITAS 230KV [4510]	P6	N-1-1	113	< 100	146	< 100	< 100	< 100	< 100	< 100	207	< 100	< 100	< 100	117	NA	Continue to monitor
Vineyard-Newark 230kV Line	NEWARK D 230KV SECTION 1D	P2	Bus	72	96	86	48	60	86	46	52	92	58	53	100	109	88	Invalid results. Inaccurate contingency definition.
	C.COSTAPPE 230KV SECTION 1E	P2	Bus	34	57	43	69	65	71	190	9	Diverge	28	35	45	56	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE 230KV SECTION 2E	P2	Bus	34	57	43	69	65	72	190	9	Diverge	28	35	30	56	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	34	57	43	69	65	71	190	9	Diverge	28	35	45	56	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE - 2E 230KV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	34	57	43	69	65	72	190	9	Diverge	28	35	30	56	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
	C.COSTAPPE 230KV - SECTION 1E & 2E	P2	Breaker	34	57	43	69	65	71	190	9	Diverge	28	35	45	56	Diverge	Project: Lone Tree – Cayetano – Newark Corridor Series Compensation
Las Positas 230/60kV Transformer #4	SAN RAMON-MORAGA 230KV [5660] and PITTSBURG-SAN RAMON 230KV [5490]	P6	N-1-1	158	157	207	< 100	106	128	< 100	< 100	272	105	< 100	161	191	NA	Existing reverse power relay.
Livermore - San Ramon 60 kV Line	LAS POSITAS-NEWARK 230KV [4980] and CONTRA COSTA-LAS POSITAS 230KV [4510]	P6	N-1-1	< 100	< 100	125	< 100	< 100	< 100	< 100	< 100	178	< 100	< 100	< 100	< 100	NA	Continue to monitor
Newark-Ames Distribution 115 kV Line	NEWARK-RAVENSWOOD 230KV [5936] and TESLA-RAVENSWOOD 230KV [5730]	P6	N-1-1	< 100	< 100	114	< 100	< 100	108	< 100	< 100	102	< 100	< 100	< 100	< 100	NA	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	91	97	Diverge	61	83	96	58	57	97	90	55	95	88	86	Continue to monitor
Whisman-Monta Vista 115 kV Line	MTN VSA 115KV - Middle Breaker Bay 2	P2	Breaker	74	83	102	51	77	82	65	56	139	97	24	81	119	154	Continue to monitor
	NEWARK D 230KV - SECTION 2D & 1D	P2	Breaker	NA	69	96	NA	60	71	NA	40	Diverge	NA	NA	69	102	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MTN VIEW-MONTA VISTA 115KV [2920]	P3	G-1/N-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	104	Diverge	Continue to monitor
	MTN VIEW-MONTA VISTA 115KV [2920] and EGBERTSWSTA-JEFFERSN 230KV [0]	P6	N-1-1	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	163	< 100	< 100	< 100	< 100	NA	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	74	79	Diverge	46	70	72	57	48	Diverge	93	25	76	104	Diverge	Sensitivity only
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	67	74	91	44	67	71	55	47	Diverge	85	20	73	110	Diverge	Sensitivity only
WHISMAN-MONTA VISTA 115KV [1010]	WHISMAN-MONTA VISTA 115KV [1010]	P1	N-1	72	81	101	51	75	79	61	48	156	89	23	80	107	159	Continue to monitor
	BRITTON-MONTA VISTA 115KV [1170]	P1	N-1	66	73	90	45	67	73	52	42	139	77	22	72	103	142	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Mountain View-Monta Vista 115 kV Line	NEWARK D 230KV SECTION 1D	P2	Bus	73	80	110	48	72	85	55	45	156	85	27	80	110	164	Invalid results. Inaccurate contingency definition.
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	78	70	96	46	60	68	53	35	Diverge	78	26	70	107	Diverge	Sensitivity only
	NEWARK D 230KV - SECTION 2D & 1D	P2	Breaker	NA	78	107	NA	67	81	NA	40	Diverge	NA	NA	78	114	Diverge	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	61	71	96	41	64	70	48	38	Diverge	70	21	71	102	Diverge	Sensitivity only
	MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Breaker	NA	70	89	NA	63	69	NA	35	Diverge	NA	NA	69	101	Diverge	Sensitivity only
	RUSCTYECTS1 18.00KV & RUSCTYECTC2 15.00KV & RUSCTYECTC1 15.00KV GEN UNITS and WHISMAN-MONTA VISTA 115KV [1010]	P3	G-1/N-1	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	111	Diverge	Continue to monitor
	WHISMAN-MONTA VISTA 115KV [1010] and JEFFERSN-EGBERTSWSTA 230KV [0]	P6	N-1-1	< 100	102	120	< 100	< 100	< 100	< 100	< 100	171	< 100	< 100	101	< 100	NA	Mitigation under development.
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	82	87	Diverge	52	77	82	60	48	Diverge	96	30	84	116	Diverge	Sensitivity only
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	79	87	107	51	81	88	61	47	Diverge	90	27	86	105	Diverge	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	91	81	109	47	72	84	56	46	Diverge	92	27	81	110	Diverge	Continue to monitor
Monta Vista 230/115 kV Trans No. 2	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	83	82	105	47	73	81	57	43	141	87	23	82	111	171	Continue to monitor
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	76	82	103	49	74	82	58	47	Diverge	88	25	82	121	Diverge	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	79	87	107	51	81	88	61	47	Diverge	90	27	86	105	Diverge	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	66	75	96	45	68	74	53	40	Diverge	76	22	75	109	Diverge	Sensitivity only
	MONTAVIS 230/115KV TB 4	P1	N-1	63	68	86	49	65	70	45	34	106	60	29	68	101	114	Continue to monitor
	MONTAVIS 230KV - Section 2E & 2D	P2	Breaker	83	88	118	58	81	87	55	38	135	78	33	88	134	148	Continue to monitor
	MONTAVIS 230/115KV TB 3 and MONTAVIS 230/115KV TB 4	P6	N-1-1	< 100	102	120	< 100	< 100	104	< 100	< 100	162	< 100	< 100	102	136	NA	Potential new project in the long-term. Operation solution in the interim.
Monta Vista 230/115 kV Trans No. 3	MONTAVIS 230KV - Section 1D & 2D	P2	Breaker	81	86	108	59	79	85	55	38	133	74	35	87	125	145	Continue to monitor
Monta Vista 230/115 kV Trans No. 4	MONTAVIS 230/115KV TB 4 and MONTAVIS 230/115KV TB 2	P6	N-1-1	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	148	< 100	< 100	< 100	129	NA	Continue to monitor
	MONTAVIS 230/115KV TB 2	P1	N-1	64	69	86	47	65	70	45	32	107	61	28	69	101	115	Continue to monitor
	MONTAVIS 230/115KV TB 2 and MONTAVIS 230/115KV TB 3	P6	N-1-1	< 100	103	121	< 100	< 100	105	< 100	< 100	152	< 100	< 100	103	138	NA	Potential new project in the long-term. Operation solution in the interim.
Britton-Monta Vista 115 kV Line	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	53	68	NA	53	61	NA	34	Diverge	NA	NA	54	109	Diverge	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	57	67	NA	56	65	NA	37	Diverge	NA	NA	57	106	Diverge	Sensitivity only
	COMPONENT_SW-TRIMBLE #1 115KV [0]	P1	N-1	NA	53	62	NA	53	61	NA	34	< 100	NA	NA	54	109	< 100	Sensitivity only
	PIERCY-METCALF 115KV [4318]	P1	N-1	NA	58	69	NA	57	66	NA	34	Diverge	NA	NA	58	111	Diverge	Sensitivity only
	NEWARK E 230/115KV TB 11	P1	N-1	59	58	67	38	55	66	36	34	Diverge	59	26	58	107	Diverge	Sensitivity only
	DVRaGT1 13.80KV & DVrbGT2 13.80KV & DVraST3 13.80KV Gen Units	P1	N-1	53	53	62	35	53	61	33	34	Diverge	54	22	54	102	Diverge	Sensitivity only
	SSS-NRSrser SVP 230 KV path	P1	N-1	55	56	64	35	53	61	33	34	< 100	56	22	54	101	< 100	Sensitivity only
	Loss of PST 230 KV Path	P1	N-1	55	56	64	35	53	61	33	34	< 100	56	22	54	101	< 100	Sensitivity only
	NEWARK-APPLIED MATERIALS 115KV [2980] (NEWARK F-LCKHD J2)	P2	Line Section w/o Fault	86	87	89	59	83	104	49	57	116	78	49	88	147	117	Continue to monitor
	RUSCTYECTS1 18.00KV & RUSCTYECTC2 15.00KV & RUSCTYECTC1 15.00KV GEN UNITS and PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	105	NA	Sensitivity only
	MTN VIEW-MONTA VISTA 115KV [2920] and WHISMAN-MONTA VISTA 115KV [1010]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	114	Diverge	Sensitivity only
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	69	60	73	38	59	69	37	38	Diverge	63	26	60	111	Diverge	Sensitivity only
Newark-Lawrence 115 kV Line	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	69	65	77	41	63	73	40	39	103	65	26	65	116	123	Continue to monitor
	Whisman-Monta Vista & Mountain View-Monta Vista 115 KV Line	P7	DCTL	68	69	84	44	69	77	45	43	Diverge	73	26	70	122	Diverge	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	63	61	72	40	59	69	39	38	Diverge	64	26	61	111	Diverge	Sensitivity only
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	62	64	76	40	62	72	39	37	Diverge	62	26	64	123	Diverge	Sensitivity only
	Newark-Lawrence 115 KV and Newark-Applied Materials 115 KV lines	P7	DCTL	67	67	63	35	40	53	47	44	< 100	67	47	68	111	< 100	Sensitivity only
	LOCKHD 1 115KV Section 1E	P2	Bus	64	64	59	32	37	50	43	41	< 100	63	43	64	106	< 100	Sensitivity only
	LAWRENCE - 1D 115KV & NEWARK F-LAWRENCE-LOCKHD 1 line	P2	Breaker	63	63	59	32	37	50	43	41	< 100	63	43	64	106	< 100	Sensitivity only
	LOCKHD 1 - 1E 115KV & NEWARK F-LAWRENCE-LOCKHD 1 line	P2	Breaker	64	64	59	32	37	50	43	41	< 100	63	43	64	106	< 100	Sensitivity only
	Base Case	P0	Base Case	76	83	115	49	66	98	39	9	205	35	38	84	114	204	Continue to monitor
	RUSCTYECTS1 18.00KV & RUSCTYECTC2 15.00KV & RUSCTYECTC1 15.00KV GEN UNITS	P1	N-1	68	73	100	49	66	87	34	8	Diverge	31	34	75	102	Diverge	Continue to monitor
Loyola-Monta Vista 60 kV Line	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	73	100	NA	66	87	NA	8	Diverge	NA	NA	75	102	Diverge	Continue to monitor
	MONTAVIS 230KV - Section 1D & 2D	P2	Breaker	68	73	102	49	66	87	34	8	Diverge	31	34	75	105	Diverge	Continue to monitor
	TABLE MT-VACA-DIX 500KV and VACA-DIX-TESLA 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	149	Continue to monitor
	PIERCY-METCALF 115KV [4318]	P1	N-1	NA	67	97	NA	43	55	NA	8	162	NA	NA	68	176	163	Continue to monitor
	MTCALF E 115KV Section 2E	P2	Bus	NA	67	97	NA	43	55	NA	8	163	NA	NA	68	177	164	Continue to monitor
	MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Breaker	NA	67	97	NA	43	55	NA	8	164	NA	NA	68	179	164	Continue to monitor
	RUSCTYECTS1 18.00KV & RUSCTYECTC2 15.00KV & RUSCTYECTC1 15.00KV GEN UNITS and PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	131	NA	Sensitivity only
	PIERCY-METCALF 115KV [4318] and NEWARK E 230/115KV TB 11	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	136	< 100	< 100	< 100	138	NA	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Newark-Kifer 115 kV Line(Newark-Zinker J2)	Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	64	67	98	32	43	55	31	8	161	33	31	69	185	161	Continue to monitor
	Northern - Scott #1 and #2 115 kV Lines	P7	DCTL	101	21	43	54	21	23	63	36	< 100	90	71	19	76	< 100	Potential San Jose area long-term transmission upgrade
	PGAE lines but internal to SVP - NRS-SRS#2 115 kV and NRS-SRS#1 115 kV	P7	DCTL	101	21	43	54	21	23	63	36	< 100	90	71	19	76	< 100	Potential San Jose area long-term transmission upgrade
Zanker - Component SW 115 kV line	COMPONENT_SW-TRIMBLE #1 115KV [0]	P1	N-1	NA	25	51	NA	23	50	NA	25	< 100	NA	NA	25	310	< 100	Sensitivity only
	TRIMBLE 115KV Section 1F	P2	Bus	NA	25	51	NA	23	50	NA	25	< 100	NA	NA	25	307	< 100	Sensitivity only
	COMPONENT_SW 115KV - Middle Breaker Bay 2	P2	Breaker	NA	25	51	NA	23	50	NA	25	< 100	NA	NA	25	310	< 100	Sensitivity only
	LECEFTS1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and COMPONENT_SW-TRIMBLE #1 115KV [0]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	211	NA	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	NA	40	68	NA	4	20	NA	3	Diverge	NA	NA	41	126	Diverge	Sensitivity only
	Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	NA	47	60	NA	14	31	NA	2	82	NA	NA	49	222	83	Sensitivity only
Montague-Trimble 115 kV Line	Los Esteros - Trimble & Montague - Trimble 115 kV Line	P7	DCTL	NA	25	34	NA	15	18	NA	22	< 100	NA	NA	25	180	< 100	Sensitivity only
	LOS ESTEROS-TRIMBLE 115KV [2550]	P1	N-1	NA	20	23	NA	13	25	NA	6	< 100	NA	NA	21	130	< 100	Sensitivity only
	TRIMBLE 115KV Section 1D	P2	Bus	NA	17	20	NA	12	24	NA	8	< 100	NA	NA	18	125	< 100	Sensitivity only
	LS ESTRS 115KV - Middle Breaker Bay 4	P2	Breaker	NA	20	23	NA	13	25	NA	6	< 100	NA	NA	21	130	< 100	Sensitivity only
	MTCALF E1-25 25.00KV Gen Unit En and LOS ESTEROS-TRIMBLE 115KV [2550]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	120	NA	Sensitivity only
	LOS ESTEROS-TRIMBLE 115KV [2550] and TRIMBLE-SAN JOSE B 115KV [4030]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	164	Diverge	Sensitivity only
Trimble - San Jose B - DG 115 kV line	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	NA	69	78	NA	69	68	NA	79	Diverge	NA	NA	68	112	Diverge	Sensitivity only
	LS ESTRS1-25 25.00KV Gen Unit En and FMC-SAN JOSE B 115KV [2021]	P3	G-1/N-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	132	Diverge	Potential San Jose area long-term transmission upgrade
	FMC-SAN JOSE B 115KV [2021] and LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	< 100	104	125	< 100	116	117	< 100	105	Diverge	< 100	< 100	101	145	Diverge	Potential San Jose area long-term transmission upgrade
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	NA	72	83	NA	80	77	NA	83	Diverge	NA	NA	70	108	Diverge	Sensitivity only
El Patio-San Jose Sta. 'A' 115 kV Line	Newark - Kifer & FMC - Kifer 115 kV Lines	P7	DCTL	NA	69	86	NA	85	86	NA	87	Diverge	NA	NA	67	113	Diverge	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	47	65	NA	33	50	NA	22	90	NA	NA	47	102	96	Sensitivity only
	Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	68	34	60	33	25	34	46	44	102	69	30	34	102	108	Potential San Jose area long-term transmission upgrade
	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	76	36	65	33	24	35	47	34	92	76	32	36	103	98	Sensitivity only
FMC-San Jose 'B' 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	142	NA	NA	107	NA	NA	120	NA	NA	147	112	NA	NA	NA	Project: NRS rebuild
Kifer-FMC 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	116	NA	NA	89	NA	NA	101	NA	NA	123	93	NA	NA	NA	Project: NRS rebuild
San Jose B - FMC 115 kV line	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	67	95	NA	66	79	NA	52	Diverge	NA	NA	67	113	Diverge	Sensitivity only
	TRIMBLE-SAN JOSE B 115KV [4030]	P1	N-1	NA	69	88	NA	71	83	NA	62	< 100	NA	NA	69	102	< 100	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	NA	63	88	NA	59	78	NA	33	< 100	NA	NA	64	105	< 100	Sensitivity only
	SSS 230/230KV TB 1	P1	N-1	NA	71	93	NA	66	79	NA	52	124	NA	NA	70	106	NA	Continue to monitor
	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	69	95	NA	68	82	NA	55	Diverge	NA	NA	70	114	Diverge	Sensitivity only
	NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Breaker	NA	70	105	NA	68	82	NA	54	134	NA	NA	70	116	141	Potential San Jose area long-term transmission upgrade
	LS ESTRS 230KV - Middle Breaker Bay 8	P2	Breaker	NA	71	93	NA	66	79	NA	52	124	NA	NA	70	106	NA	Continue to monitor
	NEWARK D 230KV - SECTION 2D & 1D	P2	Breaker	NA	61	85	NA	57	73	NA	41	Diverge	NA	NA	61	105	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and TRIMBLE-SAN JOSE B 115KV [4030]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	105	NA	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032] and SSS 230/230KV TB 1	P6	N-1-1	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	136	NA	Potential San Jose area long-term transmission upgrade
El Patio-San Jose Sta. 'A' 115 kV Line	Newark-Northern Nos. 1 & 2 115 kV lines	P7	DCTL	NA	53	78	NA	50	68	NA	31	< 100	NA	NA	54	103	129	Sensitivity only
	Newark - Northern #1 & #2 115 kV Lines	P7	DCTL	NA	53	78	NA	50	68	NA	31	< 100	NA	NA	54	103	129	Sensitivity only
	Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	NA	69	92	NA	66	80	NA	45	Diverge	NA	NA	69	114	Diverge	Sensitivity only
	SAN JOSE B-STONE-EVERGREEN 115KV [1550]	P1	N-1	NA	24	46	NA	39	30	NA	62	102	NA	NA	24	102	108	Continue to monitor
	MTCALF E 115KV Section 1E	P2	Bus	95	NA	NA	64	NA	NA	67	NA	NA	101	43	NA	NA	NA	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	77	32	63	46	16	33	48	48	Diverge	78	35	32	107	Diverge	Sensitivity only
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	80	34	70	46	17	35	48	48	Diverge	77	35	35	115	Diverge	Sensitivity only
	EVGRN 1 115KV - Section 1D & 2D	P2	Breaker	NA	30	51	NA	39	33	NA	60	111	NA	NA	30	108	117	Continue to monitor
	EVGRN 1 115KV - Section 1D & 1E	P2	Breaker	NA	29	50	NA	39	32	NA	60	108	NA	NA	28	107	114	Continue to monitor
	METCALF 230KV - Section 1D & 2D	P2	Breaker	68	31	69	45	26	36	49	46	Diverge	76	25	30	107	Diverge	Sensitivity only
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	102	NA	NA	69	NA	NA	74	NA	NA	103	59	NA	NA	NA	Project: NRS rebuild
	NEWARK E-F BUS TIE 230KV [4640] and LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	109	< 100	< 100	< 100	Diverge	Potential San Jose area long-term transmission upgrade
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	84	39	75	48	40	42	52	48	119	82	29	39	118	129	Potential San Jose area long-term transmission upgrade



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
San Jose Sta 'A'- 'B' 115 kV Line	Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	71	36	63	47	40	40	50	49	Diverge	74	30	36	115	Diverge	Sensitivity only
	Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	69	31	53	46	17	34	48	18	Diverge	72	32	31	120	Diverge	Sensitivity only
	METCALF-EL PATIO #1 115KV [2500] and METCALF-EL PATIO #2 115KV [2510]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	132	Diverge	Potential San Jose area long-term transmission upgrade
	Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	NA	71	87	NA	40	57	NA	18	122	NA	NA	72	143	123	Potential San Jose area long-term transmission upgrade
	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	NA	40	85	NA	22	41	NA	53	121	NA	NA	39	104	128	Potential San Jose area long-term transmission upgrade
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	102	NA	NA	63	NA	NA	78	NA	NA	107	61	NA	NA	NA	Project: NRS rebuild
San Jose 'B'-Stone-Evergreen 115 kV Line	EL PATIO-SAN JOSE A 115KV [1520] and SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	136	NA	Sensitivity only
	Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	NA	23	57	NA	29	31	NA	53	101	NA	NA	23	107	107	Potential San Jose area long-term transmission upgrade
	Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	NA	81	97	NA	44	59	NA	10	153	NA	NA	82	104	155	Potential San Jose area long-term transmission upgrade
Metcalf-El Patio No. 1 115 kV Line	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	58	77	NA	42	54	NA	20	Diverge	NA	NA	59	106	Diverge	Sensitivity only
	MTCALF D 115KV Section 2D	P2	Bus	NA	54	64	NA	36	49	NA	29	113	NA	NA	55	104	128	Potential San Jose area long-term transmission upgrade
	MTCALF D - 2D 115KV & METCALF-EL PATIO #2 line	P2	Breaker	NA	54	64	NA	36	49	NA	29	113	NA	NA	55	104	128	Potential San Jose area long-term transmission upgrade
	MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Breaker	NA	61	76	NA	40	55	NA	30	129	NA	NA	61	123	135	Potential San Jose area long-term transmission upgrade
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and METCALF-EL PATIO #2 115KV [2510]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	102	NA	Sensitivity only
	METCALF-EL PATIO #2 115KV [2510] and SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	128	NA	Sensitivity only
	Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	73	49	70	38	32	43	44	26	Diverge	66	32	49	102	Diverge	Sensitivity only
Metcalf-El Patio No. 2 115 kV Line	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	78	51	73	38	32	44	45	20	Diverge	71	34	51	102	Diverge	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	58	77	NA	43	54	NA	20	Diverge	NA	NA	59	106	Diverge	Sensitivity only
	MTCALF D 115KV Section 1D	P2	Bus	NA	60	74	NA	41	55	NA	28	129	NA	NA	60	111	136	Potential San Jose area long-term transmission upgrade
	MTCALF D - 1D 115KV & METCALF-EL PATIO #1 line	P2	Breaker	NA	60	74	NA	41	55	NA	28	129	NA	NA	60	111	136	Potential San Jose area long-term transmission upgrade
	MTCALF D - 1D 115KV & ST TRESA-MTCALF D line	P2	Breaker	NA	61	75	NA	42	56	NA	27	130	NA	NA	61	112	138	Potential San Jose area long-term transmission upgrade
	MTCALF D - 1D 115KV & METCALF-EDENVALE #2 line	P2	Breaker	NA	60	74	NA	41	55	NA	28	129	NA	NA	60	111	136	Potential San Jose area long-term transmission upgrade
	MTCALF D Section 1D & MTCALF E Section 1E 115KV	P2	Breaker	NA	66	86	NA	45	61	NA	29	140	NA	NA	67	128	146	Potential San Jose area long-term transmission upgrade
Swift-Metcalf 115 kV Line	Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	73	49	70	39	32	43	44	26	Diverge	66	32	49	102	Diverge	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	78	51	73	39	33	44	45	20	Diverge	71	34	51	102	Diverge	Sensitivity only
	PIERCY-METCALF 115KV [4318]	P1	N-1	NA	64	84	NA	53	63	NA	23	Diverge	NA	NA	64	104	Diverge	Sensitivity only
	MTCALF E 115KV Section 2E	P2	Bus	NA	66	93	NA	54	63	NA	21	Diverge	NA	NA	66	112	Diverge	Sensitivity only
	NEWARK F - 1F 115KV & NEWARK-MILPITAS #1 LINE	P2	Breaker	67	65	85	44	50	60	44	23	128	55	32	65	112	132	Continue to monitor
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	101	103	139	55	71	86	54	39	176	66	54	104	227	177	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potenti rescope as part of the San Jose long-term transmission solution.
	MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Breaker	NA	66	94	NA	54	64	NA	21	Diverge	NA	NA	67	114	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	103	NA	Sensitivity only
	PIERCY-METCALF 115KV [4318] and LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	108	Diverge	Sensitivity only
	Tesla-Newark No.1 and Tesla-Ravenswood 230 kV lines	P7	DCTL	79	66	89	45	54	66	46	26	Diverge	66	30	66	104	Diverge	Sensitivity only
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	76	68	90	46	56	67	48	25	130	66	29	69	107	151	Potential San Jose area long-term transmission upgrade
	Trimble - San Jose B & FMC - San Jose B 115 kV Lines	P7	DCTL	61	65	85	43	55	66	45	28	Diverge	59	25	65	103	Diverge	Sensitivity only
	NEWARK-DIXON LANDING 115KV [2990]	P1	N-1	NA	95	127	NA	58	73	NA	19	196	NA	NA	97	134	197	Potential San Jose area long-term transmission upgrade
	NEWARK F 115KV SECTION 2F	P2	Bus	NA	95	127	NA	58	73	NA	19	196	NA	NA	97	135	197	Potential San Jose area long-term transmission upgrade
	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	NA	95	127	NA	58	73	NA	19	196	NA	NA	97	135	197	Potential San Jose area long-term transmission upgrade
	NEWARK F - 2F 115KV & NEWARK F-LOCKHD 2-APP MAT LINE	P2	Breaker	NA	95	127	NA	58	73	NA	19	197	NA	NA	97	134	198	Potential San Jose area long-term transmission upgrade



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
McKee-Piercy 115 kV Line	NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Breaker	NA	95	127	NA	58	73	NA	19	196	NA	NA	97	135	197	Potential San Jose area long-term transmission upgrade
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	NA	95	129	NA	58	73	NA	19	Diverge	NA	NA	97	146	Diverge	Potential San Jose area long-term transmission upgrade
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK-DIXON LANDING 115KV [2990]	P3	G-1/N-1	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	113	Diverge	Potential San Jose area long-term transmission upgrade
	NEWARK-DIXON LANDING 115KV [2990] and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	114	Diverge	Potential San Jose area long-term transmission upgrade
	Newark-Dixon Landing 115 KV and Newark-Milpitas No. 1 115 KV lines	P7	DCTL	NA	95	127	NA	58	73	NA	19	NA	NA	NA	97	134	217	Potential San Jose area long-term transmission upgrade
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	NA	77	103	NA	63	77	NA	28	Diverge	NA	NA	78	105	Diverge	Potential San Jose area long-term transmission upgrade
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	NA	81	104	NA	65	78	NA	27	Diverge	NA	NA	81	109	Diverge	Potential San Jose area long-term transmission upgrade
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	NA	76	98	NA	64	77	NA	31	Diverge	NA	NA	76	104	Diverge	Sensitivity only
Metcalf-Evergreen No. 1 115 kV Line	Newark - Dixon Landing & Newark - Milpitas #1 115 KV Lines	P7	DCTL	NA	95	127	NA	58	73	NA	19	NA	NA	NA	97	134	217	Potential San Jose area long-term transmission upgrade
	MTCALF E 115KV Section 2E	P2	Bus	NA	NA	NA	NA	NA	NA	NA	NA	123	NA	NA	NA	108	127	Potential San Jose area long-term transmission upgrade
	MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Breaker	NA	NA	NA	NA	NA	NA	NA	NA	136	NA	NA	NA	120	141	Potential San Jose area long-term transmission upgrade
	EL PATIO-SAN JOSE A 115KV [1520] and EVGRN 1-MTCALF E #2 115KV [0]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	126	< 100	< 100	< 100	111	NA	Potential San Jose area long-term transmission upgrade
Metcalf-Evergreen No. 2 115 kV Line	MTCALF D Section 1D & MTCALF E Section 1E 115KV	P2	Breaker	NA	58	78	NA	37	49	NA	25	119	NA	NA	59	102	124	Potential San Jose area long-term transmission upgrade
	EL PATIO-SAN JOSE A 115KV [1520] and METCALF-EVERGREEN #1 115KV [2520]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127	< 100	< 100	< 100	112	NA	Potential San Jose area long-term transmission upgrade
Metcalf 230/115 kV Trans No. 1	METCALF 230/115KV TB 2 and METCALF 230/115KV TB 4	P6	N-1-1	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	104	Diverge	Potential San Jose area long-term transmission upgrade
Metcalf 230/115 kV Trans No. 4	METCALF 230/115KV TB 2 and METCALF 230/115KV TB 1	P6	N-1-1	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	104	Diverge	Potential San Jose area long-term transmission upgrade
Metcalf-Morgan Hill 115 kV Line	GROYPKR1 13.80KV Gen Unit 1 and GREENVALLEY-MRGN HIL #1 115KV [0]	P3	G-1/N-1	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: Morgan Hill area reinforcement. Under review
	AWSGILROYSS-LLAGAS #1 115KV [0] and GREENVALLEY-MRGN HIL #1 115KV [0]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	119	< 100	< 100	< 100	144	NA	Project: Morgan Hill area reinforcement. Under review
Metcalf-El Patio No. 2 115 kV Line	Base Case	P0	Base Case	89	58	80	36	31	51	54	36	147	82	40	58	118	153	Potential San Jose area long-term transmission upgrade
	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	56	78	NA	32	50	NA	29	Diverge	NA	NA	56	119	Diverge	Sensitivity only
	METCALF-EL PATIO #1 115KV [2500]	P1	N-1	105	67	94	46	37	59	64	68	160	97	47	40	141	171	Project: South Bay Area Limiting Elements Upgrade Long-term: Potential San Jose area transmission upgrade
	METCALF-EVERGREEN #1 115KV [2520]	P1	N-1	NA	56	79	NA	31	50	NA	34	135	NA	NA	57	117	144	Potential San Jose area long-term transmission upgrade
	EVGRN 1-MTCALF E #2 115KV [0]	P1	N-1	NA	56	79	NA	31	50	NA	34	135	NA	NA	57	117	144	Potential San Jose area long-term transmission upgrade
	DVRaGT1 13.80kV & DVRBgT2 13.80kV & DVRaST3 13.80kV Gen Units	P1	N-1	82	54	74	37	27	48	51	2	Diverge	76	38	54	110	Diverge	Sensitivity only
	TESLA-LOS BANOS 500kV	P1	N-1	78	51	70	34	26	47	47	3	Diverge	72	35	51	104	Diverge	Sensitivity only
	SSS-NRSriser SVP 230 kV path	P1	N-1	83	56	76	37	32	49	52	1	< 100	77	39	56	112	< 100	Sensitivity only
	Loss of PST 230 kV Path	P1	N-1	83	56	76	37	32	49	52	1	< 100	77	39	56	112	< 100	Sensitivity only
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	85	54	74	39	27	48	54	2	Diverge	78	41	54	109	Diverge	Sensitivity only
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	113	NA	NA	52	NA	NA	72	NA	NA	103	61	NA	NA	NA	Project: NRS rebuild
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SANJOSEHVDC-SANJOSEB #1 115KV [0]	P3	G-1/N-1	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	146	Diverge	Potential San Jose area long-term transmission upgrade
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	98	65	94	40	36	58	56	0	Diverge	87	38	66	131	Diverge	Sensitivity only
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	88	62	87	39	35	56	54	2	Diverge	81	39	63	130	Diverge	Sensitivity only
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	87	58	79	39	31	51	53	31	Diverge	79	41	59	137	Diverge	Sensitivity only
	PGAE lines but internal to SVP - NRS-SRS#2 115 kV and NRS-SRS#1 115 kV	P7	DCTL	87	52	72	39	29	44	55	31	< 100	80	42	52	107	< 100	Sensitivity only
Metcalf-Llagas 115 kV Line	GROYPKR1 13.80KV Gen Unit 1 and MRGN HIL-AWSGILROYSS #1 115KV [0]	P3	G-1/N-1	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: Morgan Hill area reinforcement. Under review
	LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV [0] and MRGN HIL-AWSGILROYSS #1 115KV [0]	P6	N-1-1	< 100	< 100	136	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	115	Diverge	Project: Morgan Hill area reinforcement. Under review
	METCALF 230KV Section 2D	P2	Bus	104	79	97	48	65	69	52	32	115	83	41	80	103	120	Potential San Jose area long-term transmission upgrade



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Metcalf 230/115 kV Trans No. 2	METCALF 230KV - Section 1D & 2D	P2	Breaker	106	82	99	50	68	72	54	32	125	85	42	83	106	127	Potential San Jose area long-term transmission upgrade
	METCALF 230KV - Section 2D & 2E	P2	Breaker	106	75	96	49	61	70	53	32	112	84	43	76	99	116	Potential San Jose area long-term transmission upgrade
	MTCALF E1-25 25.00KV Gen Unit En and METCALF 230/115KV TB 4	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	104	NA	Sensitivity only
	METCALF 230/115KV TB 1 and METCALF 230/115KV TB 4	P6	N-1-1	127	< 100	111	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	117	Diverge	Potential San Jose area long-term transmission upgrade
Metcalf 230/115 kV Trans No. 3	METCALF 230KV Section 2D	P2	Bus	101	77	94	47	63	67	51	31	112	80	40	78	100	116	Potential San Jose area long-term transmission upgrade
	METCALF 230KV - Section 1D & 2D	P2	Breaker	103	80	96	48	66	70	52	31	121	82	41	81	103	123	Potential San Jose area long-term transmission upgrade
	METCALF 230KV - Section 2D & 2E	P2	Breaker	103	73	93	48	59	68	52	31	109	82	41	74	96	113	Potential San Jose area long-term transmission upgrade
	MTCALF E1-25 25.00KV Gen Unit En and METCALF 230/115KV TB 4	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	100	NA	Sensitivity only
	METCALF 230/115KV TB 4 and METCALF 230/115KV TB 2	P6	N-1-1	124	< 100	109	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	115	Diverge	Potential San Jose area long-term transmission upgrade
Morgan Hill - AWS Gilroy 115 kV Line	GROYPKR1 13.80KV Gen Unit 1 and MTCALF D-LLAGAS 115KV [0]	P3	G-1/N-1	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	< 100	NA	Project: Morgan Hill area reinforcement. Under review
	LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV [0] and MTCALF D-LLAGAS 115KV [0]	P6	N-1-1	< 100	102	143	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	103	122	105	Project: Morgan Hill area reinforcement. Under review
	Metcalf - Morgan Hill & Metcalf - Llagas 115 KV Lines	P7	DCTL	0	28	158	0	13	63	0	42	NA	0	0	27	16	NA	Project: Morgan Hill area reinforcement. Under review
Piercy-Metcalf 115 kV Line	Base Case	P0	Base Case	68	60	77	40	47	56	44	16	139	57	29	60	113	141	Potential San Jose area long-term transmission upgrade
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	72	63	82	44	49	59	44	16	Diverge	57	32	64	121	Diverge	Sensitivity only
	TESLA-NEWARK #2 230KV [5354]	P1	N-1	74	64	83	42	49	60	49	16	Diverge	61	29	64	121	Diverge	Sensitivity only
	NEWARK-DIXON LANDING 115KV [2990]	P1	N-1	106	81	109	49	49	62	50	13	168	65	50	82	150	169	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	COMPONENT_SW-TRIMBLE #1 115KV [0]	P1	N-1	NA	60	77	NA	47	56	NA	16	< 100	NA	NA	60	121	< 100	Sensitivity only
	SWIFT-METCALF 115KV [3900]	P1	N-1	NA	66	86	NA	52	62	NA	18	Diverge	NA	NA	66	123	Diverge	Sensitivity only
	DVRaGT1 13.80kV & DVRbGT2 13.80kV & DVRaST3 13.80kV Gen Units	P1	N-1	68	60	77	40	47	56	44	16	Diverge	57	29	60	115	Diverge	Sensitivity only
	TRACY-LOSBANOS 500kV	P1	N-1	68	60	77	40	48	58	44	18	Diverge	57	29	60	113	Diverge	Sensitivity only
	TESLA-METCALF 500kV	P1	N-1	52	48	63	38	47	49	42	12	Diverge	40	17	47	101	Diverge	Sensitivity only
	TESLA-LOSBANOS 500kV	P1	N-1	68	60	77	40	48	59	49	18	Diverge	57	29	60	113	Diverge	Sensitivity only
	SSS-NRSrser SVP 230 kV path	P1	N-1	68	60	77	40	47	56	44	16	< 100	57	29	60	115	< 100	Sensitivity only
	Loss of PST 230 kV Path	P1	N-1	68	60	77	40	47	56	44	16	< 100	57	29	60	115	< 100	Sensitivity only
	NEWARK F 115KV SECTION 2F	P2	Bus	106	81	109	49	49	62	50	13	169	65	50	82	151	169	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	106	81	109	49	49	62	50	13	169	65	50	82	151	169	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	NEWARK F - 2F 115KV & NEWARK F-LOCKHD 2-APP MAT LINE	P2	Breaker	106	81	109	49	49	62	50	13	169	65	50	82	150	170	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	NEWARK F - 2F 115KV & NEWARK-TRIMBLE LINE	P2	Breaker	106	NA	NA	49	NA	NA	50	NA	186	65	50	NA	NA	183	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Breaker	NA	81	109	NA	49	62	NA	13	169	NA	NA	82	151	169	Potential San Jose area long-term transmission upgrade
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	107	81	111	49	49	62	50	13	Diverge	65	50	83	162	Diverge	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	68	60	77	40	47	56	44	16	Diverge	57	29	60	115	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK-DIXON LANDING 115KV [2990]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	132	NA	Sensitivity only



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay HI-load	2039 Greater Bay area Summer Peak	
Newark-Dixon Landing 115 KV and Newark-Milpitas No. 1 115 KV lines		P7	DCTL	106	81	109	49	49	62	50	13	NA	65	50	82	150	184	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	88	68	91	45	53	65	49	21	Diverge	69	34	68	128	Diverge	Sensitivity only
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	86	70	92	46	54	66	51	20	Diverge	69	32	71	131	Diverge	Sensitivity only
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	72	67	87	44	54	65	48	23	Diverge	63	29	67	127	Diverge	Sensitivity only
	Newark - Dixon Landing & Newark - Milpitas #1 115 KV Lines	P7	DCTL	106	81	109	49	49	62	50	13	NA	65	50	82	150	184	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade. Potential rescope as part of the San Jose long-term transmission solution.
	TRACY-LOSBANOS 500kV and TESLA-LOSBANOS 500kV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120	< 100	< 100	< 100	< 100	123	Potential San Jose area long-term transmission upgrade
LECEP Outage	LS ESTRS 115KV - Middle Breaker Bay 7	P2	Breaker	NA	82	6	NA	80	81	NA	41	98	NA	NA	82	101	99	Sensitivity only
Los Esteros 230/115 kV Trans No. 3	LS ESTRS 115KV - Middle Breaker Bay 7	P2	Breaker	NA	34	84	NA	16	28	NA	26	77	NA	NA	38	114	81	Sensitivity only
	LECEFTS1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and LS ESTRS 230/115KV TB 4	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	121	NA	Sensitivity only
	LS ESTRS 230/115KV TB 4 and SSS 230/230KV TB 1	P6	N-1-1	115	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	126	Diverge	Potential San Jose area long-term transmission upgrade
Los Esteros 230/115 kV Trans No. 4	LECEFTS1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and LS ESTRS 230/115KV TB 3	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	121	NA	Sensitivity only
	LS ESTRS 230/115KV TB 3 and SSS 230/230KV TB 1	P6	N-1-1	115	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	126	Diverge	Potential San Jose area long-term transmission upgrade
Los Esteros-Montague 115 kV Line	LOS ESTEROS-TRIMBLE 115KV [2550]	P1	N-1	NA	47	51	NA	24	39	NA	12	86	NA	NA	49	136	86	Sensitivity only
	TRIMBLE 115KV Section 1D	P2	Bus	NA	45	48	NA	23	37	NA	11	83	NA	NA	46	133	82	Sensitivity only
	LS ESTRS 115KV - Middle Breaker Bay 4	P2	Breaker	NA	47	51	NA	24	39	NA	12	86	NA	NA	49	136	86	Sensitivity only
	MTCALF E1-25 25.00KV Gen Unit En and LOS ESTEROS-TRIMBLE 115KV [2550]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	126	NA	Sensitivity only
	LOS ESTEROS-TRIMBLE 115KV [2550] and TRIMBLE-SAN JOSE B 115KV [4030]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	163	Diverge	Potential San Jose area long-term transmission upgrade
Los Esteros-Trimble 115 kV Line	Base Case	P0	Base Case	37	37	41	25	18	33	24	9	82	29	30	38	114	81	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	45	52	NA	31	41	NA	19	Diverge	NA	NA	46	129	Diverge	Sensitivity only
	MONTAGUE-TRIMBLE 115KV [2560]	P1	N-1	NA	31	36	NA	16	31	NA	9	< 100	NA	NA	30	131	< 100	Sensitivity only
	TRIMBLE-SAN JOSE B 115KV [4030]	P1	N-1	NA	44	50	NA	33	43	NA	24	< 100	NA	NA	45	124	< 100	Sensitivity only
	LOS ESTEROS-MONTAGUE 115KV [2380]	P1	N-1	NA	52	56	NA	29	43	NA	12	96	NA	NA	53	154	96	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	NA	39	48	NA	22	38	NA	2	< 100	NA	NA	41	122	< 100	Sensitivity only
	DVRaGT1 13.80KV & DVRbGT2 13.80KV & DVRaST3 13.80KV Gen Units	P1	N-1	33	33	36	25	18	29	21	8	Diverge	25	27	34	107	Diverge	Sensitivity only
	TESLA-METCALF 500KV	P1	N-1	39	38	43	25	18	32	21	7	Diverge	31	32	40	111	Diverge	Sensitivity only
	SSS-NRSriser SVP 230 kV path	P1	N-1	36	35	42	27	20	31	23	9	Diverge	29	29	36	112	Diverge	Sensitivity only
	Loss of PST 230 kV Path	P1	N-1	36	35	42	27	20	31	23	9	Diverge	29	29	36	112	Diverge	Sensitivity only
	MONTAGUE 115KV Section 1E	P2	Bus	48	47	51	35	26	41	31	11	< 100	37	38	49	149	< 100	Sensitivity only
	LS ESTRS 115KV - Middle Breaker Bay 5	P2	Breaker	NA	52	56	NA	29	43	NA	12	96	NA	NA	53	154	96	Sensitivity only
	MONTAGUE 115KV - Section 1F & 1E	P2	Breaker	35	36	39	30	20	34	25	9	< 100	25	32	37	137	< 100	Sensitivity only
	MONTAGUE 115KV - Section 1E & 1D	P2	Breaker	42	42	46	33	23	39	28	10	< 100	32	35	43	144	< 100	Sensitivity only
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	36	33	36	28	18	29	24	8	Diverge	28	30	34	107	Diverge	Sensitivity only
	MTCALF E1-25 25.00KV Gen Unit En and LOS ESTEROS-MONTAGUE 115KV [2380]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	146	NA	Sensitivity only
	LOS ESTEROS-MONTAGUE 115KV [2380] and TRIMBLE-SAN JOSE B 115KV [4030]	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	177	NA	Potential San Jose area long-term transmission upgrade
	Los Esteros - Montague 115 KV and Montague - Trimble 115 KV	P7	DCTL	35	36	39	30	20	34	25	9	< 100	25	32	37	137	< 100	Sensitivity only
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	30	43	49	21	32	41	19	23	Diverge	27	19	43	128	Diverge	Sensitivity only
	Trimble - San Jose B & Kifer - FMC 115 KV Lines	P7	DCTL	30	43	49	21	32	41	19	23	Diverge	27	20	44	127	Diverge	Sensitivity only
	Metcalf - El Patio No. 1 & 2 115 KV Lines	P7	DCTL	43	38	44	30	22	34	27	8	Diverge	35	30	40	119	Diverge	Sensitivity only
	Metcalf - Evergreen #1 and #2 115 KV Lines	P7	DCTL	39	38	43	28	21	33	25	8	Diverge	31	29	39	117	Diverge	Sensitivity only
Los Esteros - Nortech 115 kV line	Base Case	P0	Base Case	59	41	76	45	19	61	53	46	116	60	52	45	132	124	Potential San Jose area long-term transmission upgrade
	LECEFTS1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and NEWARKHVDC-NEWARK D #1 230KV [0]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	113	Diverge	Sensitivity only
	LOS ESTEROS-METCALF 230KV [5353] and SSS 230/230KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	135	Diverge	Sensitivity only
	TABLE MT-VACA-DIX 500kV and MOSSLAND-LOSBANOS 500kV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103	Potential San Jose area long-term transmission upgrade



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions	
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Nortech-NRS 115 kV Line	SSS 230/230KV TB 1	P1	N-1	80	68	81	83	47	84	88	18	118	81	87	69	105	120	Potential San Jose area long-term transmission upgrade	
	SSS-NRSrser SVP 230 kV path	P1	N-1	80	68	81	83	47	84	88	18	124	81	87	69	105	120	Potential San Jose area long-term transmission upgrade	
	Loss of PST 230 kV Path	P1	N-1	80	68	81	83	47	84	88	18	118	81	87	69	105	120	Potential San Jose area long-term transmission upgrade	
	NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Breaker	NA	54	78	NA	42	81	NA	25	126	NA	NA	59	101	129	Potential San Jose area long-term transmission upgrade	
	LS ESTRS 230KV - Middle Breaker Bay 8	P2	Breaker	80	68	81	83	47	84	88	18	118	81	87	69	105	120	Potential San Jose area long-term transmission upgrade	
	RUSCTYECT1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SSS 230/230KV TB 1	P3	G-1/N-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	111	Diverge	Potential San Jose area long-term transmission upgrade	
	SSS 230/230KV TB 1 and NEWARKHVDC-NEWARK D #1 230KV [0]	P6	N-1-1	< 100	115	120	< 100	< 100	122	< 100	< 100	Diverge	< 100	< 100	116	135	Diverge	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.	
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	63	45	78	62	26	65	55	48	Diverge	59	59	49	125	Diverge	Sensitivity only	
Evergreen 115/60 kV Transformer #1	Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	49	32	64	57	21	58	49	55	108	46	52	36	112	NA	Potential San Jose area long-term transmission upgrade	
Evergreen-Almaden 60 kV Line	MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	NA	73	107	NA	51	61	NA	8	140	NA	NA	74	110	141	Continue to monitor	
	MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	106	112	168	54	75	94	49	14	237	57	49	114	177	238	Disable automatics.	
	RUSCTYECT1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MONTA VISTA-LOS GATOS 60KV [7610]	P3	G-1/N-1	< 100	< 100	143	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	145	Diverge	Continue to monitor	
	TRACY-LOSBANOS 500KV and VACA-DIX-TESLA 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	Continue to monitor	
Green Valley - Morgan Hill 115 kV line	TESLA-METCALF 500KV and METCALF-MOSSLAND 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115	< 100	< 100	< 100	< 100	115	Continue to monitor	
	Metcalf - Morgan Hill & Metcalf - Llagas 115 KV Lines	P7	DCTL	NA	18	122	NA	26	6	NA	26	NA	NA	NA	19	32	NA	Project: Morgan Hill area reinforcement. Under review	
Moss Landing-Green Valley #1 115 kV Line	Metcalf - Morgan Hill & Metcalf - Llagas 115 KV Lines	P7	DCTL	28	42	117	27	55	34	18	13	NA	8	18	44	57	NA	Continue to monitor	
Moss Landing-Green Valley #2 115 kV Line	TESLA-METCALF 500KV and METCALF-MOSSLAND 500KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112	< 100	< 100	< 100	< 100	113	Continue to monitor	
Ringwood - Milpitas 115 kV Line	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	18	49	54	15	42	46	17	45	Diverge	18	17	49	136	Diverge	Sensitivity only	
Llagas - AWS Gilroy 115 kV line	LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV [0] and MTCALF D-LLAGAS 115KV [0]	P6	N-1-1	< 100	< 100	122	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	Diverge	Project: Morgan Hill area reinforcement. Under review	
Trimble - Componenet SW 115 kV line	NEWARK F-COMPONENT_SW 115KV [0]	P1	N-1	NA	25	50	NA	23	49	NA	25	< 100	NA	NA	25	231	< 100	Sensitivity only	
	COMPONENT_SW-NEWARK F 115KV [0]	P1	N-1	NA	25	50	NA	23	49	NA	25	< 100	NA	NA	25	231	< 100	Sensitivity only	
	DVRaGT1 13.80KV & DVRbGT2 13.80KV & DVRaST3 13.80KV Gen Units	P1	N-1	NA	27	40	NA	37	57	NA	34	Diverge	NA	NA	26	184	Diverge	Sensitivity only	
	SSS-NRSrser SVP 230 kV path	P1	N-1	NA	29	46	NA	39	60	NA	36	< 100	NA	NA	28	187	< 100	Sensitivity only	
	Loss of PST 230 kV Path	P1	N-1	NA	29	46	NA	39	60	NA	36	< 100	NA	NA	28	187	< 100	Sensitivity only	
	NRS T2 Spare	P1	N-1	NA	29	43	NA	39	60	NA	36	< 100	NA	NA	28	184	< 100	Sensitivity only	
	NEWARK F 115KV SECTION 2F	P2	Bus	NA	25	50	NA	22	48	NA	24	< 100	NA	NA	25	231	< 100	Sensitivity only	
	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	NA	25	50	NA	22	48	NA	24	< 100	NA	NA	25	231	< 100	Sensitivity only	
	NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Breaker	NA	25	50	NA	23	49	NA	25	< 100	NA	NA	25	231	< 100	Sensitivity only	
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	NA	25	50	NA	22	48	NA	25	Diverge	NA	NA	25	237	Diverge	Sensitivity only	
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	NA	27	40	NA	38	57	NA	34	Diverge	NA	NA	26	184	Diverge	Sensitivity only	
		LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units and COMPONENT_SW-NEWARK F 115KV [0]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	211	NA	Sensitivity only
		Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	NA	34	50	NA	44	63	NA	38	Diverge	NA	NA	34	192	Diverge	Sensitivity only
	McKee - Piercy & Milpitas - Swift 115 KV Lines	P7	DCTL	NA	39	55	NA	48	70	NA	41	Diverge	NA	NA	38	198	Diverge	Sensitivity only	
	NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	NA	67	110	NA	81	91	NA	61	Diverge	NA	NA	67	136	Diverge	Potential San Jose area long-term transmission upgrade	
	COMPONENT_SW-TRIMBLE #1 115KV [0]	P1	N-1	NA	54	80	NA	67	79	NA	47	< 100	NA	NA	53	119	< 100	Sensitivity only	
	TRIMBLE-SAN JOSE B 115KV [4030]	P1	N-1	NA	72	100	NA	90	98	NA	75	< 100	NA	NA	71	121	< 100	Potential San Jose area long-term transmission upgrade	
	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	NA	61	99	NA	69	91	NA	34	< 100	NA	NA	63	126	< 100	Sensitivity only	
	SSS 230/230KV TB 1	P1	N-1	33	74	108	43	81	92	46	60	148	58	30	72	127	NA	Potential San Jose area long-term transmission upgrade	
	DVRaGT1 13.80KV & DVRbGT2 13.80KV & DVRaST3 13.80KV Gen Units	P1	N-1	22	61	90	38	75	86	38	55	Diverge	47	12	61	111	Diverge	Sensitivity only	
	SSS-NRSrser SVP 230 kV path	P1	N-1	33	74	108	43	81	92	46	60	Diverge	58	30	72	127	Diverge	Potential San Jose area long-term transmission upgrade	
	Loss of PST 230 kV Path	P1	N-1	33	74	108	43	81	92	46	60	Diverge	58	30	72	127	Diverge	Potential San Jose area long-term transmission upgrade	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Kifer-FMC 115 kV Line	NRSHVDC-NRS 230KV [0] No Fault	P2	Line Section w/o Fault	NA	71	110	NA	85	96	NA	65	Diverge	NA	NA	71	137	Diverge	Potential San Jose area long-term transmission upgrade
	NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Breaker	NA	72	125	NA	84	96	NA	64	157	NA	NA	72	141	168	Potential San Jose area long-term transmission upgrade
	SANJOSEB 115KV - Middle Breaker Bay 1	P2	Breaker	NA	77	106	NA	94	103	NA	78	<100	NA	NA	76	127	155	Potential San Jose area long-term transmission upgrade
	LS ESTRS 230KV - Middle Breaker Bay 8	P2	Breaker	33	74	108	43	81	92	46	60	148	58	30	72	127	NA	Potential San Jose area long-term transmission upgrade
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	32	61	97	34	68	83	33	45	Diverge	46	7	61	129	Diverge	Sensitivity only
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	26	66	103	32	71	86	31	47	Diverge	45	21	67	117	Diverge	Potential San Jose area long-term transmission upgrade
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	39	60	88	49	74	84	51	56	Diverge	59	35	60	108	Diverge	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and TRIMBLE-SAN JOSE B 115KV [4030]	P3	G-1/N-1	<100	<100	108	<100	<100	101	<100	<100	Diverge	<100	<100	<100	127	Diverge	Potential San Jose area long-term transmission upgrade
	SSS 230/230KV TB 1 and LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	<100	109	<100	<100	103	130	<100	<100	NA	<100	<100	109	<100	NA	Interim: Operating solution (PST and HVDC setpoints adjustment). Long-term: Potential San Jose area long-term transmission upgrade.
	Newark-Northern Nos. 1 & 2 115 KV lines	P7	DCTL	22	46	83	35	53	71	32	30	<100	43	27	47	122	155	Sensitivity only
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	36	64	103	33	75	90	33	52	Diverge	51	5	64	117	Diverge	Potential San Jose area long-term transmission upgrade
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	37	74	110	36	82	96	37	53	146	54	4	74	122	176	Potential San Jose area long-term transmission upgrade
	Newark - Northern #1 & #2 115 KV Lines	P7	DCTL	22	46	83	35	53	71	32	30	<100	43	27	47	122	155	Sensitivity only
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	42	79	115	37	82	98	39	55	Diverge	63	21	78	130	Diverge	Potential San Jose area long-term transmission upgrade
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	26	71	107	37	81	94	38	50	151	49	5	71	139	165	Potential San Jose area long-term transmission upgrade
PGAE lines but internal to SVP - NRS-SRS#2 115 kV and NRS-SRS#1 115 kV	P7	DCTL	62	60	89	64	70	82	66	47	<100	81	51	60	105	<100	Potential San Jose area long-term transmission upgrade	
NRS-Scott No. 1 115 kV Line	new SVP 115kV line - NRS-KRS 115 kV	P1	N-1	NA	NA	82	NA	NA	65	NA	NA	97	NA	NA	NA	105	106	Potential San Jose area long-term transmission upgrade
	NRS 300 115 kV bus	P2	Bus	116	NA	NA	82	NA	NA	94	NA	NA	106	103	NA	NA	NA	Project: NRS rebuild
NRS 115/60 kV Bank #1	Base Case	P0	Base Case	65	45	82	53	37	67	56	22	92	64	57	45	110	93	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	40	73	NA	33	60	NA	19	Diverge	NA	NA	40	100	Diverge	Sensitivity only
	FMC-SAN JOSE B 115KV [2021]	P1	N-1	NA	40	76	NA	33	62	NA	19	Diverge	NA	NA	40	101	Diverge	Sensitivity only
	KIFER-FMC 115KV [2020]	P1	N-1	NA	40	75	NA	33	60	NA	19	Diverge	NA	NA	40	100	Diverge	Sensitivity only
	Kifer BESS Gen Unit	P1	N-1	67	40	75	55	33	62	58	19	Diverge	66	59	40	100	Diverge	Continue to monitor
	PGAE lines but internal to SVP - NRS-SRS#1 115 kV	P1	N-1	71	42	76	58	33	62	61	19	88	70	63	42	102	94	Sensitivity only
	PGAE lines but internal to P - NRS-SRS#2 115 kV	P1	N-1	71	42	76	58	33	62	61	19	<100	70	62	42	102	<100	Continue to monitor
	new SVP 115kV line - NRS-KRS 115 kV	P1	N-1	NA	NA	78	NA	NA	63	NA	NA	90	NA	NA	NA	104	96	Sensitivity only
	KIFER-FMC 115KV [2020] (FMC-FMC JCT)	P2	Line Section w/o Fault	NA	40	75	NA	33	60	NA	19	Diverge	NA	NA	40	100	Diverge	Sensitivity only
	FMC 115KV Section 1E	P2	Bus	NA	40	76	NA	33	62	NA	19	Diverge	NA	NA	40	101	Diverge	Sensitivity only
	SANJOSEB 115KV - Middle Breaker Bay 2	P2	Breaker	NA	40	76	NA	33	62	NA	19	Diverge	NA	NA	40	101	Diverge	Sensitivity only
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	67	40	73	53	33	60	56	19	Diverge	64	57	40	100	Diverge	Sensitivity only
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	67	40	76	55	33	62	57	19	Diverge	67	57	40	101	Diverge	Sensitivity only
Newark - Kifer & FMC - Kifer 115 KV Lines	P7	DCTL	68	40	76	53	33	62	56	19	88	68	57	40	102	94	Sensitivity only	
Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	65	40	73	53	33	60	56	19	Diverge	64	57	40	101	Diverge	Sensitivity only	
Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	65	40	73	53	33	60	56	19	<100	64	57	40	100	<100	Sensitivity only	
SRS 115/60 kV Bank #1 (SVP)	NRS 300 115 kV bus	P2	Bus	105	NA	NA	86	NA	NA	89	NA	NA	105	88	NA	NA	NA	Project: NRS rebuild
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	118	NA	NA	95	NA	NA	99	NA	NA	118	99	NA	NA	NA	Project: NRS rebuild
SRS 115/60 kV Bank #2 (SVP)	NRS 300 115 kV bus	P2	Bus	105	NA	NA	86	NA	NA	89	NA	NA	105	88	NA	NA	NA	Project: NRS rebuild
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	118	NA	NA	95	NA	NA	99	NA	NA	118	99	NA	NA	NA	Project: NRS rebuild
NRS-Scott No. 2 115 kV Line	new SVP 115kV line - NRS-KRS 115 kV	P1	N-1	NA	NA	82	NA	NA	66	NA	NA	98	NA	NA	NA	105	107	Potential San Jose area long-term transmission upgrade
Scott-Duane 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Breaker	131	NA	NA	96	NA	NA	101	NA	NA	129	101	NA	NA	NA	Project: NRS rebuild
NRS 230/115kV TB 1	LS ESTRS 230/115KV TB 3 and LS ESTRS 230/115KV TB 4	P6	N-1-1	107	<100	<100	<100	<100	<100	<100	<100	NA	<100	<100	<100	<100	NA	Potential San Jose area long-term transmission upgrade
	LECEFPST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV Gen Units	P1	N-1	NA	NA	80	NA	NA	68	NA	NA	Diverge	NA	NA	NA	102	Diverge	Sensitivity only
	SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	NA	56	80	NA	48	68	NA	35	Diverge	NA	NA	56	104	Diverge	Sensitivity only



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
KRS - Laurelwood 60 kV line	PIERCY-METCALF 115KV [4318]	P1	N-1	NA	56	80	NA	48	68	NA	35	Diverge	NA	NA	56	101	Diverge	Sensitivity only
	DVRaGT1 13.80kV & DVRbGt2 13.80kV & DVRaST3 13.80kV Gen Units	P1	N-1	40	56	80	34	48	68	35	35	Diverge	40	35	56	101	Diverge	Sensitivity only
	Kifer BESS Gen Unit	P1	N-1	42	56	80	34	48	68	35	35	Diverge	40	35	56	101	Diverge	Sensitivity only
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Breaker	36	56	80	30	48	68	31	35	Diverge	37	30	56	102	Diverge	Sensitivity only
	Trimble - San Jose B & Kifer - FMC 115 KV Lines	P7	DCTL	40	56	80	34	48	68	35	35	Diverge	40	35	56	102	Diverge	Sensitivity only
Multiple facility overloads. Highest loadings reported for each scenario.	APPLIED MATERIALS 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	67	67	63	99	35	40	53	47	44	47	67	68	110	99	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	BAIR 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	73	79	108	120	33	48	68	30	15	28	60	80	76	118	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	C. COSTA SUB 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	105	111	173	233	38	45	62	62	20	62	67	113	173	229	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	111	Diverge	49	66	101	52	58	61	98	99	Diverge	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	CLAREMONT (OAKLAND K) 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	118	123	144	177	93	111	135	80	77	80	101	125	136	169	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	80	106	Diverge	49	66	87	50	39	59	97	96	Diverge	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	EAST PORTAL 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	77	89	107	99	51	69	84	58	78	55	57	84	103	99	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	EAST SHORE 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	92	402	387	332	73	274	420	55	59	78	73	401	101	310	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	EASTSHORE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	92	271	387	332	73	78	420	55	45	78	73	282	101	310	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	103	215	282	Diverge	73	88	223	63	55	76	80	220	275	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	FMC 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	65	84	99	103	53	98	99	56	98	57	64	82	126	115	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	288	310	352	Diverge	170	228	349	162	84	161	158	313	353	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	LARKIN (SF Y) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	85	82	111	133	65	79	91	63	52	62	60	83	105	130	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	LAWRENCE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	63	63	59	99	32	37	50	43	41	43	63	64	106	99	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	LOS ESTEROS 115KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	104	103	108	Diverge	82	75	86	94	68	95	100	99	250	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	142	88	121	Diverge	56	91	105	62	64	83	108	87	179	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	141	91	108	Diverge	86	99	118	94	59	112	120	89	307	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	93	Diverge	Diverge	Diverge	44	Diverge	Diverge	41	50	41	56	Diverge	Diverge	Diverge	Install redundant battery supply



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
Multiple facility overloads. Highest loadings reported for each scenario.	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	101	103	116	Diverge	76	101	119	59	52	59	88	104	113	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MARTIN 230 KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	103	76	90	Diverge	62	72	93	48	32	48	83	77	80	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	123	103	158	Diverge	87	90	99	92	87	90	97	98	227	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	95	107	184	95	74	109	Diverge	Diverge	Diverge	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MISSION (SF X) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	88	53	74	91	61	85	101	48	50	48	83	54	72	90	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	77	82	103	Diverge	48	70	91	42	49	42	69	82	141	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	95	94	126	Diverge	65	94	128	59	59	49	90	96	146	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MONTAGUE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	35	36	39	99	30	20	34	25	9	32	25	37	137	99	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	220	224	266	Diverge	148	195	251	129	132	164	165	216	274	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	144	118	142	Diverge	75	82	136	78	73	162	103	158	148	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	139	103	158	Diverge	87	90	99	92	87	90	101	98	227	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	95	93	186	95	75	108	Diverge	Diverge	Diverge	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	114	155	Diverge	Diverge	69	76	167	83	74	78	105	162	Diverge	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	106	103	139	231	72	77	87	87	61	87	91	104	242	233	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	NORTECH 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	92	94	96	102	79	73	80	92	60	92	92	90	107	103	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	Newark 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	107	103	139	Diverge	76	83	103	90	91	93	97	105	232	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	OAKLAND X 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	109	113	135	173	90	105	126	95	93	95	96	115	128	132	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	79	82	147	Diverge	34	49	76	47	52	33	77	85	NA	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	84	74	131	Diverge	33	55	81	48	31	33	171	79	93	Diverge	Install redundant battery supply	
Multiple facility overloads. Highest loadings reported for each scenario.	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	240	112	203	Diverge	122	234	253	98	100	98	227	115	198	Diverge	Install redundant battery supply	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay HI-load	2039 Greater Bay area Summer Peak	
Multiple facility overloads. Highest loadings reported for each scenario.	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	95	75	115	134	66	91	116	53	47	53	83	77	103	134	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	415	424	430	Diverge	292	335	388	299	204	299	357	425	410	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	98	94	Diverge	Diverge	70	92	97	62	61	65	105	97	114	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	405	415	Diverge	Diverge	291	331	303	297	203	296	333	414	370	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	88	98	93	Diverge	73	80	81	88	78	86	89	93	128	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	SAN LEANDRO (OAK U) 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	88	102	Diverge	NA	56	107	NA	38	NA	NA	89	98	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	88	Diverge	Diverge	61	52	57	118	Diverge	Diverge	Diverge	Install redundant battery supply
Multiple facility overloads. Highest loadings reported for each scenario.	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	181	150	284	Diverge	140	107	224	149	29	149	105	198	267	Diverge	Install redundant battery supply



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)										Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
ALHAMBRA 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor
ALMADEN 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	0.95	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.76	> 0.9	> 0.9	> 0.9	0.93	0.76	Continue to monitor
ALMADEN 60.0 kV	P1-1:A16:6:_RUSCTYECST1 18.00kV & RUSCTYECCT2 15.00kV & RUSCTYECCT1 15.00kV GEN UNITS	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P1-1:5VP:1:_DVRaGT1 13.80kV & DVRbGT2 13.80kV & DVRaST3 13.80kV Gen Units	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	0.87	Continue to monitor
ALMADEN 60.0 kV	P1-1:5VP:2:_Gia100 13.80kV & Gia200 13.8 Gen Units	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	0.74	Continue to monitor
ALMADEN 60.0 kV	P1-1:5VP:3:_Kifer BESS Gen Unit	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	0.88	Continue to monitor
ALMADEN 60.0 kV	P1-2:A16:70:_NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P1-2:A17:34:_MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	Continue to monitor
ALMADEN 60.0 kV	P1-2:A18:13:_SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.71	> 0.9	> 0.9	> 0.9	0.84	0.71	Continue to monitor
ALMADEN 60.0 kV	P1-2:A30:3:_TESLA-METCALF 500KV	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	0.89	Continue to monitor
ALMADEN 60.0 kV	P2-2:A18:32:_EVRGRN 1 115KV Section 1D	P2	Bus/Breaker	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ALMADEN 60.0 kV	P2-2:A18:42:_MTCALF E 115KV Section 2E	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P2-3:A16:41:_NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P2-3:A18:28:_EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN line	P2	Bus/Breaker	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ALMADEN 60.0 kV	P2-3:A18:36:_MTCALF E - 1E 115KV & METCALF-COYOTE PUMPING PLANT line	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P2-3:5VP:5:_Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	0.87	Continue to monitor
ALMADEN 60.0 kV	P2-4:A16:23:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P2-4:A16:27:_NEWARK D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P2-4:A18:1:_METCALF 230KV - Section 1D & 1E	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P2-4:A8:60:_PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P7-1:A16:5:_Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.73	> 0.9	> 0.9	> 0.9	0.89	0.73	Continue to monitor
ALMADEN 60.0 kV	P7-1:A16:7:_Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P7-1:A18:17:_Metcalf - Evergreen #1 and #2 115 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P7-1:A18:20:_Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P7-1:A18:8:_Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.86	> 0.9	Sensitivity only (High Load in the South Bay)
ALMADEN 60.0 kV	P7-1:A18:9:_Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
AMES BS1 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor
BAIR 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	0.78	Continue to monitor
BAIR 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.79	> 0.9	> 0.9	> 0.9	> 0.9	0.79	Continue to monitor
BAYSHOR1 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	0.78	Continue to monitor
BAYSHOR1 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS 115/25KV TB 1	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.56	> 0.9	Sensitivity only (High Load in the South Bay)
BELMONT 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	0.77	Continue to monitor
CAYETANO 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	0.88	Continue to monitor
CHRISTIE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor
CHRISTIE 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	0.86	Continue to monitor
EDENVALE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	0.88	Continue to monitor
EDES 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Potential South Oakland area long-term transmission upgrade
EDES 115.0 kV	P2-1:A16:4:_OAKLAND J-GRANT 115KV [3140] (EDESJCT2-GRANT)	P2	Bus/Breaker	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	0.69	> 0.9	> 0.9	0.72	> 0.9	> 0.9	> 0.9	> 0.9	0.72	Potential South Oakland area long-term transmission upgrade
EDES 115.0 kV	P2-2:A16:23:_GRANT 115KV SECTION MD	P2	Bus/Breaker	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Potential South Oakland area long-term transmission upgrade
EDES 115.0 kV	P7-1:A16:8:_Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	> 0.9	0.56	0.48	> 0.9	0.82	0.49	> 0.9	> 0.9	> 0.9	0.60	> 0.9	> 0.9	0.56	> 0.9	0.60	System adjustments or voltage support if needed
EL PATIO 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor
EL PATIO 115.0 kV	P1-2:A18:13:_SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	0.89	0.78	Continue to monitor
EL PATIO 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS 115/25KV TB 1	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.56	> 0.9	Sensitivity only (High Load in the South Bay)
FMC 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)										Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
FMC 115.0 kV	P1-2:A18:13; SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	0.88	0.78	Continue to monitor
FMC 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS 115/25KV TB 1	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.54	> 0.9	Sensitivity only (High Load in the South Bay)
FMC 115.0 kV	P7-1:A18:11; Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
GLENWOOD 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor
GRANT 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor
GRANT 115.0 kV	GRANT-EASTSHORE #2 115KV [1701] (2) & GRANT-EASTSHORE #1 115KV [1700]	P6	N-1-1	> 0.9	0.55	0.46	> 0.9	0.81	0.48	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.54	0.49	> 0.9	Potential South Oakland area long-term transmission upgrade
GRANT 115.0 kV	P7-1:A16:8; Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	> 0.9	0.55	0.46	> 0.9	0.81	0.48	> 0.9	> 0.9	> 0.9	0.59	> 0.9	> 0.9	0.54	> 0.9	0.59	Potential South Oakland area long-term transmission upgrade
HICKS 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor
JARVIS 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	0.79	Continue to monitor
JARVIS 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS 115/25KV TB 1	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.63	> 0.9	Sensitivity only (High Load in the South Bay)
JEFRSN_D 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor
KIRKER 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	0.85	Continue to monitor
KIRKER 115.0 kV	P2-2:A8:9; PITSBG D 230KV SECTION 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	Sensitivity only
LAKEWD-C 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor
LAKEWD-C 115.0 kV	P2-2:A8:37; CLAYTN 115KV SECTION 2D	P2	Bus/Breaker	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	0.77	Continue to monitor
LAKEWD-C 115.0 kV	P2-2:A8:9; PITSBG D 230KV SECTION 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	Sensitivity only
LAKEWD-C 115.0 kV	P2-4:A8:14; PITTSBURG-D 115KV - SECTION 2D & 1D	P2	Bus/Breaker	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.75	> 0.9	> 0.9	> 0.9	> 0.9	0.75	Continue to monitor
LAKEWD-C 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	Sensitivity only (High Load in the South Bay)
LAKEWD-C 115.0 kV	P7-1:A8:23; Pittsburg-Clayton Nos. 3 & 4 115 KV lines	P7	DCTL	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LARKIN D 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	0.78	Continue to monitor
LAWRENCE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor
LLAGAS 115.0 kV	P7-1:A18:18; Metcalf - Morgan Hill & Metcalf - Llagas 115 KV Lines	P7	DCTL	> 0.9	> 0.9	0.44	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LOCKHD 1 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor
LOCKHD 1 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.63	> 0.9	Sensitivity only (High Load in the South Bay)
MARTNZ D 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor
MARTNZ D 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.79	> 0.9	> 0.9	> 0.9	> 0.9	0.79	Continue to monitor
MCKEE 115.0 kV	P1-2:A16:50; NEWARK-DIXON LANDING 115KV [2990]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P1-2:A18:49; MCKEE-PIERCY 115KV [2379]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P1-2:A18:57; PIERCY-METCALF 115KV [4318]	P1	N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	Continue to monitor
MCKEE 115.0 kV	P2-2:A16:40; NEWARK F 115KV SECTION 2F	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P2-2:A18:42; MTCALF E 115KV Section 2E	P2	Bus/Breaker	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	Continue to monitor
MCKEE 115.0 kV	P2-3:A16:14; NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P2-3:A16:15; NEWARK F - 2F 115KV & NEWARK F-LOCKHD 2-APP MAT LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P2-3:A16:42; NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P2-4:A16:23; NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P2-4:A16:26; NEWARK F 115KV - SECTION 2F & 1F	P2	Bus/Breaker	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	Continue to monitor
MCKEE 115.0 kV	P2-4:A16:27; NEWARK D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P2-4:A18:25; MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Bus/Breaker	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.76	> 0.9	Continue to monitor
MCKEE 115.0 kV	P7-1:A16:16; Newark-Dixon Landing 115 KV and Newark-Milpitas No. 1 115 KV lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P7-1:A18:2; Newark - Dixon Landing & Newark - Milpitas #1 115 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P7-1:A18:5; McKee - Piercy & Milpitas - Swift 115 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)
MCKEE 115.0 kV	P7-1:A18:6; Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.74	> 0.9	Continue to monitor
MENLO 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.79	> 0.9	> 0.9	> 0.9	> 0.9	0.79	Continue to monitor
METCALF 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	0.88	Continue to monitor
MILLBRAE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	0.77	Continue to monitor



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)										Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
MILLBRAE 115.0 kV	MILLBRAE-SAN MATEO #1 115KV [2640] & MARTIN-MILLBRAE #1 115KV [2230]	P6	N-1-1	0.73	> 0.9	0.58	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	0.84	> 0.9	0.59	0.76	> 0.9	Project: Martin - Millbrae 60 kV Area Reinforcement	
MILPITAS 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	0.79	Continue to monitor	
MILPITAS 115.0 kV	P1-2:A16:70:_NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-2:A16:39:_NEWARK F 115KV SECTION 1F	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-3:A16:11:_NEWARK F - 1F 115KV & NEWARK F-LAWRENCE-LOCKHD 1 LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-3:A16:12:_NEWARK F - 1F 115KV & NEWARK F-ZANKER-KRS LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-3:A16:13:_NEWARK F - 1F 115KV & NEWARK-MILPITAS #1 LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-4:A16:23:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-4:A16:25:_NEWARK E SECTION 1E & NEWARK F SECTION 1F 115KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P2-4:A16:26:_NEWARK F 115KV - SECTION 2F & 1F	P2	Bus/Breaker	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.72	> 0.9	> 0.9	0.54	0.72	Continue to monitor	
MILPITAS 115.0 kV	P2-4:A16:27:_NEWARK D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MILPITAS 115.0 kV	P7-1:A18:6:_Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	Sensitivity only (High Load in the South Bay)	
MONTAGUE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
MONTAGUE 115.0 kV	P1-2:A16:70:_NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	0.89	0.87	Continue to monitor	
MONTAGUE 115.0 kV	P2-3:A16:41:_NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MONTAGUE 115.0 kV	P2-4:A16:23:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MONTAGUE 115.0 kV	P2-4:A16:27:_NEWARK D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
MONTAGUE 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS 115/25KV TB 1	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.56	> 0.9	Sensitivity only (High Load in the South Bay)	
MONTAGUE 115.0 kV	P7-1:A18:8:_Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	Sensitivity only (High Load in the South Bay)	
MORAGA 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
MORAGA C 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
MORAGA C 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	Sensitivity only (High Load in the South Bay)	
MGRN HIL 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	Continue to monitor	
MGRN HIL 115.0 kV	GREENVALLEY-MGRN HIL #1 115KV [0] & METCALF-MORGAN HILL 115KV [2570]	P6	N-1-1	> 0.9	> 0.9	0.48	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.50	> 0.9	Continue to monitor	
MGRN HIL 115.0 kV	P7-1:A18:18:_Metcalf - Morgan Hill & Metcalf - Llagas 115 KV Lines	P7	DCTL	> 0.9	> 0.9	0.54	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor	
MT EDEN 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	0.85	Continue to monitor	
MTCALF D 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	0.89	Continue to monitor	
Multiple 60, 115, and 230 kV substations in the San Jose Area	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.60	> 0.9	Sensitivity only (High Load in the South Bay)	
NEWARK 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
NEWARK D 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
NEWARK D 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.66	> 0.9	Sensitivity only (High Load in the South Bay)	
NEWARK D 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
NORTECH 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
NORTECH 115.0 kV	P1-2:A16:70:_NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	0.89	0.85	Continue to monitor	
NORTECH 115.0 kV	P2-3:A16:41:_NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	0.89	0.80	Continue to monitor	
NWK DIST 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
NWK DIST 230.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.71	> 0.9	Sensitivity only (High Load in the South Bay)	
PACIFICA 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	0.77	Continue to monitor	
PIERCY 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor	
PIERCY 115.0 kV	P1-2:A18:57:_PIERCY-METCALF 115KV [4318]	P1	N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.73	> 0.9	Continue to monitor	
PIERCY 115.0 kV	P2-2:A18:42:_MTCALF E 115KV Section 2E	P2	Bus/Breaker	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.73	> 0.9	Continue to monitor	
PIERCY 115.0 kV	P2-4:A16:26:_NEWARK F 115KV - SECTION 2F & 1F	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	0.88	0.89	Continue to monitor	
PIERCY 115.0 kV	P2-4:A18:25:_MTCALF D Section 2D & MTCALF E Section 2E 115KV	P2	Bus/Breaker	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	0.72	0.78	Continue to monitor	



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)										Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak		
PIERCY 115.0 kV	P7-1:A18:6_ Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.76	> 0.9	> 0.9	> 0.9	0.69	0.76	Continue to monitor	
PITTSBURG-D 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	0.86	Continue to monitor	
PITTSBURG-D 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor	
RADUM 60.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
RADUM 60.0 kV	PITTSBURG-SAN RAMON 230KV [5490] & SAN RAMON-MORAGA 230KV [5660]	P6	N-1-1	0.65	0.65	0.58	> 0.9	0.71	0.68	> 0.9	> 0.9	> 0.9	0.72	> 0.9	0.64	0.59	> 0.9	Reverse flow relay operation	
ROSSMOOR 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor	
RVNSWD D 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	0.80	Continue to monitor	
SANJOSEB 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor	
SANJOSEB 115.0 kV	P1-2:A18:13_ SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	0.88	0.78	Continue to monitor	
SANJOSEB 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS1-25 25.00KV Gen Unit En	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.54	> 0.9	Sensitivity only (High Load in the South Bay)	
SARATOGA 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
SOBRANTE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	0.84	Continue to monitor	
SOBRANTE 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
STELLING 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
STONE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	0.81	Continue to monitor	
STONE 115.0 kV	P1-2:A18:13_ SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	0.89	0.77	Continue to monitor	
SWIFT 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	0.81	Continue to monitor	
SWIFT 115.0 kV	P1-2:A18:45_ SWIFT-METCALF 115KV [3900]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	0.89	0.87	Continue to monitor	
SWIFT 115.0 kV	P2-2:A18:41_ MTCALF E 115KV Section 1E	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	0.88	0.85	Continue to monitor	
SWIFT 115.0 kV	P2-3:A18:36_ MTCALF E - 1E 115KV & METCALF-COYOTE PUMPING PLANT line	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	0.88	0.85	Continue to monitor	
SWIFT 115.0 kV	P2-4:A16:26_ NEWARK F 115KV - SECTION 2F & 1F	P2	Bus/Breaker	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.71	> 0.9	Continue to monitor	
SWIFT 115.0 kV	P2-4:A18:24_ MTCALF D Section 1D & MTCALF E Section 1E 115KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	0.88	0.85	Continue to monitor	
SWIFT 115.0 kV	P7-1:A18:6_ Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	Sensitivity only (High Load in the South Bay)	
TESORO 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
TESORO 230.0 kV	P2-4:A8:55_ PITTSBURG-F 230KV - SECTION 2F & 1F	P2	Bus/Breaker	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor	
TRIMBLE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	
TRIMBLE 115.0 kV	P1-2:A16:70_ NEWARKHVDC-NEWARK D #1 230KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	0.88	0.87	Continue to monitor	
TRIMBLE 115.0 kV	P1-2:A18:13_ SANJOSEBHVDC-SANJOSEB #1 115KV [0]	P1	N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.90	> 0.9	Sensitivity only (High Load in the South Bay)	
TRIMBLE 115.0 kV	P2-3:A16:41_ NEWARK D - 2D 230KV & NEWARKHVDC-NEWARK D #1 LINE	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
TRIMBLE 115.0 kV	P2-4:A16:23_ NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
TRIMBLE 115.0 kV	P2-4:A16:27_ NEWARK D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	Sensitivity only (High Load in the South Bay)	
TRIMBLE 115.0 kV	SANJOSEBHVDC-SANJOSEB #1 115KV [0] & LS ESTRS 115/25KV TB 1	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.55	> 0.9	Sensitivity only (High Load in the South Bay)	
TRIMBLE 115.0 kV	P7-1:A18:8_ Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.80	> 0.9	Sensitivity only (High Load in the South Bay)	
TRIMBLE 115.0 kV	P7-1:A18:9_ Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	Sensitivity only (High Load in the South Bay)	
VASONA 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
VINEYARD 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	0.85	Continue to monitor	
VLVWTP1 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	0.83	Continue to monitor	
WHISMAN 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	0.81	Continue to monitor	
WOLFE 115.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	0.82	Continue to monitor	



[illegible]











Worst Contingency	Category	Category Description	Amount of Load Drop (MW)															Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	

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



Substation															Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2039 Greater Bay area Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	2034 South Bay Hi-load	2039 Greater Bay area Summer Peak	
Kirker 115 kV	105	109	124	41	53	112	52	4	177	66	52	111	126	177	Removing limiting elements on the Pittsburg - Kirker 115 kV line



Thermal Overloads

Monitored Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Heavy Renewable & Min Gas Gen	2029 SP High CEC Forecast	
Bridgeville - Garberville 60 kV Line (BRDGVLLE-FRUTLDJT)	P1-2:A1:24:_GARBERVILLE-LAYTONVILLE 60KV [8365]	P1	N-1	96	104	50	50	64	28	49	37	89	48	105	Project: Garberville reinforcement project
	P1-2:A1:24:_GARBERVILLE-LAYTONVILLE 60KV [8365] & P1-1:A1:9:_HMBOBAYPPA 13.80KV GEN UNIT 1	P3	G-1/N-1	95	105	<100	<100	<100	<100	<100	<100	<100	<100	105	Project: Garberville reinforcement project
	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110] & P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	96	98	100	<100	Generation re-dispatch
Bridgeville-Cottonwood 115 kV Line	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1 & P1-2:A1:26:_HUMB115-HUMBOLDT #1 115KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	102	<100	<100	<100	<100	<100	Continue to monitor
Garberville-Laytonville 60kV line	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLLE_FRUTLDJT	P1	N-1	106	109	NA	50	68	NA	37	25	105	40	109	Project: Garberville reinforcement project
	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLLE_FRUTLDJT & P1-1:A1:9:_HMBOBAYPPA 13.80KV GEN UNIT 1	P3	G-1/N-1	106	109	<100	<100	<100	<100	<100	<100	<100	<100	109	Project: Garberville reinforcement project
	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	106	109	NA	52	68	NA	39	25	105	NA	109	Add redundant battery
	P1-4:A1:4:_ORICK SVD=V & P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLLE_FRUTLDJT	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	102	<100	<100	Project: Garberville reinforcement project
Humboldt - Bridgeville 115 kV Line	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:22:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED ON CARLOTTA_SWNS FLT (2)	P6	N-1-1	<100	<100	<100	100	<100	<100	100	100	<100	100	<100	Generation re-dispatch
Humboldt - Maple Creek 60 kV Line	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	66	71	84	48	39	NConv	73	77	13	61	68	Continue to monitor
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	59	NConv	82	42	35	NConv	61	60	10	51	NConv	Project: Garberville reinforcement project
	P2-3:A1:23:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 LINE	P2	Bus/Breaker	NA	NA	84	NA	NA	NConv	NA	NA	NA	NA	NA	Continue to monitor
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	66	71	84	48	39	NConv	73	77	13	61	68	Continue to monitor
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	66	72	46	48	39	NConv	73	77	14	NA	68	Add redundant relay
Humboldt Bay - Humboldt No.1 60 kV Line (HUMBOLDT-HMBLT JT)	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	27	41	80	80	72	54	104	92	5	87	40	Generation re-dispatch
Humboldt Bay - Rio Dell Jct 60 kV Line	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	19	32	66	71	64	NConv	101	64	29	80	30	Continue to monitor
	P2-3:A1:18:_BRDGVLLE 115KV - RING R3 & R2	P2	Bus/Breaker	93	91	66	55	69	32	65	5	103	64	91	Sensitivity Only
	P2-3:A1:19:_BRDGVLLE 115KV - RING R1 & R2	P2	Bus/Breaker	93	91	66	55	69	32	65	5	103	64	91	Sensitivity Only
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	33	NConv	66	75	67	NConv	109	75	26	86	NConv	Project: Garberville reinforcement project
	P2-3:A1:20:_BRDGVLLE 115KV - RING R1 & R3	P2	Bus/Breaker	93	91	66	55	69	32	65	5	103	64	91	Sensitivity Only
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	19	32	66	71	64	NConv	101	64	29	80	30	Continue to monitor
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	45	NConv	41	63	52	NConv	102	72	17	79	NConv	Project: Garberville reinforcement project
	P1-3:A1:3:_BRDGVLLE 115/60KV TB 1 & P1-1:A1:4:_HRCGENSAB 13.80KV GEN UNIT 2	P3	G-1/N-1	98	109	<100	<100	<100	<100	<100	<100	99	<100	110	Project: Garberville reinforcement project
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	45	NConv	NConv	63	52	NConv	102	72	17	NA	NConv	Add redundant battery
	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]	P6	N-1-1	<100	<100	<100	100	95	<100	<100	<100	<100	<100	<100	Project: Garberville reinforcement project
	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110] & P1-1:A1:8:_HMBOBAYPPB 13.80KV GEN UNIT 4	P3	G-1/N-1	<100	101	<100	<100	<100	<100	<100	94	<100	<100	101	Project: Garberville reinforcement project
Humboldt-Trinity 115 kV Line	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	26	40	54	75	69	25	98	116	66	NA	40	Add redundant battery
	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110] & P1-2:A1:25:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON FTSWRDJT_GRBRVLLE	P6	N-1-1	<100	<100	<100	<100	<100	<100	93	113	<100	100	<100	Generation re-dispatch
	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	89	125	NA	63	48	NA	110	83	12	82	122	Project: Garberville reinforcement project
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	110	NConv	NA	69	51	NA	120	99	16	90	NConv	Project: Garberville reinforcement project



Newburg-Rio Dell Tap 60 kV Line	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	89	125	NA	63	48	NA	110	83	12	82	122	Project: Garberville reinforcement project
	P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810] & P1-1:A1:3:_HRCGENSAB 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	100	<100	<100	96	<100	Generation re-dispatch
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	89	126	NA	63	48	NA	110	83	12	NA	122	Add redundant relay
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	110	NConv	NA	69	51	NA	120	99	16	NA	NConv	Add redundant battery
	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]	P6	N-1-1	<100	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	Project: Garberville reinforcement project
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCLUMBER)	P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]	P1	N-1	8	10	17	71	60	48	100	99	54	100	9	Sensitivity Only
	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	105	148	25	75	55	51	110	135	29	98	141	Project: Garberville reinforcement project
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	105	148	25	75	55	51	110	135	29	98	141	Project: Garberville reinforcement project
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	133	NConv	25	80	57	51	120	150	34	106	NConv	Project: Garberville reinforcement project
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	105	150	25	75	54	51	109	135	30	NA	143	Add redundant relay
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	133	NConv	25	80	57	51	119	150	34	106	NConv	Add redundant battery
	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]	P6	N-1-1	<100	<100	<100	101	95	<100	<100	<100	<100	<100	<100	Project: Garberville reinforcement project
Rio Dell Tap 60 kV Line(SCOTIATP-RIODLLTP)	P1-1:A1:4:_HRCGENSAB 13.80KV GEN UNIT 2 & P1-1:A1:3:_HRCGENSAB 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	109	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
Trinity-Maple Creek 60 kV Line	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	82	107	53	35	19	NConv	60	71	31	47	104	Project: Garberville reinforcement project
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	82	107	53	35	19	NConv	60	71	31	47	104	Project: Garberville reinforcement project
	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	82	107	53	35	19	NConv	60	71	31	47	104	Project: Garberville reinforcement project
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	72	NConv	52	28	15	NConv	48	55	27	37	NConv	Project: Garberville reinforcement project
	P2-3:A1:23:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 LINE	P2	Bus/Breaker	NA	NA	53	NA	NA	NConv	NA	NA	NA	NA	NA	Project: Garberville reinforcement project
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery/relay	83	108	82	35	19	NConv	60	71	31	NA	105	Add redundant relay
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery/relay	72	NConv	NConv	28	15	NConv	48	55	27	NA	NConv	Add redundant battery



 California ISO





Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)							Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Heavy Renewable & Min Gas Gen	2029 SP High CEC Forecast	
GRBRVLL 60 kV	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLL FRUTLDJT	P1	N-1	46	51	<8	<8	15	14	<8	<8	44	<8	51	Project: Garberville reinforcement project
MPLE CRK 60 kV	P1-2:A1:13:_HUMBOLDT-MAPLE CREEK 60KV [7130] MOAS OPENED ON HUMBOLDT_MPLE CRK	P1	N-1	13	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	Project:Maple Creek reactive support



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
In accordance with TPL-001-5- Requirement R2.6, this area relies on the past studies from the 2020-21 Transmission Planning Process.								
<a href="http://www.caiso.com/Documents/BoardApproved2020-2021TransmissionPlan.pdf">http://www.caiso.com/Documents/BoardApproved2020-2021TransmissionPlan.pdf</a>								



Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions	
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Heavy Renewable & Min Gas Gen		2029 SP High CEC Forecast
None														

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







Substation	Load Served (MW)											Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Heavy Renewable & Min Gas Gen	2029 SP High CEC Forecast	
None												

No single source substation with more than 100 MW



2024-2025 ISO Reliability Assessment - Study Results														
Study Area:		PG&E Kern												
Thermal Overloads														
Overloaded Facility		Contingency (All and Worst P6)		Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
						2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	
Kern PP-Seventh Standard 115 kV Line	Base Case	P0	N0	71	56	106	27	4	26	25	28	56	Continue to Monitor	
	P1-1:A15:71:_MT POSO 13.80KV GEN UNIT 1	P1-1	N-1	69	56	106	30	6	15	29	31	56	Continue to Monitor	
	P1-2:A15:45:_KERN OIL-WITCO 115KV [1920]	P1-1	N-1	72	58	114	26	7	30	24	27	58	Continue to Monitor	
	P1-2:A15:47:_KERN-MAGUNDEN-WITCO 115KV [1970]	P1-1	N-1	73	58	122	27	3	28	24	28	59	Continue to Monitor	
	P1-2:A15:49:_KERN-LIVE OAK 115KV [1960]	P1-1	N-1	63	50	102	23	6	27	21	23	50	Continue to Monitor	
	P1-3:A15:61:_OGLE TAP 115/13.8KV TB 1	P1-1	N-1	66	54	102	28	4	16	27	29	54	Continue to Monitor	
	P2-1:A15:45:_KERN OIL-WITCO 115KV [1920] (KERN OIL-DSCVRYTP)	P2-1	Line Section w/o Fault	72	49	107	26	7	30	25	27	58	Continue to Monitor	
	P2-4:A15:9:_KERN PWR 115KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker	157	N/A	N/A	77	N/A	N/A	28	79	N/A	Project: Midway-Kern PP Nos. 1,3 and 4 230 kV Lines Capacity Increase (Midway 230kV Bus Section D Upgrade Project)	
	KERN OIL-WITCO 115KV [1920]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	109	<100	<100	<100	<100	<100	<100	Continue to Monitor	
	MT POSO 13.80KV GEN UNIT 1+KERN OIL-WITCO 115KV [1920]	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	Continue to Monitor	
Taft-Cuyuma #1 70kV Line	P5-5A(NRDR):A15:16:_WITCO SS 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant battery supply/Relay	72	48	107	26	7	30	25	27	58	Continue to Monitor	
	Base Case	P0	N0	18	17	14	15	89	100	115	15	18	Invalid result. Topology error.	
Blackwell-Q484TP 70 kV line	Base Case	P0	N0	14	5	22	4	100	100	156	4	7	Sensitivity only	
	P1-1:A15:14:_BLACKWELLSPV 0.36KV GEN UNIT 1	P1-1	N-1	12	4	22	3	74	86	102	3	6	Generation Redispatch	
	P1-1:A15:54:_LOSTHILL 0.36KV GEN UNIT 1	P1-1	N-1	17	4	19	3	86	86	137	3	6	Generation Redispatch	
	P1-2:A15:81:_ARCO-TWISSELMAN 70KV [8470] MOAS OPENED ON TX_LOSHL_JCT_TX_LOSHL	P1-2	N-1	17	4	19	3	86	86	137	3	6	Generation Redispatch	
	P4-2:A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P4	Stuck Breaker	67	48	125	45	64	67	47	47	65	Continue to Monitor	
	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	67	48	123	45	64	67	47	47	64	Continue to Monitor	
Kern-Old River #2 70 kV Line	Base Case	P0	N0	36	35	35	24	264	30	37	25	35	Generation Redispatch	
	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	46	45	46	28	281	26	32	28	45	Generation Redispatch	
	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	37	35	44	25	235	26	32	25	36	Install Redundant Battery Supply	
Lerdo-Kern Oil-7th Standard 115 kV Line	P1-1:A15:71:_MT POSO 13.80KV GEN UNIT 1	P1-1	N-1	67	76	105	44	39	21	48	47	77	Continue to Monitor	
	P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]	P1-2	N-1	103	78	86	29	4	30	46	31	78	Project: NE Kern Reconductor	
	P2-2:A15:42:_MIDWAY 115KV SECTION 2E	P2-2		159	169	44	105	49	121	57	124	181	Project: NE Kern Reconductor	
	P2-4:A15:25:_MIDWAY-DOB85B SECTION 1D & MIDWAY-E SECTION 1E 230KV	P2-4	Bus-Tie-Breaker	174	N/A	N/A	43	N/A	N/A	22	122	N/A	Project: Midway-Kern PP Nos. 1,3 and 4 230 kV Lines Capacity Increase (Midway 230kV Bus Section D Upgrade Project)	
	7TH STANDARD-KERN 115KV [1981]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	111	100	110	<100	<100	<100	<100		100	Project: NE Kern Reconductor. Potential rescope for long-term issue.	
	SEMITROPIC_D-CHARKA-WSCOPRSN 115KV [0]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	123	129	<100	<100	<100	<100	<100		131	Project: NE Kern Reconductor	
	LERDO-FAMOSO 115KV [2120] MOAS OPENED ON CAWELO C_OGLE JCT (2)+7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	157	125	<100	<100	<100	<100	<100	<100	126	Project: NE Kern Reconductor	
	MT POSO 13.80KV GEN UNIT 1+SEMITROPIC_D-CHARKA-WSCOPRSN 115KV [0]	P3	G-1 / N-1	121	127	103	<100	<100	<100	91	<100	129	Project: NE Kern Reconductor. Potential rescope for long-term issue.	
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	91	155	225	163	90	NConv	Install Redundant Battery Supply	
	P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]	P1-2	N-1	62	51	112	22	10	31	22	23	51	Continue to Monitor	
Kern Oil-Witco 115 kV Line	P2-3:A15:142:_KERN PWR 115KV - MIDDLE BREAKER BAY 1	P2-3	Non-Bus-Tie Breaker	N/A	<100	110	N/A	10	31	N/A	N/A	51	Continue to Monitor	
	7TH STANDARD-KERN 115KV [1981]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	110	<100	<100	<100	<100	<100	<100	Continue to Monitor	
	MT POSO 13.80KV GEN UNIT 1+7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	<100	<100	109	<100	<100	<100	<100	<100	<100	Continue to Monitor	
	P1-2:A15:38:_WESTPARK-COLUMBUS 115KV [0]	P1-2	N-1	73	72	109	47	13	18	19	48	73	Continue to Monitor	
Kern-Magunden-Witco 115 kV Line	P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]	P1-2	N-1	76	68	139	37	4	32	18	38	69	Continue to Monitor	
	P2-3:A15:142:_KERN PWR 115KV - MIDDLE BREAKER BAY 1	P2-3	Non-Bus-Tie Breaker	N/A	<100	106	N/A	4	32	N/A	N/A	69	Continue to Monitor	
	P1-2:A15:56:_MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]	P1-2	N-1	120	126	52	55	31	5	74	55	128	Project: NE Kern Reconductor	
Midway-Shafter 115 kV Line	P2-1:A15:74:_MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (TPMNT P2-RENFRICT)	P2-1	Line Section w/o Fault	145	153	<100	72	23	33	53	72	155	Project: NE Kern Reconductor	
	P2-3:A15:71:_MIDWAY - 1E 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2-3	Non-Bus-Tie Breaker	120	127	<100	56	31	5	74	55	128	Project: NE Kern Reconductor	
	MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	127	<100	<100	<100	<100	<100		128	Project: NE Kern Reconductor	
	P5-5C(DC):A15:34:_RENFRO 115KV BATT BATT #2(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	120	126	52	55	31	5	74	55	128	Project: Install Redundant Battery Supply	
	P1-2:A15:62:_MIDWAY-SHAFTER 115KV [2610]	P1-2	N-1	120	127	53	55	30	10	74	55	128	Project: NE Kern Reconductor	
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-3:A15:70:_MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2-3	Non-Bus-Tie Breaker	119	126	53	55	30	10	73	55	128	Project: NE Kern Reconductor	
	P2-4:A15:14:_MIDWAY 115KV - SECTION 2E & 1E	P2-4	Bus-Tie-Breaker	127	137	58	56	31	10	76	56	140	Project: NE Kern Reconductor	
	P1-2:A15:65:_MIDWAY-TAFT 115KV [2620]	P1-2	N-1	35	33	51	38	100	100	127	38	31	Generation Redispatch	



2024-2025 ISO Reliability Assessment - Study Results														
Study Area:		PG&E Kern												
Thermal Overloads														
Overloaded Facility	Contingency (All and Worst P6)		Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions	
					2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity		2029 SP High CEC Forecast
Fellows-Taft 115 kV Line	P2-2:A15:41:_MIDWAY 115KV SECTION 2D	P2-2		<100	<100	<100	38	100	99	127	39	32	Generation Redispatch	
	P2-3:A15:69:_MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN LINE	P2-3	Non-Bus-Tie Breaker	<100	<100	<100	38	100	99	127	39	32	Generation Redispatch	
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	9	56	62	66	9	NConv	Install Redundant Battery Supply	
Fellows-Midsun 115kV Line	P1-2:A15:65:_MIDWAY-TAFT 115KV [2620]	P1-2	N-1	33	33	52	36	100	100	128	36	31	Generation Redispatch	
	P2-3:A15:69:_MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN LINE	P2-3	Non-Bus-Tie Breaker	<100	<100	<100	37	100	99	129	37	33	Generation Redispatch	
	P2-4:A15:12:_MIDWAY 115KV - SECTION 2D & 2E	P2-4	Bus-Tie-Breaker	<100	<100	<100	33	102	104	132	33	28	Generation Redispatch	
Midsun-Midway 115 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	17	37	46	45	18	NConv	Install Redundant Battery Supply	
Wheeler Ridge-Lakeview 70 kV Line	P1-1:A15:16:_Q1499SPV 34.50KV GEN UNIT 1	P1-1	N-1	34	35	33	52	29	121	128	119	33	Generation Redispatch	
	Q1499SPV 34.50KV GEN UNIT 1+Q1397BESS 0.52KV GEN UNIT 2	P3	G-1 / N-1	<100	<100	<100	<100	<100	<100	119		<100	Operating Solution	
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	94	85	148	59	95	NConv	Install Redundant Battery Supply	
Wheeler Ridge-Tejon 70 kV Line	P1-2:A15:93:_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P1-2	N-1	92	147	<100	56	36	9	58	56	148	Project:Tejon Area Reinforcement Project	
	P1-2:A15:95:_SAN BERNARD-TEJON 70KV [9080]	P1-2	N-1	68	122	<100	38	37	24	62	38	123	Project:Tejon Area Reinforcement Project	
	WHEELER RIDGE-SAN BERNARD 70KV [9300]+ORION 0.44KV GEN UNIT 1	P3	G-1 / N-1	93	149	<100	<100	<100	<100	<100		151	Project:Tejon Area Reinforcement Project	
Tejon-SN Brnrd 70 kV Line	P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P1-2	N-1	68	130	<100	37	35	22	61	36	131	Project:Tejon Area Reinforcement Project	
	WHEELER RIDGE-TEJON 70KV [9310]+ORION 0.44KV GEN UNIT 1	P3	G-1 / N-1	<100	131	<100	<100	<100	<100	<100		132	Project: Tejon Area Reinforcement Project	
Wheeler Ridge-San Bernard 70 kV Line	P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P1-2	N-1	98	163	<100	58	36	7	61	58	165	Project: Tejon Area Reinforcement Project	
	WHEELER RIDGE-TEJON 70KV [9310]+ORION 0.44KV GEN UNIT 1	P3	G-1 / N-1	<100	168	<100	<100	<100	<100	<100		169	Project: Tejon Area Reinforcement Project	
Kern Canyon-Magunden-Weedpatch 70 kV Line	P1-2:A15:110:_BITTERWATR55-MIDWAY-D 230KV [0]	P1-2	N-1	N/A	32	31	N/A	43	71	N/A	N/A	105	Operating Solution	
	P1-2:A15:5:_BITTERWATR55-MIDWAY-DBAAH 230KV [0]	P1-2	N-1	31	N/A	N/A	101	N/A	N/A	96	97	N/A	Summer Setup	
	P2-1:A15:11:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-DBAAH)	P2-1	Line Section w/o Fault	83	N/A	N/A	110	N/A	N/A	104	105	N/A	Summer Setup	
	P2-1:A15:239:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-D)	P2-1	Line Section w/o Fault	N/A	133	55	N/A	51	79	N/A	N/A	115	Summer Setup	
	BITTERWATR55-MIDWAY-D 230KV [0]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	119	<100	<100	<100	<100	<100		110	Summer Setup	
	P4-2:A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P4	Stuck Breaker	34	15	107	31	105	84	72	31	27	Continue to Monitor	
	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	35	15	105	31	105	84	72	31	25	Continue to Monitor	
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	27	148	226	166	33	NConv	Install Redundant Battery Supply	
Wheeler Ridge-Weedpatch 70 kV Line	P5-5C(DC):A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	<100	NConv	NConv	<100	NConv	NConv	<100	<100	NConv	Install Redundant Battery Supply	
Midway-Wheeler Ridge #1 230 kV Line	P1-2:A15:110:_BITTERWATR55-MIDWAY-D 230KV [0]	P1-2	N-1	<100	138	73	<100	21	49	<100	<100	119	Project: Wheeler Ridge Junction	
	P1-2:A15:5:_BITTERWATR55-MIDWAY-DBAAH 230KV [0]	P1-2	N-1	90	<100	<100	107	<100	<100	81	100	<100	Operating Solution	
	P1-2:A15:28:_MIDWAY-WHEELER RIDGE #1 230KV [5190]	P1-2	N-1	<100	104	62	<100	17	26	<100	<100	90	Project: Wheeler Ridge Junction	
	BITTERWATR55-MIDWAY-D 230KV [0]+KERN CNYN 11.00KV GEN UNIT 1	P3	G-1 / N-1	<100	127	<100	<100	<100	<100	<100		119	Project: Wheeler Ridge Junction	
	BITTERWATR55-MIDWAY-D 230KV [0]+WHEELER-CASALOMA #1 230KV [0]	P6	N-1-1	<100	<100	135	<100	<100	<100	<100	<100	<100	Continue to Monitor	
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	54	8	9	23	46	NConv	Install Redundant Battery Supply	
Buena Vista - Midway #1 230kV line	P2-1:A15:239:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-D)	P2-1	Line Section w/o Fault	<100	136	75	<100	29	58	<100	<100	129	Project: Wheeler Ridge Junction	
Buena Vista - Midway #1 230kV line	P2-1:A15:10:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVI1-MIDWAY-DBAAH)	P2-1	Line Section w/o Fault	95	<100	<100	118	<100	<100	92	110	<100	Operating Solution	
Buena Vista - Wheeler Ridge #2 230kV line	P2-1:A15:238:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVI1-MIDWAY-D)	P2-1	Line Section w/o Fault	N/A	124	63	N/A	19	26	N/A	N/A	120	Project: Wheeler Ridge Junction	
Midway-Kern #1 230 kV Line	P2-4:A15:26:_MIDWAY-DB8B SECTION 2D & MIDWAY-E SECTION 2E 230KV	P2-4	Bus-Tie-Breaker	148	<100	<100	29	<100	<100	50	125	<100	Project: Midway-Kern PP Nos. 1,3 and 4 230 kV Lines Capacity Increase (Midway 230kV Bus Section D Upgrade Project)	
Midway-Tembler 115 kV Line	P2-3:A15:79:_TEMBLOR - 1D 115KV & TEMBLOR-SAN LUIS OBISPO LINE	P2-3	Non-Bus-Tie Breaker	44	42	5	45	89	104	105	45	42	Generation Redispatch	
Semitropic-Famoso 115 kV Line	P2-4:A15:7:_KERN PWR 115KV - SECTION 2D & 2E	P2-4	Bus-Tie-Breaker	128	N/A	N/A	56	N/A	N/A	43	53	N/A	Project: NE Kern Reconductor	
	P2-2:A15:42:_MIDWAY 115KV SECTION 2E	P2-2		82	105	<100	74	68	106	98	92	102	Project: NE Kern Reconductor	
	LERDO-KERN OIL-7TH STANDARD 115KV [1950]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	130	143	<100	<100	<100	<100	<100		146	Project: NE Kern Reconductor	
Semitropic-Famoso 70kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	N/A	87	107	174	98	85	NConv	Install Redundant Battery Supply	
Taft-Maricopa 70 kV Line	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	161	152	184	152	226	176	149	153	169	Summer Setup	
	P4-2:A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P4	Stuck Breaker	89	81	169	81	115	111	84	80	99	Continue to Monitor	
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	95	150	227	163	96	NConv	Install Redundant Battery Supply	
	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	195	198	176	184	265	175	137	184	202	Summer Setup	



[illegible]



[illegible]



## 2024-2025 ISO Reliability Assessment - Study Results

**Study Area:** PG&E Kern

### ***Voltage Deviation***

[illegible]



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
5430 "P4-3 - Stuck Breaker 552 protecting Tran MIDWAY 500/230 kV bk 12" 1.00 "P4" "" "" 0	P4	Stuck Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issue	Current result is based on 3-phase fault.Working with PTO for SLG fault information
5450 "P4-5 - Stuck non-Bus-tie Breaker 242 protecting Substation Bus MIDWAY 230 kV Section F" 1.00 "P4" "" "" 0	P4	Stuck Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issue	Potential WECC/NERC criteria violation	Current result is based on 3-phase fault.Working with PTO for SLG fault information
5530 "P5-3d - Failure of Kern 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Tran KERN PWR 115 / KERN PP 230 kV bk #4 (ALL 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5550 "P5-5a - Failure of non-redundant relay protecting Substation Bus Westpark 115 kV (ALL 115kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5552 "P5-5c - Failure of non-redundant DC battery supplying Kern Oil Sub 115kV Buses for SLG fault at Kern Oil Sub 115kV Bus Sec D (All 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5710 "P7-1 - Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 and Line Midway*-Wheeler Ridge 230 kV ckt 2" 1.00 "P7" "" "" 0	P7	DCTL	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3110 "P1-1 - Gen SUNRISEPR 18 kV (3 units)" 1.00 "P1" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3240 "P2-4 - Internal fault at Bus-tie Breaker 392 at MIDWAY 115 kV Bus E" 1.00 "P2" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3430 "P4-3 - Stuck Breaker 552 protecting Tran MIDWAY 500/230 kV bk 12" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3450 "P4-5 - Stuck non-Bus-tie Breaker 242 protecting Substation Bus MIDWAY 230 kV Section F" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	Continue to Monitor
3530 "P5-3d - Failure of Kern 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Tran KERN PWR 115 / KERN PP 230 kV bk #4 (ALL 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3550 "P5-5a - Failure of non-redundant relay protecting Substation Bus Westpark 115 kV (ALL 115kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	Continue to Monitor
3552 "P5-5c - Failure of non-redundant DC battery supplying Kern Oil Sub 115kV Buses for SLG fault at Kern Oil Sub 115kV Bus Sec D (All 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3710 "P7-1 - Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 and Line Midway*-Wheeler Ridge 230 kV ckt 2" 1.00 "P7" "" "" 0	P7	DCTL	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue





Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

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



Single Source Substation with more than 100 MW Load

Substation										Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

No single source substation with more than 100 MW



## 2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&amp;E North Coast &amp; North Bay

Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Clear Lake - Eagle Rock 60 kV (Clear Lake 60 kV sub to Konocti Sub 60 kV)	GEYSERS #3-CLOVERDALE 115KV [1650] (CLOVRDLE-AIDLINJCT)	P2-1	Line Section w/o Fault	92	99	102	56	64	70	67	50	72	64	96	Continue to monitor
	MENDOCINO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	101	107	179	50	65	88	52	24	67	50	108	Review Existing Fort Bragg UVLS
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	86	85	56	62	65	67	44	73	66	84	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	78	78	54	58	59	65	45	71	63	76	Install redundant relay
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	104	111	176	51	65	94	54	25	65	52	101	Redundant relay installation recommended in previous TPP cycles
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	181	195	142	<100	<100	<100	<100	<100	<100	<100	194	Operational Solution
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	96	99	123	47	59	77	53	27	66	52	99	Continue to monitor
Clear Lake- Hopland 60 Kv(Clear Lake 60 kV sub to Granite Sub 60 kV)	MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	83	86	104	43	53	69	48	27	59	47	86	Continue to monitor
	EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	101	Diverge	46	59	Diverge	65	5	52	63	85	Project: Clear Lake 60 kV System Reinforcement; Middletown UVLS
Corona- Lakeville 115kV Line	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & KONOCTI-EAGLE ROCK 60KV [6861]	P6	N-1-1	101	104	<100	<100	<100	<100	<100	<100	<100	<100	103	Project: Clear Lake 60 kV System Reinforcement
	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	109	46	59	64	30	35	53	7	63	54	46	Project: Santa Rosa 115 kV lines Reconductoring project
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	114	43	56	56	27	35	42	9	37	41	44	Redundant relay installation recommended in previous TPP cycles
	Station DC Battery Supply FULTON 230-115-60KV Batt	P5	Non-Redundent Battery Supply	109	NA	NA	64	NA	NA	54	NA	63	54	NA	Project: Santa Rosa 115 kV lines Reconductoring project
	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project
Cortina - Mendocino 115 kV Line	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	110	46	59	64	30	35	54	7	63	54	45	Project: Santa Rosa 115 kV lines Reconductoring project
	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	96	78	Diverge	25	48	106	19	30	40	21	90	Continue to monitor
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	96	78	137	25	48	105	19	30	40	21	90	Continue to monitor
	EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	95	Diverge	31	59	Diverge	25	29	48	28	97	Middletown UVLS
	GEYSERS34 115KV - RING R2 & R3	P2-3	Non-Bus-Tie-Breaker Fault	80	83	105	31	46	65	28	11	47	32	82	Continue to monitor
	EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	95	77	Diverge	25	48	104	18	30	40	21	89	Continue to monitor
	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundent Battery Supply	96	79	Diverge	25	49	106	19	30	41	21	90	Install redundant battery supply
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	86	Diverge	NA	45	71	NA	28	NA	NA	89	Install redundant battery supply
Eagle Rock - Cortina 115 kV (Highland to Highland Jct2)	EAGLE ROCK-REDBUD 115KV [1480] & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	132	125	118	<100	<100	<100	<100	<100	<100	<100	120	Operational Solution
	EAGLE ROCK-CORTINA & EAGLE ROCK-REDBUD LINES (2)	P7	DCTL	76	71	103	16	35	60	7	27	35	16	74	Continue to monitor
	STATION DC BATTERY SUPPLY FULTON 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	27	18	NA	33	36	NA	101	NA	NA	17	Install redundant battery supply
	Station DC Battery Supply LAKEVILLE 230-115-60kV Batt	P5	Non-Redundent Battery Supply	104	NA	NA	7	NA	NA	8	NA	32	7	NA	Install redundant battery supply
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	96	Diverge	NA	41	76	NA	66	NA	NA	100	Install redundant battery supply
	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	108	111	Diverge	<100	<100	<100	<100	<100	<100	<100	113	Operational Solution



## 2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&amp;E North Coast &amp; North Bay

Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
EAGLE ROCK 115/60 KV BANK NO.1	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	93	98	132	53	70	92	48	9	51	47	99	Continue to monitor
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	94	100	131	54	69	96	49	8	50	48	92	Redundant relay installation recommended in previous TPP cycles
	EAGLE ROCK-REDBUD 115KV [1480] & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	135	112	112	<100	<100	<100	<100	<100	<100	<100	<100	Operational Solution
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	88	90	111	51	66	84	49	15	51	48	90	Continue to monitor
Eagle Rock- Fulton- Silverado 115 kv (Eagle rock sub to Ricon Jct Jct2 115 kv)	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	85	87	111	45	47	69	62	52	70	68	82	Redundant relay installation recommended in previous TPP cycles
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	108	Diverge	NA	56	80	NA	36	NA	NA	102	Install redundant battery supply
	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
Eagle Rock- Redbud 115 kv (Eagle Rock - Highland Jct1)	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	133	144	124	<100	<100	<100	<100	<100	<100	<100	143	Operational Solution
Eagle Rock- Redbud 115 kv (Eagle Rock 115kv to Lower Lake 115 Kv Jct)	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	158	171	147	<100	<100	<100	<100	<100	<100	<100	170	Operational Solution
Fulton - Hopland 60 kv (Hopland Jct 60 kv to Cloverdale Jct 60 kv)	EGLE RCK-FULTON-SILVERDO 115KV [0]	P1	N-1	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor
	SILVERDO-FULTON-EGLE RCK 115KV [0]	P1	N-1	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor
	EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2-1	Line Section w/o Fault	65	76	103	48	44	73	68	88	88	85	67	Continue to monitor
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	45	9	114	7	12	43	15	66	23	31	32	Continue to monitor
	FULTON - 2D 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	64	75	102	48	44	72	68	88	88	84	66	Continue to monitor
	SILVERDO - 1E 115KV & SILVERDO-FULTON-EGLE RCK LINE	P2-3	Non-Bus-Tie-Breaker Fault	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	241	235	183	166	177	235	72	233	239	237	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	234	226	184	163	173	235	75	231	238	230	Install redundant relay
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	87	Diverge	NA	45	67	NA	21	NA	NA	81	Install redundant battery supply
	STATION DC BATTERY SUPPLY RINCON 115KV BATT	P5	Non-Redundent Battery Supply	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor
	STATION DC BATTERY SUPPLY SILVERADO 115KV BATT	P5	Non-Redundent Battery Supply	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor
	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	173	178	Diverge	<100	<100	<100	<100	<100	<100	<100	180	Operational Solution
	GEYSERS #17-FULTON & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	69	83	111	51	47	76	73	93	93	89	74	Continue to monitor
	GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	76	87	116	56	52	81	79	100	100	96	78	Continue to monitor
Fulton #1 60kv (Geyserville sub 60 kv to Geyserville Jct 60 kv)	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	75	77	100	45	46	55	61	63	67	61	76	Redundant relay installation recommended in previous TPP cycles
FULTON 230/115 kv Bank # 4	FULTON 230/115KV TB 9 & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
FULTON 230/115 kv Bank # 9	FULTON 230/115KV TB 4 & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	<100	<100	106	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
Fulton - Calistoga 60 kv (Fulton Sub 60 kv to St. Helena Jct 60 kv)	LAKEVILLE #1 60KV [7360]	P1	N-1	83	86	122	29	38	56	40	12	30	40	85	Continue to monitor
	GEYSER78 13.80KV GEN UNIT 2 & LAKEVILLE #1 60KV [7360]	P3	G-1/ N-1	<100	<100	122	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	86	Diverge	NA	38	56	NA	12	NA	NA	85	Install redundant battery supply
	SONMA LF 9.11KV GEN UNIT 1 & LAKEVILLE #2 60KV [7340] MOAS OPENED ON PETLMA_A_LKVL JT	P3	G-1/ N-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	247	236	4	176	172	17	28	6	10	249	Redundant relay installation recommended in previous TPP cycles



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Fulton- Molino- Cotati 60 kV(Molino sub 60 kV to Molino Jct 60 kV)	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	253	242	4	178	174	18	30	6	10	255	Install redundant relay
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	59	80	103	25	40	48	14	22	6	20	84	Redundant relay installation recommended in previous TPP cycles
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	208	Diverge	NA	126	161	NA	18	NA	NA	205	Install redundant battery supply
	FULTON 230/115KV TB 4 & FULTON 230/115KV TB 9	P6	N-1-1	<100	<100	112	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
Fulton- Santa Rosa No.1 115 kV (Fulton 115kv sub to Monoroe 1 115 kv Tap)	FULTON-SANTA ROSA #2 115KV [1630] & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	111	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project
Fulton- Santa Rosa No.2 115 kV (Fulton 115kv sub to Monoroe 2 115 kv Tap)	FULTON-SANTA ROSA #1 115KV [1620] & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project
GEYSER # 3 - CLOVERDALE 115K (CLOVERDALE 115KV to MPE TAP115KV)	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	71	92	110	56	56	36	67	69	67	67	78	Continue to monitor
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	94	101	119	47	57	73	52	30	62	52	100	ISO recommends a RAS
	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	88	98	112	49	58	78	55	38	64	56	92	Continue to monitor
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	91	94	55	61	70	65	45	69	65	87	Redundant relay installation recommended in previous TPP cycles
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	88	95	110	44	54	70	49	28	55	49	89	Redundant relay installation recommended in previous TPP cycles
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & EAGLE ROCK-REDBUD 115KV [1480]	P6	N-1-1	109	115	112	<100	<100	<100	<100	<100	<100	<100	114	Operational Solution
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	110	117	141	55	69	89	60	36	73	60	116	ISO recommends a RAS
Geyser56-MPE Tap 115 kV	MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	97	103	123	51	62	80	54	34	65	54	101	ISO recommends a RAS
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	80	65	103	31	41	63	39	18	50	39	76	Continue to monitor
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	98	80	127	39	51	77	48	25	60	47	93	Continue to monitor
Hartley - Clear Lake 60kV	MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	84	66	111	35	45	69	42	22	53	41	79	Continue to monitor
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	82	89	145	33	47	62	40	10	42	36	91	Continue to monitor
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	88	96	145	37	49	70	46	18	45	43	84	Redundant relay installation recommended in previous TPP cycles
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050] & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	103	108	Diverge	<100	<100	<100	<100	<100	<100	<100	107	Operational Solution
	EGLE RCK 115/60KV TB 1	P1	N-1	91	99	106	68	80	90	63	39	67	65	94	Maintenance project to increase capacity of Hopland Bank#2
	EGLE RCK-FULTON-SILVERDO 115KV [0]	P1	N-1	82	91	104	64	71	98	60	52	72	66	85	Maintenance project to increase capacity of Hopland Bank#2
	KONOCI-EAGLE ROCK 60KV [6861]	P1	N-1	91	98	106	68	80	90	63	39	67	65	94	Maintenance project to increase capacity of Hopland Bank#2
	SILVERDO-FULTON-EGLE RCK 115KV [0]	P1	N-1	82	91	104	64	71	98	60	52	72	66	85	Maintenance project to increase capacity of Hopland Bank#2
	EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2-1	Line Section w/o Fault	82	91	105	64	71	97	60	52	72	66	85	Maintenance project to increase capacity of Hopland Bank#2
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050] (UKIAH-HPLND JT)	P2-1	Line Section w/o Fault	93	104	107	75	84	97	69	55	74	68	98	Maintenance project to increase capacity of Hopland Bank#2
	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	79	104	Diverge	75	74	52	73	74	75	79	90	Maintenance project to increase capacity of Hopland Bank#2
	UKIAH 115KV SECTION 1E	P2-2	Bus Fault	90	102	105	74	83	96	68	54	72	67	96	Maintenance project to increase capacity of Hopland Bank#2
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	80	104	53	75	74	52	73	74	75	79	90	Maintenance project to increase capacity of Hopland Bank#2



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
HOPLAND BANK 115/60.00 BANK NO.2	EGLE RCK - MA 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	79	104	Diverge	75	74	49	73	75	75	79	90	Maintenance project to increase capacity of Hopland Bank#2
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	101	115	137	70	89	115	56	33	64	55	112	Maintenance project to increase capacity of Hopland Bank#2
	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	92	108	117	65	77	102	58	39	70	65	100	Maintenance project to increase capacity of Hopland Bank#2
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	163	155	154	151	164	143	45	147	142	160	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	156	141	153	151	165	141	46	146	140	152	Install redundant relay
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	118	132	151	81	99	130	67	48	75	66	119	Redundant relay installation recommended in previous TPP cycles
	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundent Battery Supply	80	105	Diverge	75	75	50	74	75	75	80	90	Install redundant battery supply
	STATION DC BATTERY SUPPLY RINCON 115KV BATT	P5	Non-Redundent Battery Supply	82	91	104	64	71	98	60	52	72	66	85	Continue to monitor
	EAGLE ROCK-FULTON-SILVERADO & FULTON-PUEBLO LINES	P7	DCTL	80	88	101	63	69	94	59	52	71	65	82	Maintenance project to increase capacity of Hopland Bank#2
	GEYSERS #17-FULTON & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	84	94	108	66	72	99	62	54	74	68	88	Maintenance project to increase capacity of Hopland Bank#2
	GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	87	95	110	69	75	103	65	56	77	71	89	Maintenance project to increase capacity of Hopland Bank#2
	SILVERADO-FULTON JCT & FULTON-PUEBLO LINES	P7	DCTL	80	88	101	63	69	94	59	52	71	65	82	Maintenance project to increase capacity of Hopland Bank#2
	GEYSER14 13.80KV GEN UNIT 1 & KONOCI-EAGLE ROCK 60KV [6861]	P3	G-1/ N-1	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	MENDOCINO-UKIAH 115KV [2420] MOAS OPENED ON MENDOCNO_CALPELLA & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	178	178	133	113	136	<100	124	<100	143	124	178	Operational Solution
Ignacio - San Rafael Jct 60 KV Line	IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	116	57	77	79	54	84	51	6	52	50	57	Project: Ignacio Area Upgrade
Konociti - Eagle Rock 60KV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P1	N-1	97	98	110	55	66	78	62	30	60	60	98	Continue to monitor
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050]	P1	N-1	92	97	106	54	64	75	61	30	59	60	94	Continue to monitor
	GEYSERS #3-CLOVERDALE 115KV [1650] (CLOVRDLE-AIDLINJCT)	P2-1	Line Section w/o Fault	98	103	112	56	67	77	64	32	61	62	100	Potential line reconductor project
	CLOVRDLE 115KV SECTION 1D	P2-2	Bus Fault	93	98	107	54	65	75	62	31	59	60	96	Continue to monitor
	AIDLINGYSR - 1D 115KV & MISSION POWER TAP LINE	P2-3	Non-Bus-Tie-Breaker Fault	97	98	110	55	66	78	62	30	60	60	98	Continue to monitor
	CLOVRDLE - 1D 115KV & UKIAH-HOPLAND-CLOVERDALE LINE	P2-3	Non-Bus-Tie-Breaker Fault	94	98	107	54	65	76	62	31	59	61	96	Continue to monitor
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	105	110	148	52	68	89	55	10	59	54	111	Review Existing Fort Bragg UVLS
	CLOVRDLE1-25 25.00KV GEN UNIT VG & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	CLOVERDALE 115 KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	92	93	106	53	63	76	60	29	57	59	93	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	97	102	56	66	74	65	27	63	64	95	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	92	97	55	64	70	63	28	61	62	90	Install redundant relay
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	106	112	146	52	68	94	55	10	57	54	105	Redundant relay installation recommended in previous TPP cycles
	STATION DC BATTERY SUPPLY CLOVRDLE 115KV BATT	P5	Non-Redundent Battery Supply	92	94	106	53	64	76	60	29	58	59	93	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	133	144	138	<100	<100	<100	<100	<100	<100	<100	143	Operational Solution
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	100	102	125	50	64	83	55	18	57	55	102	Potential line reconductor project
	MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	91	94	113	47	60	77	52	18	53	52	94	Continue to monitor
LAKEVILLE #2 60KV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	354	347	NA	244	258	NA	47	NA	NA	355	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	360	353	NA	247	262	NA	50	NA	NA	362	Install redundant relay
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	145	190	NA	80	105	NA	46	NA	NA	149	Redundant relay installation recommended in previous TPP cycles
	FULTON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	84	110	NA	48	62	NA	36	NA	NA	85	Continue to monitor
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	137	Diverge	NA	81	101	NA	14	NA	NA	135	Install redundant battery supply
	FULTON 230/115KV TB 4 & FULTON 230/115KV TB 9	P6	N-1-1	<100	145	189	<100	<100	103	<100	<100	<100	<100	145	Operational Solution
LAKEVILLE #2 60 kV (Petaluma Jct 60 kV to Petaluma A)	LAKEVILLE-PETALUMA C 60KV [7350]	P1	N-1	74	89	111	37	55	68	38	29	31	38	89	Continue to monitor
	SONMA LF 9.11KV GEN UNIT 1 & LAKEVILLE-PETALUMA C 60KV [7350]	P3	G-1/ N-1	<100	<100	113	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	239	233	NA	162	172	NA	32	NA	NA	239	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	243	238	NA	164	174	NA	33	NA	NA	244	Install redundant relay
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	NA	98	128	NA	53	70	NA	31	NA	NA	100	Redundant relay installation recommended in previous TPP cycles
	FULTON 230/115KV TB 4 & FULTON 230/115KV TB 9	P6	N-1-1	<100	<100	128	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
LAKEVILLE 230/60 kV Bank # 3	LAKEVILLE 230/60KV TB 5	P1	N-1	18	80	99	38	65	78	52	88	128	133	70	Sensitivity only
	LAKEVILLE 230KV SECTION 1D	P2-2	Bus Fault	18	81	100	38	67	79	48	88	128	133	72	Continue to monitor
	LAKEVILLE 230KV - SECTION 1D & 1E	P2-4	Bus-Tie-Breaker Fault	17	83	102	38	68	82	48	89	128	133	73	Continue to monitor
	LAKEVILLE 230KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	17	81	100	38	66	79	48	90	128	133	71	Sensitivity only
	SONMA LF 9.11KV GEN UNIT 1 & LAKEVILLE 230/60KV TB 5	P3	G-1/ N-1	<100	<100	100	<100	<100	<100	<100	<100	128	133	<100	Sensitivity only
	LAKEVILLE 230 KV BUS 1&2 SECTION E(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	32	81	101	38	66	79	49	81	128	133	77	Redundant relay installation recommended in previous TPP cycles
Mendocino - Philo Jct - Hopland 60 kV(Mendocino Sub 60KV to UKIAH JT 60kV)	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	100	112	199	58	87	114	38	16	54	32	115	Review Existing Fort Bragg UVLS
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	61	69	35	42	51	41	9	42	42	62	Redundant relay installation recommended in previous TPP cycles
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	65	74	37	43	52	42	9	43	44	66	Install redundant relay
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	114	128	204	65	92	139	48	23	60	42	107	Redundant relay installation recommended in previous TPP cycles
	MENDOCINO-UKIAH 115KV [2420] MOAS OPENED ON MENDOCNO_CALPELLA & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	142	146	140	<100	<100	<100	<100	<100	<100	<100	146	Operational Solution
MENDOCINO - REDBUD 115 KV (MENDOCINO SUB TO LUCERN JCT2 115KV)	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	142	154	135	<100	<100	<100	<100	<100	<100	<100	153	Operational Solution
MENDOCINO 115/60 KV BANK NO.1	GEYSRS-6 13.80KV GEN UNIT 2 & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	105	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Generation redispatch
	FULTON-PUEBLO 115KV [1600] & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	116	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Operational Solution
	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	55	55	Diverge	26	38	69	35	9	26	37	55	Continue to monitor
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	55	55	102	26	38	69	35	9	26	37	55	Continue to monitor



## 2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&amp;E North Coast &amp; North Bay

Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Mendocino - Clearlake 60 kV (Mendocino Sub 60 kV to Upper Lake Sub 60 kV)	EGLEROCK - MA 115KV & EGLEROCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	55	55	Diverge	26	38	70	35	9	26	37	55	Continue to monitor
	EGLEROCK - MA 115KV & EGLEROCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	52	Diverge	25	35	Diverge	34	9	25	36	46	Middletown UVLS
	EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	55	55	Diverge	26	38	69	35	8	26	37	55	Continue to monitor
	STATION DC BATTERY SUPPLY EGLEROCK 115-60KV BATT	P5	Non-Redundant Battery Supply	55	55	Diverge	26	38	70	35	9	26	37	56	Install redundant battery supply
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050] & KONOCTI-EAGLE ROCK 60KV [6861]	P6	N-1-1	<100	<100	114	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
Monte Rio- Fulton 60 kV(Molino Back Tie)	FULTON-MOLINO-COTATI 60KV [6910] MOAS OPENED ON SNMA TAP_SNMALDFL	P1	N-1	NA	NA	117	NA	NA	NA	NA	NA	NA	NA	NA	Continue to monitor
	GEYSER14 13.80KV GEN UNIT 1 & FULTON-MOLINO-COTATI 60KV [6910] MOAS OPENED ON SNMA TAP_SNMALDFL	P3	G-1/ N-1	<100	<100	117	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	FULTON-SANTA ROSA #1 & FULTON-MOLINO-COTATI LINES	P7	DCTL	NA	NA	116	NA	NA	NA	NA	NA	NA	NA	NA	Continue to monitor
Oleum - North Tower-Christie 115 kV (North tower sub to North Tower J12)	NRTH TWR 115KV SECTION 1E	P2-2	Bus Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV SECTION 1F	P2-2	Bus Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV SECTION 1G	P2-2	Bus Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV - SECTION 1E & 1F	P2-4	Bus-Tie-Breaker Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV - SECTION 1F & 1G	P2-4	Bus-Tie-Breaker Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project
San Rafael Jct-Greenbre 60 kV Line	IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	116	57	77	79	54	84	51	6	52	50	57	Project: Ignacio Area Upgrade
Santa Rosa- Corona 115 kv (Santa Rosa 115kv sub to Pennygrove Sub 115 kv)	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	117	43	55	61	28	32	57	7	69	57	43	Project: Santa Rosa 115 kV lines Reconductoring project
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	43	56	61	28	32	57	7	69	57	42	Install redundant relay
	Station DC Battery Supply FULTON 230-115-60kV Batt	P5	Non-Redundant Battery Supply	117	NA	NA	60	NA	NA	57	NA	69	57	NA	Project: Santa Rosa 115 kV lines Reconductoring project
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	123	40	53	52	25	32	44	9	40	42	41	Redundant relay installation recommended in previous TPP cycles
	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	118	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project
	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	118	43	56	61	28	32	57	7	69	57	42	Project: Santa Rosa 115 kV lines Reconductoring project
Sonoma - Pueblo 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	108	94	87	41	52	87	40	18	36	39	94	Redundant relay installation recommended in previous TPP cycles
	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	103	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Operational Solution
Tulucay - Vaca 230 kV Line	LAKEVILLE 230KV - SECTION 2E & 1E	P2-4	Bus-Tie-Breaker Fault	110	98	NA	34	50	85	38	9	90	53	97	Project: Vaca Dixon-Lakeville 230 kV Corridor Series Compensation
	LAKEVILLE 230 KV BUS 1&2 SECTION E(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	110	98	NA	34	50	85	38	9	89	53	97	Redundant relay installation recommended in previous TPP cycles
Tulucay - Vaca Dixon 230 kV Series Reactor S5	GEYSR18-LAKEVILLE-GEYSR20-GEYSR13 230KV [0] MOAS OPENED ON G13TT1.8_SANTAFE & VACA-LAKEVILLE #1 230KV [5840]	P6	N-1-1	NA	<100	104	NA	<100	<100	NA	<100	NA	NA	<100	Continue to monitor
Ukiah-Hopland-Cloverdale 115 kV (Ukiah sub 115kv to Hopland Jct 115kv)	MENDOCINO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	82	88	112	36	45	57	46	29	56	46	87	Continue to monitor
	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	76	86	101	38	45	62	49	37	58	50	80	Continue to monitor
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	76	82	102	34	42	54	43	27	49	43	77	Redundant relay installation recommended in previous TPP cycles
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & EAGLE ROCK-REDBUD 115KV [1480]	P6	N-1-1	<100	102	121	<100	<100	<100	<100	<100	<100	<100	101	Operational Solution
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	99	105	130	44	55	71	54	35	67	54	104	ISO recommends a RAS
	MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	86	92	112	40	49	63	49	32	60	48	89	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
Vaca - Lakeville 230 kV Line No. 1	LAKEVILLE 230KV - SECTION 2E & 2D	P2-4	Bus-Tie-Breaker Fault	108	98	NA	33	53	87	31	8	78	50	97	Project: Vaca Dixon-Lakeville 230 kV Corridor Series Compensation
Vaca-Vacaville-Jameson-North Tower 115 kV Line	NRTH TWR 115KV SECTION 1E	P2-2	Bus Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV SECTION 1F	P2-2	Bus Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV SECTION 1G	P2-2	Bus Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV - SECTION 1E & 1F	P2-4	Bus-Tie-Breaker Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project
	NRTH TWR 115KV - SECTION 1F & 1G	P2-4	Bus-Tie-Breaker Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project



2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&E North Coast & North Bay

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
LYTNVLE 60 kV	Base Case	P0	Base Case	0.95	0.96	0.94	1.02	1.01	0.97	1.03	1.03	0.97	1.02	0.94	Project: Covelo 60 kV Voltage Support; switch it in-service.
KONOCIT6 60 kV	EGLE RCK 115/60KV TB 1	P1	N-1	0.93	0.93	0.89	0.98	0.95	0.93	1.00	1.05	0.98	0.99	0.93	Continue to monitor
EGLE RCK 60 kV	EGLE RCK 115/60KV TB 1	P1	N-1	0.93	0.93	0.89	0.98	0.95	0.93	1.00	1.05	0.98	0.99	0.93	Continue to monitor
KONOCIT6 60 kV	KONOCIT-EAGLE ROCK 60KV [6861]	P1	N-1	0.93	0.93	0.89	0.98	0.95	0.92	1.00	1.05	0.98	0.99	0.93	Continue to monitor
LYTNVLE 60 kV	LAYTONVILLE-WILLITS 60KV [8360]	P1	N-1	0.80	0.83	NA	1.02	0.95	NA	1.05	1.04	0.91	1.05	0.79	Project: Covelo 60 kV Voltage Support
LYTNVLE 60 kV	MENDOCINO-WILLITS-FORT BRAGG 60KV [7550] MOAS OPENED ON FRT BRGG_BIG RIVR	P1	N-1	0.93	0.95	0.89	1.01	1.00	0.95	1.03	1.03	0.95	1.02	0.93	Project: Covelo 60 kV Voltage Support; switch it in-service.
REDBUD 115 kV	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	0.94	1.01	Diverge	1.06	1.01	1.05	1.02	1.11	1.04	1.02	0.99	Continue to monitor
LYTNVLE 60 kV	MENDOCNO 115KV SECTION 2D	P2-2	Bus Fault	0.93	0.94	0.90	1.02	1.01	0.97	1.03	1.03	0.96	1.02	0.93	Project: Covelo 60 kV Voltage Support; switch it in-service.
MENDOCNO 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.97	1.03	0.57	1.06	1.01	1.05	1.03	1.10	1.05	1.03	1.01	Continue to monitor
UKIAH 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.96	1.01	0.56	1.05	1.01	1.04	1.03	1.09	1.03	1.02	0.99	Continue to monitor
HPLND JT 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.96	1.00	0.57	1.04	1.01	1.03	1.03	1.08	1.03	1.02	0.99	Continue to monitor
CLOVRDLE 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.98	1.01	0.61	1.04	1.02	1.03	1.03	1.06	1.03	1.03	1.00	Continue to monitor
GEYSERS34 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	1.01	1.03	0.64	1.04	1.03	1.04	1.03	1.05	1.04	1.03	1.02	Continue to monitor
LUCERNE 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	1.00	0.72	1.06	1.02	1.00	1.04	1.08	1.02	1.03	0.98	Continue to monitor
REDBUD 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.95	1.01	0.55	1.06	1.01	1.04	1.02	1.10	1.03	1.01	0.99	Continue to monitor
MENDOCNO 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	1.02	1.01	0.61	1.02	1.02	1.01	1.01	1.01	1.02	1.01	1.02	Continue to monitor
WILLITS 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.99	0.99	0.54	1.01	1.00	0.99	1.02	1.02	1.00	1.01	0.99	Continue to monitor
LYTNVLE 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.92	0.94	0.49	1.02	1.00	0.97	1.03	1.03	0.96	1.02	0.92	Project: Covelo 60 kV Voltage Support; switch it in-service.
HARTLEY 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.97	0.97	0.44	0.99	0.97	0.95	1.01	1.04	0.99	1.01	0.97	Continue to monitor
HPLND JT 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	1.02	1.02	0.64	1.02	1.01	1.01	1.01	1.03	1.02	1.01	1.02	Continue to monitor
KONOCIT6 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.93	0.37	0.98	0.94	0.94	0.99	1.05	0.97	0.99	0.94	Continue to monitor
EGLE RCK 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.93	0.37	0.98	0.94	0.94	0.99	1.05	0.97	0.99	0.94	Continue to monitor
REDBUD 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	1.01	Diverge	1.06	1.01	1.04	1.02	1.11	1.04	1.02	0.99	Continue to monitor
MENDOCNO 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	0.97	Diverge	1.05	1.05	Diverge	1.02	1.10	1.03	1.01	0.99	Existing Middletown UVLS
REDBUD 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	0.93	Diverge	1.05	1.03	Diverge	0.99	1.11	1.00	0.99	0.95	Existing Middletown UVLS
HIGHLAND 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	0.93	Diverge	1.05	1.03	Diverge	0.99	1.11	1.00	0.98	0.95	Existing Middletown UVLS
MENDOCNO 115 kV	MENDOCNO - 2D 115KV & CORTINA-MENDOCINO #1 LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.94	0.90	1.06	1.05	1.00	1.05	1.10	0.99	1.04	0.94	Continue to monitor
UKIAH 115 kV	MENDOCNO - 2D 115KV & CORTINA-MENDOCINO #1 LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.95	0.90	1.05	1.04	1.00	1.04	1.09	0.99	1.04	0.94	Continue to monitor



2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&E North Coast & North Bay

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
LYTNVLE 60 kV	MENDOCNO - 2D 115KV & CORTINA-MENDOCINO #1 LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.92	0.94	0.88	1.02	1.00	0.97	1.03	1.03	0.96	1.02	0.92	Project: Covelo 60 kV Voltage Support; switch it in-service.
SNTA RSA 115 kV	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	0.88	0.93	0.86	0.96	0.99	0.98	0.97	1.01	0.92	0.96	0.93	Project: Ignacio Area Upgrade; continue to monitor in long term
BELLVUE 115 kV	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	0.89	0.94	0.88	0.97	0.99	0.98	0.97	1.01	0.93	0.97	0.94	Project: Ignacio Area Upgrade; continue to monitor in long term
SONOMA 115 kV	LAKEVILLE 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.95	0.95	0.89	1.07	1.05	0.92	1.06	1.10	1.02	1.06	0.95	Continue to monitor
UKIAH 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.90	0.90	0.78	1.02	1.00	0.95	1.01	1.05	0.97	1.00	0.89	Continue to monitor
HPLND JT 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.92	0.92	0.81	1.03	1.01	0.96	1.02	1.05	0.99	1.02	0.91	Continue to monitor
CLOVRDLE 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.96	0.97	0.90	1.03	1.02	0.99	1.03	1.05	1.01	1.03	0.97	Continue to monitor
MENDOCNO 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.89	0.87	0.56	1.02	0.99	0.97	1.02	1.05	0.97	1.01	0.85	Middletown and Fort Braggs UVLS
WILLITS 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.87	0.84	0.51	1.01	0.98	0.96	1.02	1.05	0.96	1.01	0.82	Middletown and Fort Braggs UVLS
LYTNVLE 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.81	0.80	0.46	1.01	0.98	0.93	1.03	1.05	0.92	1.02	0.76	Project: Covelo 60 kV Voltage Support; switch it in-service.
HARTLEY 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.93	0.92	0.69	1.01	0.99	0.98	1.02	1.04	0.99	1.02	0.91	Continue to monitor
HPLND JT 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.98	0.97	0.80	1.02	1.01	1.03	1.01	1.03	1.00	1.01	0.96	Continue to monitor
KONOCTI6 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.99	0.98	0.89	1.03	1.01	1.02	1.03	1.04	1.01	1.03	0.98	Continue to monitor
EGLE RCK 60 kV	AIDLINGYSR1 13.80KV GEN UNIT 1 & EGLE RCK 115/60KV TB 1	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
CLOVRDLE 115 kV	CLOVRDLE1-25 25.00KV GEN UNIT VG & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
HPLND JT 115 kV	CLOVRDLE1-25 25.00KV GEN UNIT VG & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
KONOCTI6 60 kV	FULTON 1-25 25.00KV GEN UNIT VG & KONOCTI-EAGLE ROCK 60KV [6861]	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
LYTNVLE 60 kV	GEYSER11 13.80KV GEN UNIT 1 & LAYTONVILLE-WILLITS 60KV [8360]	P3	G-1/ N-1	0.71	0.79	NA	>0.9	>0.9	NA	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Covelo 60 kV Voltage Support; switch it in-service.
KONOCTI6 60 kV	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	0.93	0.94	0.89	0.98	0.94	0.93	0.99	1.05	0.97	0.99	0.93	Continue to monitor
GYSRVLE 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.32	0.33	0.47	0.39	0.39	0.99	0.45	0.37	0.41	Redundant relay installation recommended in previous TPP cycle
WINDSOR 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.33	0.32	0.48	0.40	0.38	0.99	0.45	0.36	0.42	Redundant relay installation recommended in previous TPP cycle
FULTON 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.42	0.34	0.31	0.48	0.40	0.38	1.00	0.45	0.36	0.43	Redundant relay installation recommended in previous TPP cycle
FTCH MTN 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.33	0.33	0.48	0.40	0.39	0.99	0.45	0.37	0.42	Redundant relay installation recommended in previous TPP cycle
COTATI 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.59	0.53	0.31	0.63	0.58	0.39	1.01	0.45	0.36	0.59	Redundant relay installation recommended in previous TPP cycle
PETLMA A 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.74	0.71	1.02	0.77	0.73	1.03	1.01	1.01	1.02	0.74	Redundant relay installation recommended in previous TPP cycle



2024-2025 ISO Reliability Assessment - Study Results

Study Area: **PG&E North Coast & North Bay**

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
SNTA RSA 115 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.93	0.85	0.96	0.99	0.97	0.96	1.01	0.92	0.96	0.94	Install redundant relay
BELLVUE 115 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.94	0.87	0.97	0.99	0.97	0.97	1.01	0.93	0.96	0.94	Install redundant relay
GYSRVLE 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.33	0.33	0.47	0.40	0.39	0.99	0.45	0.37	0.41	Install redundant relay
WINDSOR 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.42	0.33	0.32	0.48	0.40	0.38	0.99	0.45	0.36	0.42	Install redundant relay
FULTON 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.43	0.34	0.31	0.48	0.41	0.38	1.00	0.45	0.36	0.43	Install redundant relay
FTCH MTN 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.42	0.34	0.33	0.48	0.40	0.39	0.99	0.45	0.37	0.42	Install redundant relay
COTATI 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.59	0.53	0.30	0.63	0.57	0.39	1.01	0.45	0.36	0.59	Install redundant relay
PETLMA A 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.74	0.71	1.02	0.77	0.73	1.03	1.01	1.01	1.02	0.73	Install redundant relay
SONOMA 115 kV	LAKEVILLE 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.95	0.95	0.89	1.07	1.05	0.92	1.06	1.10	1.02	1.06	0.95	Continue to monitor
UKIAH 115 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.91	0.91	0.82	1.02	1.01	0.96	1.02	1.05	1.00	1.02	0.92	Redundant relay installation recommended in previous TPP cycle
HPLND JT 115 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.93	0.93	0.84	1.03	1.02	0.97	1.03	1.06	1.01	1.03	0.94	Redundant relay installation recommended in previous TPP cycle
MENDOCNO 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.92	0.88	0.60	1.05	1.03	0.96	1.06	1.07	1.01	1.05	0.94	Redundant relay installation recommended in previous TPP cycle
WILLITS 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.89	0.85	0.54	1.04	1.02	0.95	1.05	1.06	0.99	1.05	0.91	Redundant relay installation recommended in previous TPP cycle
LYTNVLE 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.83	0.80	0.48	1.03	1.01	0.92	1.05	1.06	0.95	1.05	0.84	Redundant relay installation recommended in previous TPP cycle
HARTLEY 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.94	0.92	0.71	1.03	1.01	0.96	1.04	1.05	1.01	1.04	0.96	Redundant relay installation recommended in previous TPP cycle
HPLND JT 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.99	0.98	0.83	1.03	1.03	1.00	1.03	1.03	1.01	1.03	1.01	Redundant relay installation recommended in previous TPP cycle
SNTA RSA 115 kV	Station DC Battery Supply FULTON 230-115-60kV Batt	P5	Non-Redundent Battery Supply	0.88	NA	NA	0.97	NA	NA	0.96	NA	0.93	0.96	NA	Install redundant battery supply
BELLVUE 115 kV	Station DC Battery Supply FULTON 230-115-60kV Batt	P5	Non-Redundent Battery Supply	0.89	NA	NA	0.97	NA	NA	0.97	NA	0.94	0.97	NA	Install redundant battery supply



2024-2025 ISO Reliability Assessment - Study Results

Study Area: **PG&E North Coast & North Bay**

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
REDBUD 115 kV	EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.94	1.01	Diverge	1.06	1.01	1.05	1.02	1.10	1.03	1.01	0.99	Continue to monitor
FULTON 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.88	0.92	0.82	0.98	0.97	0.92	0.97	1.02	0.96	0.96	0.93	Redundant relay installation recommended in previous TPP cycle
SNTA RSA 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.88	0.93	0.83	0.98	0.98	0.93	0.97	1.02	0.96	0.96	0.93	Redundant relay installation recommended in previous TPP cycle
BELLVUE 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.90	0.93	0.86	0.98	0.98	0.94	0.97	1.01	0.96	0.97	0.94	Redundant relay installation recommended in previous TPP cycle
GYSRVILLE 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.92	0.95	0.81	1.03	1.01	0.95	1.01	1.03	1.01	1.00	0.96	Redundant relay installation recommended in previous TPP cycle
WINDSOR 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.93	0.96	0.83	1.03	1.02	0.96	1.02	1.03	1.02	1.01	0.97	Redundant relay installation recommended in previous TPP cycle
FULTON 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.94	0.98	0.87	1.04	1.04	0.97	1.03	1.04	1.03	1.02	0.99	Redundant relay installation recommended in previous TPP cycle
FTCH MTN 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.92	0.96	0.83	1.03	1.01	0.95	1.01	1.03	1.01	1.00	0.96	Redundant relay installation recommended in previous TPP cycle
COTATI 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.91	0.97	0.88	1.03	1.01	0.96	1.03	1.03	1.03	1.02	0.98	Redundant relay installation recommended in previous TPP cycle
SILVERDO 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.90	0.93	0.83	1.00	0.99	0.92	0.98	1.04	0.98	0.98	0.94	Redundant relay installation recommended in previous TPP cycle
FULTON 230 kV	FULTON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.97	0.97	0.90	1.01	1.00	0.96	1.00	1.01	0.99	1.00	0.98	Continue to monitor
REDBUD 115 kV	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundent Battery Supply	0.95	1.01	Diverge	1.06	1.01	1.04	1.02	1.10	1.03	1.01	0.99	Continue to monitor
SNTA RSA 115 kV	STATION DC BATTERY SUPPLY FULTON 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.93	0.86	NA	0.99	0.97	NA	1.01	NA	NA	0.93	Install redundant battery supply
BELLVUE 115 kV	STATION DC BATTERY SUPPLY FULTON 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.94	0.88	NA	0.99	0.98	NA	1.01	NA	NA	0.94	Install redundant battery supply
SONOMA 115 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.93	Diverge	NA	1.03	0.98	NA	1.12	NA	NA	0.93	Install redundant battery supply
COTATI 60 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.91	Diverge	NA	0.95	0.90	NA	1.08	NA	NA	0.91	Install redundant battery supply
PETLMA C 60 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.87	Diverge	NA	0.93	0.87	NA	1.09	NA	NA	0.87	Install redundant battery supply
PETLMA A 60 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.87	Diverge	NA	0.93	0.87	NA	1.09	NA	NA	0.87	Install redundant battery supply
PUEBLO 115 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.95	Diverge	NA	1.04	0.99	NA	1.11	NA	NA	0.95	Install redundant battery supply
WILLITS 60 kV	STATION DC BATTERY SUPPLY MENDOCINO 115-60KV BATT	P5	Non-Redundent Battery Supply	0.24	0.24	NA	0.86	0.45	NA	0.95	1.10	0.31	0.95	0.24	Install redundant battery supply
LYTNVILLE 60 kV	STATION DC BATTERY SUPPLY MENDOCINO 115-60KV BATT	P5	Non-Redundent Battery Supply	0.32	0.31	NA	0.87	0.49	NA	0.97	1.08	0.38	0.97	0.31	Install redundant battery supply



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
COTATI 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
FTCH MTN 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
FULTON 115 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	0.89	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Ignacio Area Upgrade; continue to monitor in long term
FULTON 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
GYSRVLE 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
SILVERDO 115 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
WINDSOR 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
BELLVUE 115 kV	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	0.89	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Ignacio Area Upgrade; continue to monitor in long term
SNTA RSA 115 kV	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	0.87	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Ignacio Area Upgrade; continue to monitor in long term
CLOVRDLE 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.52	0.52	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.51	Operational Solutions
EGLE RCK 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.83	0.85	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	Operational Solutions
EGLE RCK 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.86	0.88	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	Operational Solutions
GEYSERS34 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.84	0.85	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	Operational Solutions
HARTLEY 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.62	0.62	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.60	Operational Solutions
HIGHLAND 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.86	0.89	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Operational Solutions



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
KONOC16 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.77	0.78	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	Operational Solutions
LUCERNE 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.61	0.62	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.60	Operational Solutions
LYTNVLE 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.46	0.47	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	0.46	Operational Solutions
MENDOCNO 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.54	0.54	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.53	Operational Solutions
MENDOCNO 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.59	0.58	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.57	Operational Solutions
REDBUD 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.68	0.68	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.66	Operational Solutions
UKIAH 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.53	0.53	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.51	Operational Solutions
WILLITS 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.54	0.53	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.52	Operational Solutions
CARQUINZ 115 kV	JAMESON CANYON PUMPING PLANT TAP 115KV [1833] MOAS OPENED ON SKGGS J1_HGHWY J1 & FULTON SVD=V	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
UKIAH 115 kV	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	1.00	1.00	0.90	1.05	1.02	1.00	1.02	1.11	1.05	1.01	0.99	Continue to monitor
LUCERNE 115 kV	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	0.98	0.98	0.89	1.06	1.02	1.01	1.02	1.13	1.03	1.01	0.96	Continue to monitor
REDBUD 115 kV	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	0.97	0.97	0.88	1.06	1.02	1.00	1.01	1.13	1.02	1.00	0.96	Continue to monitor



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
SNTA RSA 115 kV	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	0.87	0.93	0.85	0.97	0.98	0.97	0.96	1.01	0.93	0.96	0.94	Project: Ignacio Area Upgrade; continue to monitor in long term
BELLVUE 115 kV	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	0.89	0.94	0.87	0.97	0.98	0.97	0.96	1.01	0.94	0.97	0.94	Project: Ignacio Area Upgrade; continue to monitor in long term
ALTO 60 kV	IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	0.91	0.94	0.86	1.01	1.00	0.81	1.01	1.07	0.97	1.01	0.94	Continue to monitor



Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
KONOCI6 60 kV	EGLERCK 115/60KV TB 1	P1	N-1	8	8	10	5	7	9	3	-1	4	3	8	Continue to monitor
	KONOCI-EAGLE ROCK 60KV [6861]	P1	N-1	8	8	10	5	7	10	3	-1	1	3	8	Continue to monitor
LYTONVILLE 60 kV	LAYTONVILLE-WILLITS 60KV [8360]	P1	N-1	16	14	NA	0	6	NA	-2	-1	6	-2	16	Project: Covelo 60 kV Voltage Support



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
SVD MENDOCNO 115kV id v	P1	N-1	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Tran FULTON 230-115kV bk 9	P1	N-1	No Issues	No Issues	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Line CR2T3_18 to LAKEVILLE 230kV ckt 1	P2-1	Line Section w/o Fault	No Issues	No Issues	Consequential Generation Loss	No Issues	No Issues	Consequential Generation Loss.
Bus Fault at LAKEVILLE 230kV Bus E	P2-2	Bus Fault	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Internal fault at Bus-tie Breaker 202 at LAKEVILLE 230kV	P2-4	Bus-Tie-Breaker	No Issues	Non-BES Under Voltage	No Issues	No Issues	No Issues	Non-BES Under Voltage.
Gen GEYSER17 13.8kV unit 1 and SVD MENDOCNO 115kV id v	P3	G-1/ N-1	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage. Project: Covelo 60 kV Voltage Support, switch in 2034
Gen GEYSER18 13.8kV unit 1 and SVD MENDOCNO 115kV id v	P3	G-1/ N-1	No Issues	No Issues	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Gen GEYSER17 13.8kV unit 1 and Line LAKEVILLE to VACALKVLRCTR to VACA-DIX 230kV ckt 1	P3	G-1/ N-1	No Issues	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage.
Stuck Breaker 152 protecting SVD MENDOCNO 115kV id v	P4	Stuck Breaker	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	Non-BES Under Voltage	Non-BES Under Voltage. Project: Covelo 60 kV Voltage Support, switch in 2034
Stuck Bus-tie Breaker 402 protecting Substation Bus LAKEVILLE 230kV Bus #1	P4	Stuck Breaker	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Stuck Breaker Fulton CB 512 protecting Tran FULTON 230/115kV bk 4	P4	Stuck Breaker	No Issues	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage.
Failure of Eagle Rock 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Line EGLE RCK to HGHLNDJ1 115 kV ckt 1 (ALL 115 kV clears remotely)	P5	Non-redundant Relay	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Install Redundant Relay.
Failure of non-redundant bus differential relay protecting Substation Bus LAKEVILLE 230 kV (ALL 230 kV elements clear remotely)	P5	Non-redundant Relay	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Install Redundant Relay.
Fault on Tran Fulton 230/115 kV bk 9 with Loss of Line GYSR78TP to EGLE RCK 115kV ckt 1	P6	N-1-1	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Fault on Tran Lakeville 230/115kV bk 1 with Loss of Tran Lakeville 230/115kV bk 2	P6	N-1-1	No Issues	Delayed Voltage Recovery	Non-BES Under Voltage	No Issues	No Issues	Delayed Voltage Recovery in 2029 Summer Peak Non-BES Under Voltage Violation in 2034 Summer Peak.
Fault on Tran IGNACIO 230/115kV bk 6 with Loss of SVD IGNACIO 230kV id r	P6	N-1-1	No Issues	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage.





Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	

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



Substation	Load Served (MW)												Potential Mitigation Solutions
	2026 Summer Peak	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Benton-Deschutes 60 kV Line	P1-2:A3:42:_CASCADE-COTTONWOOD 115KV [1240]	P1	N-1	67	21	86	80	82	99	102	77	21	Sensitivity Only
	P2-1:A3:48:_CASCADE-COTTONWOOD 115KV [1240] (COTWDPGE-JESSUP1)	P2	Bus/Breaker	50	NA	NA	NA	86	NA	112	82	NA	Sensitivity Only
	P2-1:A3:50:_CASCADE-COTTONWOOD 115KV [1240] (CASCADE-OREGNTL)	P2	Bus/Breaker	67	22	86	80	82	99	102	77	21	Sensitivity Only
	P2-2:A3:34:_COTWDPGE 115KV SECTION 2D	P2	Bus/Breaker	43	NA	NA	NA	93	NA	110	87	NA	Sensitivity Only
	P2-2:A3:89:_COTWD_2E 115KV SECTION 2E	P2	Bus/Breaker	NA	37	109	152	NA	216	NA	NA	35	Continue to monitor
	P2-3:A3:116:_COTWD_2E - 2E 115KV & BRIDGEVILLE-COTTONWOOD LINE	P2	Bus/Breaker	NA	37	109	152	NA	216	NA	NA	36	Continue to monitor
	P2-3:A3:33:_COTWDPGE - 2D 115KV & BRIDGEVILLE-COTTONWOOD LINE	P2	Bus/Breaker	43	NA	NA	NA	93	NA	110	87	NA	Sensitivity Only
	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	12	50	127	234	203	306	112	187	50	Continue to monitor
	P2-4:A3:28:_COTWD_1E SECTION 1E & COTWD_2E SECTION 2E 115KV	P2	Bus/Breaker	NA	37	109	152	NA	216	NA	NA	35	Continue to monitor
	P2-4:A3:29:_COTWD_2D SECTION 2D & COTWD_2E SECTION 2E 115KV	P2	Bus/Breaker	NA	7	79	110	NA	151	NA	NA	7	Generation Re-dispatch
	P5-5(DC):A3:24:_Cottonwood 115kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	32	50	87	140	48	164	46	45	50	Add Redundant Battery
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	63	35	NConv	35	46	NConv	Add Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	63	36	NConv	35	46	NConv	Add Redundant relay
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	51	87	141	134	164	82	127	51	Add Redundant relay
Butte-Sycamore Creek 115 kV Line	P1-1:A3:99:_COLUSAPPGTG1 18.00KV & COLUSAPPGTG2 18.00KV & COLUSAPPGTG1 18.00KV GEN UNITS & P1-2:A3:42:_CASCADE-COTTONWOOD 115KV [1240]	P3	N-1/G-1	<100	<100	<100	92	<100	100	97	<100	<100	Generation re-dispatch
	P1-2:A3:53:_TABLE MTN-BUTTE #1 115KV [3910] & P1-2:A3:51:_SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314]	P6	N-1-1	<100	<100	111	<100	<100	<100	<100	<100	<100	Continue to monitor
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	0	NConv	0	1	0	NConv	0	0	Add Redundant relay
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	0	NConv	0	17	0	NConv	25	0	Add Redundant relay
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	0	NConv	0	32	0	NConv	144	0	Add Redundant relay
Cascade-Benton-Deschute 60 kV line	P2-2:A3:89:_COTWD_2E 115KV SECTION 2E	P2	Bus/Breaker	NA	22	49	74	NA	103	NA	NA	21	Generation Re-dispatch
	P2-3:A3:116:_COTWD_2E - 2E 115KV & BRIDGEVILLE-COTTONWOOD LINE	P2	Bus/Breaker	NA	22	49	74	NA	103	NA	NA	21	Generation Re-dispatch
	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	10	28	57	112	100	145	57	93	28	Generation Re-dispatch
	P2-4:A3:28:_COTWD_1E SECTION 1E & COTWD_2E SECTION 2E 115KV	P2	Bus/Breaker	NA	22	49	74	NA	103	NA	NA	21	Generation Re-dispatch
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	26	22	NConv	10	26	NConv	Add Redundant relay
Cascade-Cottonwood 115 kV Line	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	64	22	61	81	74	108	25	66	22	Generation Re-dispatch
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	93	72	NConv	18	66	NConv	Add Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	93	72	NConv	18	66	NConv	Add Redundant relay
	P1-3:A3:15:_COTWD_E 230/60KV TB 3 & P1-3:A3:14:_COTWD_E2 230/60KV TB 2	P6	N-1-1	<100	<100	119	<100	<100	78	<100	<100	<100	Continue to monitor



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Cascade-Craig View 115 kV Line (Path 25)	P5-5(DC):A3:1:_Round Mtn 500-230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	50	23	13	NA	77	NConv	Add Redundant Battery
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	106	43	NConv	NA	31	NConv	Add Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	NA	NA	NA	NA	NA	24	NA	NA	Add Redundant relay
Cascade-Deschutes 60 kV Line	P1-3:A3:83:_JESSUP 115/25KV TB 1	P1	N-1	NA	NA	128	NA	NA	NA	NA	NA	NA	Continue to monitor
	P2-1:A3:48:_CASCADE-COTTONWOOD 115KV [1240] (COTWDPGE-JESSUP1)	P2	Bus/Breaker	80	NA	NA	NA	107	NA	119	108	NA	Generation Re-dispatch
	P2-2:A3:34:_COTWDPGE 115KV SECTION 2D	P2	Bus/Breaker	71	NA	NA	NA	115	NA	116	114	NA	Generation Re-dispatch
	P2-3:A3:115:_COTWD_2D - 2D 115KV & CASCADE-COTTONWOOD LINE	P2	Bus/Breaker	NA	83	128	91	NA	93	NA	NA	82	continue to monitor
	P2-3:A3:33:_COTWDPGE - 2D 115KV & BRIDGEVILLE-COTTONWOOD LINE	P2	Bus/Breaker	71	NA	NA	NA	115	NA	116	115	NA	Generation Re-dispatch
	P2-3:A3:34:_COTWDPGE - 2D 115KV & CASCADE-COTTONWOOD LINE	P2	Bus/Breaker	94	NA	NA	NA	109	NA	102	108	NA	Generation Re-dispatch
	P2-4:A3:29:_COTWD_2D SECTION 2D & COTWD_2E SECTION 2E 115KV	P2	Bus/Breaker	NA	63	97	131	NA	160	NA	NA	64	Generation Re-dispatch
	P2-4:A3:8:_COTWDPGE 115KV - SECTION 2D & 1D	P2	Bus/Breaker	NConv	NA	NA	NA	182	NA	94	179	NA	Generation Re-dispatch
	P5-5(DC):A3:14:_Jessup 115kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	55	82	128	92	50	92	28	53	82	Add Redundant Battery
	P5-5(DC):A3:24:_Cottonwood 115kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	57	118	128	179	57	184	31	60	119	Add Redundant Battery
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	97	39	NConv	66	57	NConv	Add Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	97	41	NConv	66	58	NConv	Add Redundant relay
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	120	129	179	173	184	79	170	121	Add Redundant relay
	P1-1:A3:99:_COLUSAPPCTG1 18.00KV & COLUSAPPCTG2 18.00KV & COLUSAPPSTG1 18.00KV GEN UNITS & P1-3:A3:83:_JESSUP 115/25KV TB 1	P3	N-1/G-1	<100	<100	134	<100	<100	<100	<100	<100	<100	Continue to monitor
Coleman-Red Bluff 60 kV Line	P1-2:A3:80:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P1	N-1	152	66	78	5	69	17	59	69	67	Project:Red Bluff-Coleman 60 kV Reinforcement Project
	P1-1:A3:66:_SOUTH G 4.16KV GEN UNIT 1 & P1-2:A3:80:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P3	N-1/G-1	154	<100	<100	<100	<100	<100	<100	<100	<100	Project:Red Bluff-Coleman 60 kV Reinforcement Project
Cottonwood-Benton No.1 60 kV Line	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	58	31	115	108	82	155	38	74	32	Continue to monitor
	P2-2:A3:89:_COTWD_2E 115KV SECTION 2E	P2	Bus/Breaker	NA	35	103	69	NA	113	NA	NA	36	Continue to monitor
	P2-3:A3:116:_COTWD_2E - 2E 115KV & BRIDGEVILLE-COTTONWOOD LINE	P2	Bus/Breaker	NA	35	103	69	NA	113	NA	NA	36	Continue to monitor
	P2-4:A3:28:_COTWD_1E SECTION 1E & COTWD_2E SECTION 2E 115KV	P2	Bus/Breaker	NA	35	103	69	NA	113	NA	NA	36	Continue to monitor
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	30	23	NConv	18	29	NConv	Add Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	30	23	NConv	18	29	NConv	Add Redundant relay
	P1-3:A3:8:_COTWD_F2 230/115KV TB 4 & P1-3:A3:7:_COTWD_E2 230/115KV TB 1	P6	N-1-1	<100	<100	116	44	<100	58	<100	<100	<100	Continue to monitor
Cottonwood-Benton No.2 60 kV Line	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	20	4	61	88	72	119	39	66	4	Generation Re-dispatch



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Cottonwood-BRNY_FST 230 kV	P5-5(DC):A3:1:_Round Mtn 500-230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	NConv	NConv	37	84	85	71	85	NConv	Add Redundant Battery
Cottonwood-Round Mountain 230 kV Line	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	126	62	14	44	52	NConv	72	126	Add Redundant Battery
Cottonwood-Roundmountain 230kV line 2	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	151	75	16	52	63	NConv	85	151	Add Redundant Battery
Humboldt-Trinity 115 kV Line	P1-2:A3:39:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P1	N-1	60	57	0	100	98	95	31	87	58	Generation Re-dispatch
Keswick-Cascade 60 kV Line	P5-5(DC):A3:24:_Cottonwood 115kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	47	67	52	157	10	154	30	8	69	Add Redundant Battery
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	70	52	158	150	154	91	130	72	Add Redundant relay
Round Mountain 500/230 kV Bank	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	73	12	6	107	119	NConv	30	73	Add Redundant Battery
Round Mountain-Cottonwood(E) No.3 230 kV Line	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	NConv	165	81	18	57	68	NConv	94	165	Add Redundant Battery
Sycamore Creek-Notre Dame-Table Mountain 115 kV Line	P2-1:A3:72:_BUTTE-SYCAMORE CREEK 115KV [1190] (CHICOTP2-BUTTE)	P2	Bus/Breaker	92	93	117	9	43	30	35	43	95	Continue to monitor
	P2-2:A3:45:_BUTTE 115KV SECTION MD	P2	Bus/Breaker	92	94	118	9	43	30	35	43	95	Continue to monitor
	P2-3:A3:47:_BUTTE - MD 115KV & TABLE MTN-BUTTE #1 LINE	P2	Bus/Breaker	116	118	147	11	54	32	50	55	120	Project:Table Mountain 115 kV RAS (proposed)
	P2-4:A3:12:_BUTTE 115KV - SECTION MD & ME	P2	Bus/Breaker	95	97	124	9	43	30	35	43	98	Continue to monitor
	P2-2:A3:49:_TBLE MTN 115KV SECTION 1D	P2	Bus/Breaker	86	88	101	10	39	21	38	39	90	Continue to monitor
	P2-3:A3:51:_TBLE MTN - 1D 115KV & TABLE MTN-BUTTE #1 LINE	P2	Bus/Breaker	86	88	101	10	39	21	38	39	89	Continue to monitor
	P1-2:A3:54:_TABLE MTN-BUTTE #2 115KV [3920] & P1-2:A3:53:_TABLE MTN-BUTTE #1 115KV [3910]	P6	N-1-1	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
Table Mountain No.3 230/115 kV Transformer	P2-2:A3:28:_TABLE MTN D 230KV SECTION 1D	P2	Bus/Breaker	NConv	108	NConv	19	5	69	NConv	24	108	Project: Table mountain 115kV RAS(proposed) modify to add the Table Mountain bank
	P2-3:A3:26:_TABLE MTN D - 1D 230KV & CARIBOU-TABLE MTN LINE	P2	Bus/Breaker	NConv	106	116	19	5	70	NConv	24	106	Project: Table mountain 115kV RAS(proposed) modify to add the Table Mountain bank
	P2-3:A3:27:_TABLE MTN D - 1D 230KV & LINE	P2	Bus/Breaker	NConv	NA	NA	NA	90	NA	NConv	90	NA	Project: Table mountain 115kV RAS(proposed) modify to add the Table Mountain bank
Table Mountain-Butte No.1 115 kV Line	P1-2:A3:51:_SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314] & P1-2:A3:54:_TABLE MTN-BUTTE #2 115KV [3920]	P6	N-1-1	103	105	121	<100	<100	<100	<100	<100	106	Project:Table Mountain 115 kV RAS proposed
	P1-2:A3:54:_TABLE MTN-BUTTE #2 115KV [3920] & P1-2:A3:51:_SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314]	P6	N-1-1	118	120	138	<100	<100	<100	<100	<100	122	Project:Table Mountain 115 kV RAS proposed
Table Mountain-Butte No.2 115 kV Line	P1-2:A3:53:_TABLE MTN-BUTTE #1 115KV [3910] & P1-2:A3:51:_SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314]	P6	N-1-1	117	119	138	<100	<100	<100	<100	<100	121	Project:Table Mountain 115 kV RAS proposed
Table Mountain-Paradise 115 kV Line	P2-2:A3:49:_TBLE MTN 115KV SECTION 1D	P2	Bus/Breaker	87	89	101	10	40	21	39	40	91	Continue to monitor
	P2-3:A3:51:_TBLE MTN - 1D 115KV & TABLE MTN-BUTTE #1 LINE	P2	Bus/Breaker	87	89	101	10	40	21	38	40	90	Continue to monitor
	P1-2:A3:54:_TABLE MTN-BUTTE #2 115KV [3920] & P1-2:A3:53:_TABLE MTN-BUTTE #1 115KV [3910]	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	<100	Continue to monitor
Trinity-Cottonwood 115kV line	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	NA	29	31	82	NA	103	NA	NA	30	Generation Re-dispatch
Trinity-Keswick 60 kV Line	P2-4:A3:8:_COTWDPE 115KV - SECTION 2D & 1D	P2	Bus/Breaker	NConv	NA	NA	NA	161	NA	79	141	NA	Project: Cottonwood 115 kV bus sectionalizing breakers project
	P5-5(DC):A3:24:_Cottonwood 115kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	16	84	18	163	23	153	16	20	85	Add Redundant Battery
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	87	18	164	165	154	76	145	88	Add Redundant relay
Volte-South 60 kV Line	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2	Bus/Breaker	14	3	40	77	74	101	42	63	3	Generation Re-dispatch



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
Westwood 60kV line	P5-5(DC):A3:1:_Round Mtn 500-230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundent battery supply/Relay	15	18	NConv	20	14	20	16	108	18	Add Redundant Battery
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent battery supply/Relay	NConv	0	NConv	0	46	0	NConv	60	0	Add Redundant relay



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
CARBOU M 230 kV	P1-1:A3:111:_CARIBOU 1-25 25.00KV GEN UNIT VB & P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P3	N-1/G-1	NA	NA	0.46	>0.9	NA	>0.9	NA	NA	NA	Continue to monitor
	P1-2:A3:42:_CASCADE-COTTONWOOD 115KV [1240] & P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P6	N-1-1	NA	NA	0.46	NA	0.52	NA	NA	0.49	NA	Continue to monitor
	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-redundant relay/Battery	NConv	NA	0.59	NA	0.97	NA	NConv	0.95	NA	Continue to monitor
	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	NConv	NA	0.56	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
	P2-1:A3:21:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2	Bus/Breaker	NConv	NA	0.57	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
	P2-2:A3:21:_CARIBOU 230KV SECTION 1D	P2	Bus/Breaker	NConv	NA	0.46	NA	0.97	NA	NConv	0.96	NA	Continue to monitor
	P2-3:A3:21:_CARIBOU - 1D 230KV & CARIBOU-TABLE MTN LINE	P2	Bus/Breaker	NConv	NA	0.46	NA	0.97	NA	NConv	0.96	NA	Continue to monitor
	P2-3:A3:26:_TABLE MTN D - 1D 230KV & CARIBOU-TABLE MTN LINE	P2	Bus/Breaker	NConv	NA	0.57	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
CARIBOU 115 kV	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-redundant relay/Battery	NConv	NA	0.59	NA	0.97	NA	NConv	0.95	NA	Continue to monitor
	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	NConv	NA	0.56	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
	P2-1:A3:21:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2	Bus/Breaker	NConv	NA	0.57	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
	P2-2:A3:21:_CARIBOU 230KV SECTION 1D	P2	Bus/Breaker	NConv	NA	0.46	NA	0.97	NA	NConv	0.96	NA	Continue to monitor
	P2-3:A3:21:_CARIBOU - 1D 230KV & CARIBOU-TABLE MTN LINE	P2	Bus/Breaker	NConv	NA	0.46	NA	0.97	NA	NConv	0.96	NA	Continue to monitor
	P2-3:A3:26:_TABLE MTN D - 1D 230KV & CARIBOU-TABLE MTN LINE	P2	Bus/Breaker	NConv	NA	0.57	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
CARIBOU 230 kV	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-redundant relay/Battery	NConv	NA	0.60	NA	0.97	NA	NConv	0.95	NA	Continue to monitor
	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	NConv	NA	0.57	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
	P2-1:A3:21:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2	Bus/Breaker	NConv	NA	0.58	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
	P2-3:A3:26:_TABLE MTN D - 1D 230KV & CARIBOU-TABLE MTN LINE	P2	Bus/Breaker	NConv	NA	0.58	NA	0.96	NA	NConv	0.96	NA	Continue to monitor
CARIBOU 60 kV	P1-1:A3:111:_CARIBOU 1-25 25.00KV GEN UNIT VB & P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P3	N-1/G-1	NA	NA	0.45	>0.9	NA	>0.9	NA	NA	NA	Continue to monitor
	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440] & P1-3:A3:4:_CARIBOU 230/230KV TB 11	P6	N-1-1	NA	NA	0.45	NA	NA	NA	NA	NA	NA	Continue to monitor
	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-redundant relay/Battery	NConv	NA	0.57	NA	0.95	NA	NConv	0.93	NA	Continue to monitor
	P5-5:A3:12:_CARIBOU PH #2 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-redundant relay/Battery	NConv	NA	0.45	NA	0.95	NA	NConv	0.94	NA	Continue to monitor
	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-redundant relay/Battery	NConv	NA	0.45	NA	0.95	NA	NConv	0.94	NA	Continue to monitor







[illegible]



Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
CARIBOU 60kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	<8	<8	45	<8	<8	<8	<8	<8	<8	Continue to monitor
CARIBOU 115kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	<8	<8	46	<8	<8	<8	<8	<8	<8	Continue to monitor
CARIBOU 230kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	<8	<8	46	<8	<8	<8	<8	<8	<8	Continue to monitor
CLMN JCT 60kV	P1-2:A3:80:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P1	N-1	10	<8	<8	<8	<8	<8	<8	<8	<8	Project:Red Bluff-Coleman 60 kV Reinforcement Project



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
"P5-5a - Failure of non-redundant bus differential relay protecting Substation Bus TBL MT D 230 kV (ALL 230 kV elements clear	P5	Non-redundant relay/battery	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Install redundant relay
"RAS1-P2-2-Bus Fault at COTWD_F 230kV" 1.00 "" "" "" 0	P2	Bus/Breaker	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity only
"RAS1-P2-4-Internal fault at Bus-tie Breaker 412 at COTWD_F 230kV" 1.00 "" "" "" 0	P2	Bus/Breaker	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity only
"RAS1-P4-3-Stuck Breaker 462 protecting Tran TABLE MT 500/230kV bk 1" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity only
"RAS1-P4-5-Stuck non-Bus-tie Breaker 232 protecting Substation Bus COTWD_F 230kV Section F" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity only
"RAS1-P4-2-Stuck Breaker Table Mountain 212 protecting Line TABLE MTN D to PALERMO 230kV ckt 1" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"RAS1-P4-3-Stuck Breaker 462 protecting Tran TABLE MT 500/230kV bk 1" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"RAS1-P4-5-Stuck non-Bus-tie Breaker 232 protecting Substation Bus COTWD_F 230kV Section F" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"RAS1-P4-6-Stuck Bus-tie Breaker 412 protection Substation Bus COTWD_F 230kV Section 1F" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
"RAS1-P2-4-Internal fault at Bus-tie Breaker 452 at COTWD_F 230kV" 1.00 "" "" "" 0	P2	Bus/Breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor
"RAS1-P4-3-Stuck Breaker 462 protecting Tran TABLE MT 500/230kV bk 1" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor
"RAS1-P4-5-Stuck non-Bus-tie Breaker 232 protecting Substation Bus COTWD_F 230kV Section F" 1.00 "" "" "" 0	P4	Stuck breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Continue to monitor



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2034 Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

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



2024-2025 ISO Reliability Assessment - Study Results

Study Area: PG&E North Valley

Single Source Substation with more than 100 MW Load



Substation	Load Served (MW)											Potential Mitigation Solutions
	2026 Summer Peak	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2034 Summer Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring-Off Peak	2029 Spring-Off Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring Shoulder-Peak	
24087 MAGUNDEN 230 24401 ANTELOPE 230 1 1	Ine_P6_201254 Line BIG CRK1 230.0 to EASTWOOD 230.0 Circuit 1 Line PARDEE - Pastoria - Warner 230 kV line	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	105.9	Existing Pastoria Energy Facility RAS
	Ine_P6_201698 Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	108.4	Existing Pastoria Energy Facility RAS
	Ine_P6_201703 Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	108.4	Existing Pastoria Energy Facility RAS
	Ine_P6_201704 Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	112.8	Existing Pastoria Energy Facility RAS
	Ine_P6_201713 Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PARDEE - Pastoria - Warner 230 kV line	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	113.2	Existing Pastoria Energy Facility RAS
24087 MAGUNDEN 230 24401 ANTELOPE 230 2 1	Ine_P6_201984 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	103.1	Existing Pastoria Energy Facility RAS
	Ine_P6_201987 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	101.5	Existing Pastoria Energy Facility RAS
	Ine_P6_201989 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	109.1	Existing Pastoria Energy Facility RAS
24114 PARDEE 230 24115 PASTORIA 230 1 1	Ine_P6_202124 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	103.3	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202126 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	103.0	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202136 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PARDEE - Pastoria - Warner 230 kV line	P6	N-1-1	<100	<100	<100	100.6	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202222 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	101.7	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202324 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	100.5	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
24114 PARDEE 230 24217 WARNETAP 230 1 1	Ine_P6_201984 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	113.4	Existing Pastoria Energy Facility RAS
	Ine_P6_201985 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	101.4	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_201987 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	116.6	<100	109.2	<100	<100	108.3	Existing Pastoria Energy Facility RAS
	Ine_P6_201989 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	109.6	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202054 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	102.1	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202056 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	117.2	<100	109.9	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202057 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	110.4	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202122 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1	P6	N-1-1	104.9	<100	<100	<100	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202124 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	121.3	<100	<100	<100	106.8	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202125 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	119.0	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202322 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	119.4	<100	<100	<100	100.9	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202323 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	108.9	<100	<100	<100	Existing Pastoria Energy Facility RAS
24114 PARDEE 230 24403 BAILEY 230 1 1	Ine_P6_201989 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	109.7	Existing Pastoria Energy Facility RAS
24115 PASTORIA 230 24217 WARNETAP 230 1 1	Ine_P6_201984 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	122.3	Existing Pastoria Energy Facility RAS
	Ine_P6_201987 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	108.4	<100	105.2	<100	<100	117.2	Existing Pastoria Energy Facility RAS
	Ine_P6_201988 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	105.6	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202056 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	109.0	<100	105.9	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202057 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	106.3	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202124 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	113.0	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202125 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	110.7	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202322 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	111.2	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	Ine_P6_202323 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	104.8	<100	<100	<100	Existing Pastoria Energy Facility RAS
24301 BIG CRK1 230 24235 RECTOR 230 1 1	Ine_P6_201306 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK8 230.0 Circuit 1	P6	N-1-1	<100	104.4	104.1	104.5	<100	<100	104.4	<100	<100	Existing Big Creek/San Joaquin Valley RAS
	Ine_P6_201309 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit 1 Line BIG CRK8 230.0 to BIG CRK3 230.0 Circuit 1	P6	N-1-1	<100	121.3	120.8	121.6	<100	<100	121.3	<100	<100	Existing Big Creek/San Joaquin Valley RAS
	Ine_P6_201463 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK4 230.0 to BIG CRK3 230.0 Circuit 1	P6	N-1-1	<100	101.0	100.2	100.9	<100	<100	101.1	<100	<100	Existing Big Creek/San Joaquin Valley RAS
24302 BIG CRK2 230 24303 BIG CRK3 230 1 1	Ine_P6_201066 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK8 230.0 Circuit 1	P6	N-1-1	<100	108.4	108.2	108.2	<100	<100	108.4	<100	<100	Congestion management and system re-dispatch after initial contingency
	Ine_P6_201069 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK8 230.0 to BIG CRK3 230.0 Circuit 1	P6	N-1-1	<100	124.5	124.2	124.1	<100	<100	124.6	<100	102.2	Congestion management and system re-dispatch after initial contingency
24302 BIG CRK2 230 24305 BIG CRK8 230 1 1	Ine_P6_201065 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit 1	P6	N-1-1	<100	109.0	108.8	108.8	<100	<100	109.0	<100	<100	Existing Big Creek/San Joaquin Valley RAS
24303 BIG CRK3 230 24235 RECTOR 230 1 1	Ine_P6_200728 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1	P6	N-1-1	<100	120.8	119.9	121.7	109.3	<100	120.9	<100	NotConv	Existing Big Creek/San Joaquin Valley RAS
	Ine_P6_201068 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK4 230.0 to BIG CRK3 230.0 Circuit 1	P6	N-1-1	<100	106.9	106.0	106.6	<100	<100	107.0	<100	<100	Existing Big Creek/San Joaquin Valley RAS
	Ine_P6_201073 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2	P6	N-1-1	112.1	143.5	136.7	138.9	123.9	<100	138.3	105.3	132.7	Existing Big Creek/San Joaquin Valley RAS
	Ine_P6_201544 Line BIG CRK4 230.0 to BIG CRK3 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2	P6	N-1-1	<100	105.0	104.3	104.8	<100	<100	105.1	<100	<100	Existing Big Creek/San Joaquin Valley RAS
24305 BIG CRK8 230 24303 BIG CRK3 230 1 1	Ine_P6_201065 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit 1	P6	N-1-1	<100	125.9	125.6	125.6	102.0	<100	126.0	<100	104.9	Existing Big Creek/San Joaquin Valley RAS
	Ine_P6_205699 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran ANTELOPE 66.0 to ANTELOPE 230.0 Circuit 2	P6	N-1-1	<100	<100	104.8	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	Ine_P6_205895 Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.0 to ANTELOPE 230.0 Circuit 2	P6	N-1-1	<100	<100	108.3	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency



24402 ANTELOPE 66.0 24401 ANTELOPE 230 1 1	line_P6_205897_Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 4	P6	N-1-1	<100	<100	107.9	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205923_Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 2	P6	N-1-1	<100	<100	104.9	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	tran_P6_207154_Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 2 0.00 Tran ANTELOPE 66.00 to ANTELOPE	P6	N-1-1	131.3	159.1	199.8	102.2	118.2	<100	164.7	<100	131.3	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
24402 ANTELOPE 66.0 24401 ANTELOPE 230 2 1	line_P6_205701_Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 4	P6	N-1-1	<100	<100	108.2	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205894_Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 1	P6	N-1-1	<100	<100	110.3	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205897_Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 4	P6	N-1-1	<100	<100	111.8	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205925_Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 4	P6	N-1-1	<100	<100	108.3	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	tran_P6_207128_Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 1 0.00 Tran ANTELOPE 66.00 to ANTELOPE	P6	N-1-1	131.7	159.4	200.3	102.5	118.6	<100	165.0	<100	131.7	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
24402 ANTELOPE 66.0 24401 ANTELOPE 230 4 1	line_P6_205699_Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 2	P6	N-1-1	<100	<100	107.8	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205894_Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 1	P6	N-1-1	<100	<100	109.5	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205895_Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 2	P6	N-1-1	<100	<100	111.4	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	line_P6_205923_Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 2	P6	N-1-1	<100	<100	107.9	<100	<100	<100	<100	<100	<100	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
	tran_P6_207126_Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 1 0.00 Tran ANTELOPE 66.00 to ANTELOPE	P6	N-1-1	131.6	159.4	200.2	102.4	118.5	<100	165.0	<100	131.6	<100	Congestion management and energizing existing spare transformer after initial contingency and shed load after the second contingency
24402 ANTELOPE 66.0 24420 NEENACH 66.0 1 1	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	113.0	133.8	<100	132.9	<100	114.5	<100	135.9	<100	Split Antelope-Bailey 66 kV System per existing SCE operating procedure after initial contingency
	tran_P6_207228_Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	<100	114.3	132.5	<100	134.1	<100	114.9	<100	133.1	<100	Split Antelope-Bailey 66 kV System per existing SCE operating procedure after initial contingency
24403 BAILEY 230 24115 PASTORIA 230 1 1	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	line_P6_202125_Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	108.2	<100	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	line_P6_202126_Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	109.8	<100	<100	<100	<100	<100	<100	System re-dispatch after initial contingency
	line_P6_202136_Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line Pardee - Pastoria - Warner 230 kV line	P6	N-1-1	<100	<100	<100	107.4	<100	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	line_P6_202323_Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	107.7	<100	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
	line_P6_202324_Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	109.3	<100	<100	<100	<100	<100	<100	Existing Pastoria Energy Facility RAS
24404 BAILEY 66.0 24452 TAP 85 66.0 1 1	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	123.1	119.8	120.2	119.4	<100	<100	120.8	125.7	<100	<100	Split Antelope-Bailey 66 kV System per existing SCE operating procedure after initial contingency
	tran_P6_207228_Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	120.6	118.8	125.2	119.5	<100	<100	121.0	123.3	<100	<100	Split Antelope-Bailey 66 kV System per existing SCE operating procedure after initial contingency
24420 NEENACH 66.0 24452 TAP 85 66.0 1 1	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	143.4	138.8	138.8	139.6	115.3	<100	140.3	131.6	118.0	<100	Split Antelope-Bailey 66 kV System per existing SCE operating procedure after initial contingency
	tran_P6_207228_Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	143.5	139.2	142.1	139.7	116.3	<100	142.0	131.8	115.4	<100	Split Antelope-Bailey 66 kV System per existing SCE operating procedure after initial contingency



PSTRIA 230 kV



[illegible]



Overloaded Facility	Contingency (All and Worst PE)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenario)					Post Cont. Voltage Deviation % (Sensitivity Scenario)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer Off Peak	2026 Spring-Off Peak	2029 Spring-Off Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	
ALAMO SC 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	47.14	47.09	54.23	42.90	<8	<8	48.92	38.59	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	49.64	48.34	47.43	42.90	<8	<8	47.42	41.61	<8 system adjustments after first contingency mitigates the issue
ALPINE 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	22.90	23.85	29.16	20.83	<8	<8	24.82	18.17	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	24.69	24.51	25.34	20.80	<8	<8	24.16	19.97	<8 system adjustments after first contingency mitigates the issue
BAILEY 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	47.32	47.43	54.12	43.26	<8	<8	49.19	38.93	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	49.88	48.65	47.84	43.26	<8	<8	47.93	41.92	<8 system adjustments after first contingency mitigates the issue
NEENACH 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	23.19	24.15	29.41	21.09	<8	<8	25.13	18.40	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	24.98	24.81	25.60	21.06	<8	<8	24.47	20.20	<8 system adjustments after first contingency mitigates the issue
OSO 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	47.43	47.42	54.54	43.17	<8	<8	49.26	38.82	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	49.92	48.66	47.79	43.17	<8	<8	47.77	41.82	<8 system adjustments after first contingency mitigates the issue
TAP 85 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	44.24	44.48	50.90	40.45	<8	<8	46.13	36.17	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	46.73	45.63	45.16	40.45	<8	<8	45.07	39.00	<8 system adjustments after first contingency mitigates the issue
TAP 86 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	47.41	47.41	54.51	43.17	<8	<8	49.24	38.81	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	49.90	48.65	47.77	43.16	<8	<8	47.76	41.81	<8 system adjustments after first contingency mitigates the issue
WESTPAC 66 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	44.07	44.31	50.60	40.36	<8	<8	45.93	36.17	<8 system adjustments after first contingency mitigates the issue
	line_P6_203021_Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Line NEENACH 66.0 to ALPINE 66.0 Circuit 1	P6	N-1-1	<8	<8	9.39	<8	<8	<8	<8	<8	<8 system adjustments after first contingency mitigates the issue
	line_P6_207228_Trans BAILEY 66.00 to BAILEY 230.0 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	46.58	45.47	44.94	40.36	<8	<8	44.87	38.99	<8 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	12.79	<8 system adjustments after first contingency mitigates the issue
BAILEY 230 kV	line_P6_202257_Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	46.34	46.24	53.02	42.13	<8	<8	47.97	38.65	<8 system adjustments after first contingency mitigates the issue
BIG CRK1 230 kV	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.42 system adjustments after first contingency mitigates the issue
BIG CRK2 230 kV	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.57 system adjustments after first contingency mitigates the issue
BIG CRK3 230 kV	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	12.08 system adjustments after first contingency mitigates the issue
BIG CRK4 230 kV	line_P6_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.12 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	12.26 system adjustments after first contingency mitigates the issue
BIG CRK8 230 kV	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.62 system adjustments after first contingency mitigates the issue
EASTWOOD 230 kV	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.12 system adjustments after first contingency mitigates the issue
EDMONSTN 230 kV	line_P6_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.79 system adjustments after first contingency mitigates the issue
	line_P6_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.37 system adjustments after first contingency mitigates the issue
	line_P6_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line Pardee - Pastoria - Wame 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.48 system adjustments after first contingency mitigates the issue
	line_P6_201984_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.40 system adjustments after first contingency mitigates the issue
	line_P6_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.96 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.05 system adjustments after first contingency mitigates the issue
	line_P6_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.17 system adjustments after first contingency mitigates the issue
	line_P6_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.04 system adjustments after first contingency mitigates the issue
MAGUNDEN 230 kV	line_P6_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line Pardee - Pastoria - Wame 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.15 system adjustments after first contingency mitigates the issue
	line_P6_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.40 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.69 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	12.05 system adjustments after first contingency mitigates the issue
OMAR 230 kV	line_P6_200759_Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line Pardee - Pastoria - Wame 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.02 system adjustments after first contingency mitigates the issue
	line_P6_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.17 system adjustments after first contingency mitigates the issue
	line_P6_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.05 system adjustments after first contingency mitigates the issue
	line_P6_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line Pardee - Pastoria - Wame 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.15 system adjustments after first contingency mitigates the issue
	line_P6_201000_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.47 system adjustments after first contingency mitigates the issue
	line_P6_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.40 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.69 system adjustments after first contingency mitigates the issue
	line_P6_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.79 system adjustments after first contingency mitigates the issue
PASTORIA 230 kV	line_P6_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.36 system adjustments after first contingency mitigates the issue
	line_P6_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line Pardee - Pastoria - Wame 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.47 system adjustments after first contingency mitigates the issue
	line_P6_201984_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.39 system adjustments after first contingency mitigates the issue
	line_P6_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.96 system adjustments after first contingency mitigates the issue
	line_P6_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.55 system adjustments after first contingency mitigates the issue
	line_P6_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.75 system adjustments after first contingency mitigates the issue



PSTRA	230 kV		Ine_PS_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.33	system adjustments after first contingency mitigates the issue
			Ine_PS_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.44	system adjustments after first contingency mitigates the issue
			Ine_PS_201984_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.36	system adjustments after first contingency mitigates the issue
			Ine_PS_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.92	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.52	system adjustments after first contingency mitigates the issue
			Ine_PS_201073_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.64	system adjustments after first contingency mitigates the issue
			Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	13.33	system adjustments after first contingency mitigates the issue
			Ine_PS_201083_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.27	system adjustments after first contingency mitigates the issue
			Ine_PS_201952_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.83	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.50	system adjustments after first contingency mitigates the issue
			Ine_PS_201073_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.61	system adjustments after first contingency mitigates the issue
			Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	13.29	system adjustments after first contingency mitigates the issue
RECTRSVC	230 kV		Ine_PS_201083_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.23	system adjustments after first contingency mitigates the issue
			Ine_PS_201952_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.80	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.46	system adjustments after first contingency mitigates the issue
			Ine_PS_200759_Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.75	system adjustments after first contingency mitigates the issue
SPRINGVL	230 kV		Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.37	system adjustments after first contingency mitigates the issue
			Ine_PS_201083_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.58	system adjustments after first contingency mitigates the issue
			Ine_PS_201952_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.50	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	13.78	system adjustments after first contingency mitigates the issue
			Ine_PS_200759_Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.02	system adjustments after first contingency mitigates the issue
			Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.17	system adjustments after first contingency mitigates the issue
			Ine_PS_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.05	system adjustments after first contingency mitigates the issue
			Ine_PS_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 2 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.15	system adjustments after first contingency mitigates the issue
SYC CYN	230 kV		Ine_PS_201952_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.47	system adjustments after first contingency mitigates the issue
			Ine_PS_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.40	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.69	system adjustments after first contingency mitigates the issue
			Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.72	system adjustments after first contingency mitigates the issue
TOT833_S	230 kV		Ine_PS_201704_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.30	system adjustments after first contingency mitigates the issue
			Ine_PS_201713_Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.40	system adjustments after first contingency mitigates the issue
			Ine_PS_201984_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.33	system adjustments after first contingency mitigates the issue
			Ine_PS_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.88	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.49	system adjustments after first contingency mitigates the issue
			Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.74	system adjustments after first contingency mitigates the issue
			Ine_PS_201083_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.09	system adjustments after first contingency mitigates the issue
			Ine_PS_201052_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.03	system adjustments after first contingency mitigates the issue
			Ine_PS_201052_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.16	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.52	system adjustments after first contingency mitigates the issue
			Ine_PS_201081_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	11.75	system adjustments after first contingency mitigates the issue
			Ine_PS_201083_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	10.10	system adjustments after first contingency mitigates the issue
VESTAL	230 kV		Ine_PS_201052_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line PASTORA 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.03	system adjustments after first contingency mitigates the issue
			Ine_PS_201052_Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line Paderne - Pastora - Warna 230 kV line	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	9.16	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	14.53	system adjustments after first contingency mitigates the issue
			Ine_PS_201984_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.34	system adjustments after first contingency mitigates the issue
WARNE	230 kV		Ine_PS_201987_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORA 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.35	system adjustments after first contingency mitigates the issue
			Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	13.59	system adjustments after first contingency mitigates the issue
			Ine_PS_201984_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	8.35	system adjustments after first contingency mitigates the issue
WARNETAP	230 kV		Ine_PS_201989_Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1	P6	N-1-1	<8	<8	<8	<8	<8	<8	<8	<8	13.60	system adjustments after first contingency mitigates the issue



[illegible]



[illegible]



Study Area: SCE Tehachapi & Big Creek Corridor



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring-Off Peak	2029 Spring-Off Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring Shoulder-Peak	

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



Study Area: **SCE Tehachapi & Big Creek Corridor**



Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)									Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer-Off Peak	2026 Spring-Off Peak	2029 Spring-Off Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring Shoulder-Peak	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (AllWorst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2029 Summer Off Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 OP BESS Charging	
21076 RAMON230 230 24806 MIRAGE 230 1 1	CVSub230-Mirage 230kV No.1 Line + Ramon230-Mirage 230kV No.2 Line	P6	N-1-1	< 100	< 100	126.4	< 100	< 100	< 100	< 100	< 100	< 100	Path 42 RAS
21076 RAMON230 230 24806 MIRAGE 230 2 1	CVSUB230-Mirage 230 kV No.1 Line + RAMON230-Mirage 230 kV No.1 Line	P6	N-1-1	< 100	< 100	101.6	< 100	< 100	106.9	< 100	< 100	< 100	Path 42 RAS
24374 REDBLUFF 500 24377 redblf2i 13.8 2 1	Serrano-ValleySC 500 kV No.1 Line + Redbluff 500/230/13.80 kV Transformer Circuit 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	WOGR CRAS
24374 REDBLUFF 500 24377 redblf2i 13.8 2 1	Redbluff 500/230/13.80 kV Transformer Circuit 1 + Palovrde-PV CLRVR 11 500 kV No.1 Lineshunt	P6	N-1-1	< 100	< 100	< 100	127.2	< 100	< 100	< 100	< 100	< 100	WOGR CRAS
24374 REDBLUFF 500 24377 redblf1i 13.8 1 1	24374 REDBLUFF 500 24379 redblf1i 13.8 1 1	P1	N-1	< 100	< 100	< 100	127.2	< 100	< 100	< 100	105.3	< 100	WOGR CRAS
24374 REDBLUFF 500 24379 redblf1i 13.8 1 1	Serrano-ValleySC 500 kV No.1 Line + Redbluff 500/230/13.80 kV Transformer Circuit 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	WOGR CRAS
24374 REDBLUFF 500 24379 redblf1i 13.8 1 1	Redbluff 500/230/13.80 kV Transformer Circuit 2 + Palovrde-PV CLRVR 11 500 kV No.1 Lineshunt	P6	N-1-1	< 100	< 100	< 100	127.2	< 100	< 100	< 100	< 100	< 100	WOGR CRAS
24374 REDBLUFF 500 24379 redblf2i 13.8 2 1	24374 REDBLUFF 500 24377 redblf2i 13.8 2 1	P1	N-1	< 100	< 100	< 100	127.2	< 100	< 100	< 100	105.3	< 100	WOGR CRAS
24900 COLRIVER 500 24959 colrv2i 13.8 2 1	Serrano-ValleySC 500 kV No.1 Line + ColRiver 500/230/13.80 kV Transformer Circuit 1	P6	N-1-1	100.4	< 100	< 100	< 100	< 100	< 100	< 100	112.2	< 100	WOGR CRAS
24900 COLRIVER 500 24959 colrv2i 13.8 2 1	ColRiver 500/230/13.80 kV Transformer Circuit 1 + Palovrde-PV CLRVR 11 500 kV Line No.1 Lineshunt	P6	N-1-1	100.4	< 100	< 100	136.5	< 100	< 100	< 100	112.1	< 100	WOGR CRAS
24900 COLRIVER 500 24959 colrv2i 13.8 2 1	ColRiver 500/230/13.80 kV Transformer 1	P1	N-1	100.3	< 100	< 100	136.5	< 100	< 100	< 100	112.1	< 100	WOGR CRAS
24900 COLRIVER 500 24993 colrv1i 13.8 1 1	ColRiver 500/230/13.80 kV Transformer Circuit 2 + Palovrde-PV CLRVR 11 500 kV No.1 Lineshunt	P6	N-1-1	< 100	< 100	< 100	136.5	< 100	< 100	< 100	< 100	< 100	WOGR CRAS
24900 COLRIVER 500 24993 colrv1i 13.8 1 1	Serrano-ValleySC 500 kV No.1 Line + ColRiver 500/230/13.80 kV Transformer Circuit 2	P6	N-1-1	100.4	< 100	< 100	< 100	< 100	< 100	< 100	112.2	< 100	WOGR CRAS
24900 COLRIVER 500 24993 colrv1i 13.8 1 1	ColRiver 500/230/13.80 kV Transformer 2	P1	N-1	100.3	< 100	< 100	136.5	< 100	< 100	< 100	112.1	< 100	WOGR CRAS
25401 EAGLEMTN 230 25405 IRON MTN 230 1 1	Devers-Mirage 230 kV No.1 Line + Devers-Mirage 230 kV No.2 Line	P7	DTCL	101.7	< 100	< 100	< 100	137.6	< 100	< 100	< 100	< 100	Blythe RAS and Path 42 RAS
25401 EAGLEMTN 230 25405 IRON MTN 230 1 1	J.Hinds-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	129.2	< 100	< 100	< 100	NotConv	< 100	< 100	< 100	< 100	Blythe RAS
25401 EAGLEMTN 230 25405 IRON MTN 230 1 1	J.Hinds-Mirage 230kV No.1 Line + Eaglemtn 230/161/12kV Transformer Circuit 1	P6	N-1-1	< 100	< 100	121.2	< 100	< 100	< 100	< 100	< 100	< 100	Blythe RAS
25401 EAGLEMTN 230 25405 IRON MTN 230 1 1	J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	114.1	< 100	< 100	< 100	< 100	Blythe RAS
25405 IRON MTN 230 24019 CAMINO 230 1 1	Devers-Mirage 230 kV No.1 Line + Devers-Mirage 230 kV No.2 Line	P7	DTCL	< 100	< 100	< 100	< 100	137.4	< 100	< 100	< 100	< 100	Blythe RAS and Path 42 RAS
25405 IRON MTN 230 24019 CAMINO 230 1 1	J.Hinds-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	119.2	< 100	< 100	< 100	NotConv	< 100	< 100	< 100	< 100	Blythe RAS
25405 IRON MTN 230 24019 CAMINO 230 1 1	J.Hinds-Mirage 230kV No.1 Line + Eaglemtn 230/161/12kV Transformer Circuit 1	P6	N-1-1	< 100	< 100	111.2	< 100	< 100	< 100	< 100	< 100	< 100	Blythe RAS
25405 IRON MTN 230 24019 CAMINO 230 1 1	J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	113.7	< 100	< 100	< 100	< 100	Blythe RAS
25406 J.HINDS 230 24806 MIRAGE 230 1 1	JHINDMWD-J Hinds 230 kV No. r1 Line + Devers 230 kV Shunt EI	P6	N-1-1	142.4	< 100	< 100	< 100	138.8	< 100	< 100	< 100	< 100	Blythe RAS
25406 J.HINDS 230 24806 MIRAGE 230 1 1	Devers-Mirage 230kV No.1 Line + JHindMWD-J Hinds 230kV No.r1 Line	P6	N-1-1	< 100	< 100	137.9	< 100	< 100	< 100	< 100	< 100	< 100	Blythe RAS
25406 J.HINDS 230 24806 MIRAGE 230 1 1	JHINDMWD 230.0 - J.HINDS 230.0 Circuit r1	P1	N-1	141.4	< 100	137.5	< 100	137.8	< 100	< 100	< 100	< 100	Blythe RAS
25406 J.HINDS 230 24806 MIRAGE 230 1 1	JHINDMWD - EAGLEMTN 230 kV	P1	N-1	119.6	< 100	115.5	< 100	137.8	< 100	< 100	< 100	< 100	Blythe RAS
25512 JHINDMWD 230 25401 EAGLEMTN 230 1 1	Devers-Mirage 230 kV No.1 Line + Devers-Mirage 230 kV No.2 Line	P7	DTCL	164.6	< 100	< 100	< 100	199.0	< 100	< 100	< 100	< 100	Blythe RAS and Path 42 RAS
25512 JHINDMWD 230 25401 EAGLEMTN 230 1 1	Devers 500/230/13.80 Transformer Circuit 1 + Devers 500/230/13.80 Transformer Circuit 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	107.8	< 100	< 100	< 100	Blythe RAS
25512 JHINDMWD 230 25401 EAGLEMTN 230 1 1	BlytheSC-Eaglemtn 161kV No.1 Line + J.Hinds-Mirage 230kV No.1 Line	P6	N-1-1	< 100	< 100	150.7	< 100	< 100	< 100	< 100	< 100	< 100	Blythe RAS
25512 JHINDMWD 230 25401 EAGLEMTN 230 1 1	J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	149.4	< 100	142.9	< 100	176.6	< 100	< 100	< 100	< 100	Blythe RAS
25512 JHINDMWD 230 25406 J.HINDS 230 r1 1	Devers-Mirage 230 kV No.1 Line + Devers-Mirage 230 kV No.2 Line	P7	DTCL	155.4	< 100	< 100	< 100	161.2	< 100	< 100	< 100	< 100	Blythe RAS and Path 42 RAS
25512 JHINDMWD 230 25406 J.HINDS 230 r1 1	BlytheSC-Eaglemtn 161kV No.1 Line + J.Hinds-Mirage 230kV No.1 Line	P6	N-1-1	< 100	< 100	145.8	< 100	< 100	< 100	< 100	< 100	< 100	Blythe RAS
25512 JHINDMWD 230 25406 J.HINDS 230 r1 1	J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	143.2	< 100	137.6	< 100	143.1	< 100	< 100	< 100	< 100	Blythe RAS



Substation	Contingency (All and Worst P6)	Category	Category Description	High Low Voltage	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2026 Summer Peak	2026 Spring Off-Peak	2029 Summer-Off Peak	2029 Summer Peak	2029 Spring Off-Peak	2034 Summer Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 OP BESS Charging	
BLYTHE 161kV	Blythe-BlytheSC 161kV No.1 Line + JHindMWD-J Hinds 230kV No.r1 Line	P6	N-1-1	Low Voltage	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.83	0.9 < V < 1.1	0.73	0.83	0.9 < V < 1.1	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
EAGLEMTN 161kV	Blythe-BlytheSC 161kV No.1 Line + JHindMWD-J Hinds 230kV No.r1 Line	P6	N-1-1	Low Voltage	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.85	0.9 < V < 1.1	0.77	0.85	0.88	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
EAGLEMTN 230kV	Blythe-BlytheSC 161kV No.1 Line + JHindMWD-J Hinds 230kV No.r1 Line	P6	N-1-1	Low Voltage	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.81	0.88	0.9 < V < 1.1	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
IRON MTN 230 kV	Blythe-BlytheSC 161kV No.1 Line + JHindMWD-J Hinds 230kV No.r1 Line	P6	N-1-1	Low Voltage	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.85	0.85	0.9 < V < 1.1	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
J.HINDS MWD 230 kV	Blythe-BlytheSC 161kV No.1 Line + JHindMWD-J Hinds 230kV No.r1 Line	P6	N-1-1	Low Voltage	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.80	0.88	0.9 < V < 1.1	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
EAGLEMTN 161kV	J.HINDS-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	Low Voltage	0.81	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.84	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS
EAGLEMTN 230	J.HINDS-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	Low Voltage	0.85	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS
IRON MTN 230 kV	J.HINDS-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	Low Voltage	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS
J.HINDS 230 kV	J.HINDS-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	Low Voltage	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS
J.HINDS MWD 230 kV	J.HINDS-Mirage 230 kV No.1 Line + BlytheSC-EagleMTN 161 kV No.1 Line	P6	N-1-1	Low Voltage	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS
BUCK230 230 kV	J.HINDS-Mirage 230 kV No.1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	High Voltage	1.19	0.9 < V < 1.1	1.13	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS & OP7720F
EAGLEMTN 230 kV	J.HINDS-Mirage 230 kV No.1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	High Voltage	0.9 < V < 1.1	0.9 < V < 1.1	1.12	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS & OP7720F
J.HINDS 230 kV	J.HINDS-Mirage 230 kV No.1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	High Voltage	0.9 < V < 1.1	0.9 < V < 1.1	1.12	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS & OP7720F
J.HINDS MWD 230 kV	J.HINDS-Mirage 230 kV No.1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	High Voltage	0.9 < V < 1.1	0.9 < V < 1.1	1.12	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Blythe RAS & OP7720F
EAGLEMTN 161kV	JHINDMWD-J.HINDS 230 kV No. r1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	Low Voltage	0.86	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.77	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
EAGLEMTN 230	JHINDMWD-J.HINDS 230 kV No. r1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	Low Voltage	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.81	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025
J.HINDS MWD 230 kV	JHINDMWD-J.HINDS 230 kV No. r1 Line + EagleMTN-Iron MTN 230 kV No.1 Line	P6	N-1-1	Low Voltage	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.81	0.9 < V < 1.1	SCE Method of Service Study to be completed in 2025





Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2026 Spring Off-Peak	2029 Summer-Off Peak	2029 Summer Peak	2029 Spring Off-Peak	2034 Summer Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 OP BESS Charging	

No P1 or P3 contingencies resulted in voltage deviation greater than 8%



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 SP High CEC Forecast	2026 Spr Shoulder-Peak Heavy Renewable	
EagleMTN-BlytheSCE 161 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
EagleMTN-BlytheSCE 161 kV & Blythe 1CT trip (RAS)	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
EagleMTN-IronMTN 230 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS)	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS)	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Palo Verde 500 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Palo Verde 500 kV, no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River - Red Bluff 500 kV #1	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River - Red Bluff 500 kV #1, no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Red Bluff 500 kV #1	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Red Bluff 500 kV #1 , no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Valley 500 kV #1	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Valley 500 kV #1, no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Valley-Serrano/Alberhill 500 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Valley-Serrano/Alberhill 500 kV, no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers 500/230 AA #2	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers 500/230 AA #2 , no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Imperial Valley - N. Gila 500 kV	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Imperial Valley - N. Gila 500 kV, no Devers SVC	P1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds Bus tie CB fault, loss Julian Hinds	P2.4	Breaker Fault	No issues	No issues	No issues	No issues	No issues	
Devers Middle CB fault, loss of Devers - Red Bluff 500 kV #1 and Devers-Valley 500 kV #1, no Devers SVC	P2.3	Breaker Fault	No issues	No issues	No issues	No issues	No issues	
Devers Middle CB fault, loss of Devers - Red Bluff 500 kV #2 and Devers 1AA Bank, no Devers SVC	P2.3	Breaker Fault	No issues	No issues	No issues	No issues	No issues	
BlytheSCE-EagleMTN 161 kV, CB 872 stuck at BlytheSCE	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
BlytheSCE-EagleMTN 161 kV, CB 872 stuck at BlytheSCE & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
BlytheSCE-EagleMTN 161 kV, CB 70 stuck at EagleMTN	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
BlytheSCE-EagleMTN 161 kV, CB 70 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
EagleMTN-IronMTN 230 kV, CB 407 stuck at EagleMTN	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
EagleMTN-IronMTN 230 kV, CB 407 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
EagleMTN-IronMTN 230 kV, CB 307 stuck (close to Iron)	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV, CB 405 stuck at EagleMTN	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV, CB 405 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV, Stuck CB 509 at J.Hinds	P4.2	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
EagleMTN 230/161 kV Transformer #5, Stuck CB432 at EagleMTN	P4.3	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
EagleMTN 230/161 kV Transformer #5, Stuck CB432 at EagleMTN & Blythe 1CT trip (RAS)	P4.3	Breaker Failure	No issues	No issues	No issues	No issues	No issues	
Valley-Serrano/Alberhill 500 kV with stuck breaker followed by Valley 4AA Bank	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Red Bluff 500 kV #1 with stuck breaker followed by Devers-Valley 500 kV #1	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Red Bluff 500 kV #2 with stuck breaker followed by Devers 1AA bank	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Mirage 230 kV with stuck breaker followed by Coachell Valley-Mirage 230 kV	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Vista 230 kV with stuck breaker followed by Devers 3A bank	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - El Casco 230 kV with stuck breaker followed by El Casco 2A bank	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Mirage-J.Hinds 230 kV with stuck breaker followed by Mirage-Ramon 230 kV	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Mirage-J.Hinds 230 kV with stuck breaker followed by Mirage-Ramon 230 kV Blythe 1CT trip (RAS)	P4.2	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
EagleMTN 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Julian Hinds 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
BlytheSCE 161 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Mirage 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Devers 500 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
El Casco 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
San Bernardino 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Vista 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Etiwanda 230 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Valley 500 kV Bus, non-Redundant DC Supply fail	P5.3.13c	Persistent	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	WECC criteria not met	Add redundant DC supply
Colorado River-Palo Verde 500 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Red Bluff 500 kV #1 , non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River 1AA Bank, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Genesis 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Black Creek 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Dracker 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Suncatcher 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Crimson 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Centipede 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Filippi 230 kV, non-Redundant Trip Coil fail at Colorado River	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River-Red Bluff 500 kV #1 , non-Redundant Trip Coil fail at Red Bluff	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Red Bluff 1AA Bank, non-Redundant Trip Coil fail at Red Bluff	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Red Bluff 500 kV No. 2, non-Redundant Trip Coil fail at Red Bluff	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Desert Sunlight-Red Bluff 230 kV, non-Redundant Trip Coil fail at Red Bluff	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Black Ranch-Red Bluff 230 kV, non-Redundant Trip Coil fail at Red Bluff	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Almasol-Red Bluff 230 kV, non-Redundant Trip Coil fail at Red Bluff	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Red Bluff 500 kV No. 2, non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 SP High CEC Forecast	2026 Spr Shoulder-Peak Heavy Renewable	
Devers-Valley 500 kV No. 1, non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers 1AA Bank, non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-El Casco 230 kV, non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Mirage 230 kV No. 1 , non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Sentinel 230 kV, non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Vista 230 kV No. 2, non-Redundant Trip Coil fail at Devers	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-El Casco 230 kV, non-Redundant Trip Coil fail at El Casco	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
El Casco-San Bernadino 230 kV, non-Redundant Trip Coil fail at El Casco	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
El Casco-San Bernadino 230 kV, non-Redundant Trip Coil fail at San Bernadino	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Etiwanda-San Bernardino 230 kV, non-Redundant Trip Coil fail at San Bernadino	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Mountainview-San Bernardino 230 kV No. 3, non-Redundant Trip Coil fail at San Bernadino	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
San Bernardino-Vista 230 kV, non-Redundant Trip Coil fail at San Bernadino	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
San Bernardino-Vista 230 kV, non-Redundant Trip Coil fail at Vista	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Vista 230 kV No. 1, non-Redundant Trip Coil fail at Vista	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Etiwanda-Vista 230 kV, non-Redundant Trip Coil fail at Vista	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Mira Loma-Vista 230 kV No. 1, non-Redundant Trip Coil fail at Vista	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Mira Loma-Vista 230 kV No. 2, non-Redundant Trip Coil fail at Vista	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Etiwanda-San Bernadino 230 kV, non-Redundant Trip Coil fail at Etiwanda	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Etiwanda-Vista 230 kV, non-Redundant Trip Coil fail at Etiwanda	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Valley 500 kV No. 1, non-Redundant Trip Coil fail at Valley	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Serrano-Valley 500 kV, non-Redundant Trip Coil fail at Valley	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Valley 1AA Bank, non-Redundant Trip Coil fail at Valley	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Valley 4AA Bank, non-Redundant Trip Coil fail at Valley	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-Mirage 230 kV No. 1 , non-Redundant Trip Coil fail at Mirage	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV, non-Redundant Trip Coil fail at Mirage	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Mirage-Ramon 230 kV, non-Redundant Trip Coil fail at Mirage	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Coachella Valley-Mirage 230 kV, non-Redundant Trip Coil fail at Mirage	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV, non-Redundant Trip Coil fail at Julian Hinds	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Buck Blvd-Julian Hinds 230 kV, non-Redundant Trip Coil fail at Julian Hinds	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
Eagle Mtn-Julian Hinds (MWD) , non-Redundant Trip Coil fail at Julian Hinds	P5.4.13d	Delayed Clearing	No issues	No issues	No issues	No issues	No issues	
BlytheSCE-EagleMTN 161 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
BlytheSCE-EagleMTN 161 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
EagleMTN-IronMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
EagleMTN-IronMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS), non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS), non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS),non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV, , non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS), , non-redundant pilot relay fail	P5.2	Zone2 Clearing	No issues	No issues	No issues	No issues	No issues	
Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV	P6.1	Normal Clearing	Diverged	Diverged	No issues	Diverged	No issues	ISO7720 (OP) with system adjustments after the first contingency
Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV & ISO7720 (OP)	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River - Red Bluff 500 kV #1 & #2	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Red Bluff 500 kV #1 & #2	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Valley 500 kV #1 & #2	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Etiwanda - San Bernardino & El Casco-San Bernardino 230kV	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
San Bernardino - Vista & Devers - San Bernardino 230kV	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Colorado River - Palo Verde & Colorado River - Delaney 500 kV	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Mirage-Ramon & Coachella Valley-Mirage 230 kV	P6.1	Normal Clearing	No issues	Diverged	No issues	No issues	No issues	Path 42 RAS, Blythe RAS
Mirage-Ramon & Coachella Valley-Mirage 230 kV with RAS	P6.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Mirage 230 kV #1 & #2	P7.1	Normal Clearing	No issues	Diverged	No issues	Diverged	No issues	Path 42 RAS with system adjustments
Devers - Mirage 230 kV #1 & #2 with RAS	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-San Bernardino & Devers-El Casco 230 kV	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers-San Bernardino & San Bernardino-El Casco 230 kV	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Devers - Vista 230 kV #1 & #2	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Etiwanda-San Bernardino & San Bernardino-Vista 230 kV	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Mira Loma-Vista #2 & Mira Loma-Vista #1/Vista-Wildlife 230 kV	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	
Coachella Valley-Ramon & Coachella Valley-Mirage 230 kV	P7.1	Normal Clearing	Oscillations	Diverged	No issues	Oscillations	No issues	Path 42 RAS with system adjustments
Coachella Valley-Ramon & Coachella Valley-Mirage 230 kV with RAS	P7.1	Normal Clearing	No issues	No issues	No issues	No issues	No issues	



Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2026 Summer Peak	2026 Spring Off-Peak	2029 Summer Off Peak	2029 Summer Peak	2029 Spring Off-Peak	2034 Summer Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 OP BESS Charging	

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



2024-2025 ISO Reliability Assessment - Study Results

Study Area: **SCE Eastern Area**

*Single Source Substation with more than 100 MW Load*



Substation	Load Served (MW)									Potential Mitigation Solutions
	2026 Summer Peak	2026 Spring Off-Peak	2029 Summer Off Peak	2029 Summer Peak	2029 Spring Off-Peak	2034 Summer Peak	2029 SP High CEC Forecast	2026 SP Heavy Renewable & Min Gas Gen	2026 OP BESS Charging	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)**										Loading % (Sensitivity Scenarios)**				Project & Potential Mitigation Solutions
				B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Of Peak	B6: 2034 Winter Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity	S4: 2039 SP LA Basin H-gas retirement	
24114 PARDEE 230 24128 S.CLARA 230 1 1	line_M_P7_0059_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2	P7	common structure			102.3	124.6									116.9	Dispatch available resources including energy storage and demand response in the Ventura area after the 1st event of P6 contingency or pre-contingency for the P7 contingencies. The use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed. If the energy storage resources in the Ventura area are insufficient or limited to be charged, the needs for upgrading the 230 kV lines will be considered as alternatives.	
24114 PARDEE 230 24155 VINCENT 230 2 1	line_V_P7_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure				102.4									117.3		
24114 PARDEE 230 26098 SYLMAR220 230 1 1	line_MVP_P1_110_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2 -AND- line_MVP_P1_82_Line LUGO 500.0 to VICTORV 500.0 Circuit 1	P6*	overlapping singles				118.0									127.4		
24128 S.CLARA 230 24099 MOORPARK 230 2 1	line_MVP_P1_115_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 -AND- line_MVP_P1_101_Line PARDEE 230.0 to S.CLARA 230.0 Circuit 1	P6*	overlapping singles				117.8									110.8		
29516 VINCENT2 230 24128 S.CLARA 230 1 1	line_V_P7_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure													103.9		
24393 MESACALS 230 24076 LAGUBELL 230 2 1	line_M_P7_0013_Line REDONDO 230.0 to MESA CAL 230.0 Circuit 1 Line LAGUBELL 230.0 to MESACAL 230.0 Circuit 1	P7	common structure	101.1										101.2			The P6 and all P7 overloads could be eliminated by dispatching available resources including energy storage and demand response in the West LA Basin after the 1st event of P6 contingency and pre-contingency for the P7 contingencies. In the near term, the use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed in the West LA basin. In the long-term, previously approved transmission projects mitigate these concerns.	
24393 MESACALS 230 24076 LAGUBELL 230 2 1	line_MVP_P1_30_Line CENTER 230.0 to MESACALS 230.0 Circuit 1 -AND- line_MVP_P1_71_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6*	overlapping singles	106.7										106.7				
24393 MESACALS 230 24076 LAGUBELL 230 2 1	line_MVP_P1_76_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1 -AND- line_MVP_P1_71_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6*	overlapping singles	106.1										106.3				
24082 LICIEENGA 230 24074 LA FRESA 230 1 1	line_M_P7_0041_Line LA FRESA 230.0 to EL NIDO 230.0 Circuit 3 Line LA FRESA 230.0 to EL NIDO 230.0 Circuit 4	P7	common structure	128.2										128.6				
24084 LITEHIPE 230 24091 MESA CAL 230 1 1	line_M_P7_0013_Line REDONDO 230.0 to MESA CAL 230.0 Circuit 1 Line LAGUBELL 230.0 to MESACAL 230.0 Circuit 1	P7	common structure	101.7										102.0				
24021 CENTER 230 24393 MESACALS 230 1 1	line_MVP_P1_71_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 -AND- line_MVP_P1_150_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P6*	overlapping singles	106.5										106.6				
24030 BARRE-W 230 24044 ELLIS 230 #1 and #2	line_MVP_P1_246_Line BARRE-W 230.0 to ELLIS 230.0 Circuit 2 -AND- line_MVP_P1_27_Line BARRE 230.0 to LEWIS 230.0 Circuit 1	P6*	overlapping singles		103.1			104.0						100.7				
24701 KRAMER 230 24601 VICTOR 230 1 1	line_MVP_P1_169_Line IVANPAH 230.0 to ELDORDO2 230.0 Circuit 1 -AND- line_MVP_P1_186_Line PRIMAM 230.0 to ELDORDO2 230.0 Circuit 1	P6*	overlapping singles	NConv	NConv	NConv		NConv		NConv	NConv	NConv	NConv	NConv	NConv	NConv	Rely on the Eldorado-Ivanpah RAS to address the P6 of the loss of Eldorado-Ivanpah and Eldorado2-Primm 230 kV lines. Also, loss of Eldorado SAA bank is addressed by the RAS.	
24701 KRAMER 230 24601 VICTOR 230 1 1	line_MVP_P1_168_Line ELDORDO2 230.0 to SLOAN CANYON 230.0 Circuit 1 -AND- line_MVP_P1_305_Tran ELDORDO 500.00 to ELDORDO2 230.00 Circuit SELDOR ST 13.80	P6*	overlapping singles	NConv	NConv	NConv		NConv		NConv	NConv	NConv	NConv	NConv	NConv	NConv		
25500 CALCITE 230 24085 LUGO 230 1 1	line_MVP_P1_138_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P1	Single Contingency				108.0									103.1	Rely on the future Calcite cRAS to drop generation in the Pighah area for the P1 and P5 contingencies, and the P6 overloads could also be eliminated by operational procedure curtailing generation after the 1st event of P6 contingency	
25500 CALCITE 230 24085 LUGO 230 1 1	line_PS_T1_652_08_PS_2.13b Lugo-Pisgah No.2 230kV	P5	non-redundant component				108.0									103.1		
25500 CALCITE 230 24085 LUGO 230 1 1	line_MVP_P1_138_Line PISGAH 230.0 to LUGO 230.0 Circuit 2 -AND- line_MVP_P1_82_Line LUGO 500.0 to VICTORV 500.0 Circuit 1	P6*	overlapping singles				125.4									125.8		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P1	Single Contingency				111.1									106.2	The P1 overload could be mitigated by operational mitigation actions, such as curtailing import from out of state resources and generation in the East of Pighah area. The P6 overloads could be eliminated by operational mitigation actions, such as curtailing the import and the generation, and dispatching available resources including energy storage and demand response in the LA Basin as system adjustment after the first contingency. Stay informed on the future transmission projects to interconnect the out-of-state wind resources and modify the Lugo-Victoria RAS as needed	
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	line_MVP_P1_219_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles			121.3	155.4									153.9		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	line_MVP_P1_90_Line MOHAVE 500.0 to ELDORDO 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles			108.1	142.5									147.0		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P11_NV-AZ058_Line MEAD 500.0 to MARKETPL 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				122.2									123.8		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P11_NV-AZ049_Line H ALLEN 500.0 to MEAD 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				126.7									119.5		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P11_NV-AZ060_Line NAVAJO 500.0 to CRYSTAL 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				119.7									116.2		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1DC_PDC12_PDC1 CONVERTER MONOPOLE #2 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				115.8									111.3		
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	G1_603_Gen Alamitos Repower -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P3*	G-1IN-1				112.4									107.5		
24086 LUGO 500 26105 VICTORV 500 1 1	line_MVP_P1_219_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles				103.0									126.0	Previously approved 4th Serrano bank project mitigates the P6 overloads. Rely on operational mitigation OP7590 as interim mitigation.	
24086 LUGO 500 26105 VICTORV 500 1 1	line_MVP_P1_90_Line MOHAVE 500.0 to ELDORDO 500.0 Circuit 1 -AND- line_MVP_P1_49_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles													121.4		
24138 SERRANO 500 24137 SERRANO 230 3 1	tran_MVP_P1_312_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 1SERRANIT 13.80 -AND- tran_MVP_P1_313_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 2SERRAN2T 13.80	P6*	overlapping singles	125.8											124.5		Previously approved 4th Serrano bank project mitigates the P6 overloads. Rely on operational mitigation OP7590 as interim mitigation.	
24138 SERRANO 500 24184 serran1: 13.8 1 1	tran_MVP_P1_314_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 3 0.00 -AND- tran_MVP_P1_313_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 2SERRAN2T 13.80	P6*	overlapping singles	127.2											125.9			
24138 SERRANO 500 24186 serran2: 13.8 2 1	tran_MVP_P1_312_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 1SERRANIT 13.80 -AND- tran_MVP_P1_314_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 3 0.00	P6*	overlapping singles	129.6											128.2			
24156 VINCENT 500 24190 vincten2: 13.8 AA Bank #2	line_T_P4_001_Vincent - Lugo No. 1 500 kV line and Vincent 3AA transformer bank	P4	stuck breaker											105.6			Investigate potential mitigations addressing the P4 overloads, such as re-energizing the 230 kV bus tie breaker, re-arrange the Vincent - Lugo 500 kV lines and the Vincent 3AA banks, and/or develop short term emergency rating of Vincent 2AA bank. The P6 overloads could be eliminated by operational mitigation actions, such as curtailing generation in the Northern area, reducing import via Path 26, and along with dispatching available resources including energy storage and demand response in the Western LA Basin, after the first contingency as system adjustment.	
24156 VINCENT 500 24155 VINCENT 230 3 1	tran_MVP_P1_320_Tran VINCENT 500.00 to VINCENT 230.00 Circuit 2VINCENT2T 13.80 -AND- line_MVP_P1_136_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6*	overlapping singles	113.9										131.1				
24156 VINCENT 500 24190 vincten2: 13.8 2 1	tran_MVP_P1_321_Tran VINCENT 500.00 to VINCENT 230.00 Circuit 3 0.00 -AND- line_MVP_P1_136_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6*	overlapping singles	110.4										127.3				
24386 MESA CAL 500 24390 mesa4: 13.8 4 1	tran_MVP_P1_328_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 3MESAZT 13.80 -AND- tran_MVP_P1_329_Tran MESA CAL 500.00 to MESACALS 230.00 Circuit 3MESAZT 13.80	P6*	overlapping singles	110.2										112.1			The P6 overloads could be eliminated by operational mitigation actions, such as dispatching available resources including energy storage and demand response in the Western LA Basin after the first contingency as system adjustment.	
24590 MW_VINCENT_12 500 24156 VINCENT 500 1 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	119.1	118.1									118.0	119.9		The P6 overloads with heavy Path 26 flow scenarios from north to south upto the 4000 MW of limit and from south to north up to the 3000 MW limit could be eliminated by operational mitigation actions, by reducing power flow south or north via Path 26 after the 1st contingency of the	
24592 MW_VINCENT_22 500 24156 VINCENT 500 2 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	119.2	118.3									118.3	120.1			
30060 MIDWAY 500 24591 MW_VINCENT_11 500 1 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	119.8	119.1									118.1	120.6			



30060 MIDWAY 500 24593 MW_VINCNT_21 500 2 1	line_MVP_P1_254_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0.Circuit 1	P6*	overlapping singles	120.0	119.3									119.3	120.8			Reported loading level is less than 100% of applicable rating for the P6 contingency.
30060 MIDWAY 500 24593 MW_VINCNT_21 500 2 1	P10C_P0C12_P0C0 CONVERTER MONOPOLE #2 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	112.8	106.1									106.1	115.2			
24594 MW_WIRLWIND_32 500 29402 WIRLWIND 500 3 1	line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1 -AND- line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	N-2	Always Credible Common Corridor	166.4	165.1	116.2			138.6			130.7		165.1	167.1			The N-2 overloads for the operating scenarios with heavy Path 26 flow from north to south (S1/S2/B3/B6/S1/S2) could be eliminated by the PG&E Path 26 RAS curtailing generation and the SCE Path 26 RAS dropping loads. The N-2 overloads for the operating scenario with heavy Path 26 flow from south to north (B9) requires further investigation.
30060 MIDWAY 500 24595 MW_WIRLWIND_31 500 3 1	line_MVP_P1_250_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1 -AND- line_MVP_P1_252_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	N-2	Always Credible Common Corridor	113.6	112.8	113.8								112.9	114.0			
22430 SILVERGT 230 22771 BAY BLVD 230 1 1	P11_SDGE40_Line IMPRLVLY 500KV to NSONGS 500 Circuit 1	P1	Single Contingency														112.9	Dispatch available resources including energy storage and demand response in the SDG&E area and LA Basin for the pre-contingency of P1 contingency and after the 1st event of P6 contingency as system adjustment. The use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed.
22430 SILVERGT 230 22771 BAY BLVD 230 1 1	P11_SDGE40_Line IMPRLVLY 500KV to NSONGS 500 Circuit 1 - AND- P11-SDGESORASO_23310 LOST VALLEY-22885 SUNCREST 500KV & 1	P6*	overlapping singles			104.2											127.0	
22430 SILVERGT 230 22771 BAY BLVD 230 1 1	line_MVP_P1_185_Line ALBERHIL 500.0 to VALLEYS 500.0 Circuit 1 -AND- P11_SDGE40_Line IMPRLVLY 500KV to NSONGS 500.Circuit 1	P6*	overlapping singles			101.1											120.3	
22590 ECO 500 22468 MIGUEL 500 1 2	P11-SDGESORASO_23310 LOST VALLEY-22885 SUNCREST 500KV & 1 -AND- P11_SDGE40_Line IMPRLVLY 500KV to NSONGS 500 Circuit 1	P6*	overlapping singles														110.3	

Note (\*): P6 and P3 results are reported without System adjustment between the two single P1 events

(\*\*): Loading level in blank cell is less than 100% of applicable rating







Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)										Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Off Peak	B6: 2034 Winter Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity	S4: 2039 SP LA Basin Hi-gas retirement	
GOLETA 230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.87	Dispatch available resources including energy storage and demand response in the Ventura area and LA Basin for the P7 contingencies for the 2039 summer peak sensitivity scenario with high gas retirement, or install reactive power support facility in the Venrura area as needed. The use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed.
EAGLROCK 230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.88	
RP_EAGLROCK230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.88	
MOORPARK 230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.89	
GOULD 230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.89	
ORMOND 230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.89	
SAUG TAP 230 kV Bus	line_M_P7_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage														0.89	
GOLETA 230 kV Bus	line_V_P7_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	Low Voltage														0.89	
GOLETA 230 kV Bus	line_V_P7_006_line PARDEE to SYLMAR220 230 ck 1 line PARDEE to SYLMAR220 230 ck 2	P7	common structure	Low Voltage														0.89	
MTN PASS 115 kV Bus	Line_P5_TC_lvnph115_01A_Ivanpah-Cool Water 115 kV Line (Non Redundant Trip Coil Ivanpah CB# 1112)	P5	non-redundant component	Low Voltage	0.90											0.89			Eliminate the P5 contingency if feasible



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2: 2029 Summer Peak	B3: 2034 Summer Peak	B7: 2026 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S3: 2026 OP BESS Charging Sensitivity	
01_Lugo500kV - P1.3: 3PH 4 cycle fault at Lugo 500kV w/ loss of Lugo-Victorville 500kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
02_IV500kV - P1.3: 3PH 4 cycle fault at Imperial Valley 500kV w/ loss of Imperial Valley-North Gila 500kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
03_PV500kV - P1.1: 3PH 4 cycle fault at Palo Verde w/ loss of Palo Verde Unit No.1	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
05_Eldorado230kV - P1.3: 3PH 4 cycle fault at Eldorado 230 kV w/ loss of Cima-Eldorado-Pisgah No.1 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
06_Pisgah230kV - P1.3: 3PH 4 cycle fault at Pisgah 230 kV w/ loss of Cima-Eldorado-Pisgah No.1 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
07_Lugo230kV - P1.3: 3PH 4 cycle fault at Lugo 230 kV w/ loss of Lugo-Pisgah No.2 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
12_Eldorado500kV - P1.2: 3PH 4 cycle fault at Eldorado 500kV w/ loss of Eldorado-Mohave 500kV & series cap bypass of Eldordo-Eld_Lugo_11 500kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
13_Eldorado500kV - P1.2: 3PH 4 cycle fault at Eldorado 500kV w/ loss of Eldorado-Mohave 500kV & Lugo-Mohave 500kV line shunt	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
15A_Valley500kV - P1.2: 3PH 4 cycle fault at Valley 500kV w/ loss of Serano-Valley 500kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
16_RanchoVista500kV - P1.2: 3PH 4 cycle fault at Rancho Vista 500kV w/ loss of Rancho Vista-Serrano 500kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
19_SanOnofre230kV - P1.2: 3PH 4 cycle fault at San Onofre 230kV w/ loss of NSONGS-San Onofre No.1 230kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
21_Ellis230kV - P1.2: 3PH 4 cycle fault at Ellis 230kV w/ loss of Ellis-Santiago 230kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
22_NSONGS230kV - P1.2: 3PH 4 cycle fault at NSONGS 230kV w/ loss of NSONGS-Viejo 230kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
24_N.Gila500kV - P1.2: 3PH 4 cycle fault at N.Gila 500kV w/ loss of Hoodoo Wash-N.Gila 500kV w/ loss of Santiago SC	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
25A_Valley500kV - P1.2: 3PH 4 cycle fault at Valley 500kV w/ loss of Serrano-Valley 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
27_Serrano500kV - P1.2: 3PH 4 cycle fault at Serrano 500kV w/ loss of Mira Loma-Serrano 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
28_Devers500kV - P1.2: 3PH 4 cycle fault at Devers 230kV w/ loss of Devers-Valley No.2 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
29_Devers500kV - P1.2: 3PH 4 cycle fault at Devers 500kV w/ loss of Devers-Red Bluff No.2 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
30_N.Gila500kV - P1.2: 3PH 4 cycle fault at N.Gila 500kV w/ loss of Hoodoo Wash-N.Gila 500kV including loss of Devers SVCs & Cap Bank	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
88_Pisgah230kV - P1.3: 3PH 4 cycle fault at Eldorado 230 kV w/ loss of Cima-Eldorado-Pisgah 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
89_Lugo230kV - P1.3: 3PH 4 cycle fault at Lugo 230 kV w/ loss of Lugo-Pisgah 230 kV	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
001a_P1-2_Sln500kV - P1-2: 3PH 4cycle Sln500kV fault, loss of HAllen-Sloan Cyn 500kV Ckt	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
002_P1-2_HAI500kV - P1-2: 3PH 4cycle HAllen500kV fault, loss of HAllen-Mead 500kV Line [wHAE SC byp]	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
003_P1-2_Cry500kV - P1-2: 3PH 4cycle Crystal500kV fault, loss of Crystal-McCullough 500kV Line [wHAE SC byp]	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
004_P1-2_HAI500kV - P1-2: 3PH 4cycle HAllen500kV fault, loss of HAllen-Crystal N 500kV Line [wHAE SC byp]	P1	Single Contingency	stable	stable	stable	stable	stable	criteria met
020_P2-3_Sln500kV - P2-3: CB SC852 HAllen-Sloan + Sloan Cyn 500/230kV Xfmr 1	P2	Internal Breaker Fault	stable	stable	stable	stable	stable	criteria met
47_Sylmar230kV - P4: 3Ph line fault on Pardee-Sylmar No.2 230 kV with stuck breaker at Sylmar followed by loss of Eagle Rock-Sylmar 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
48_Sylmar230kV - P4: 3Ph line fault on Gould-Sylmar 230 kV with stuck breaker at Sylmar followed by loss of Sylmar Bank 'E'	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
50_Sylmar230kV - P4: 3Ph line fault on Pardee-Sylmar No.1 230 kV with stuck breaker at Sylmar followed by loss of Sylmar Bank 'F'	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
56_Lugo500kV - P4: 3Ph line fault on Lugo-Vincent No.2 500 kV with stuck breaker at Lugo followed by loss of Lugo-Victorville 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
57_MiraLoma500kV - P4: 3Ph line fault on Mira Loma-Rancho Vista 500 kV with stuck breaker at Mira Loma followed by loss of Mira Loma-Serrano No.1 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
58_MiraLoma230kV - P4: 3Ph line fault on Mira Loma-Walnut 230 kV with stuck breaker at Mira Loma followed by loss of Chino-Mira Loma No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
59_MiraLoma230kV - P4: 3Ph line fault on Mira Loma-Olinda 230 kV with stuck breaker at Mira Loma followed by loss of Chino-Mira Loma No.3 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2: 2029 Summer Peak	B3: 2034 Summer Peak	B7: 2026 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S3: 2026 OP BESS Charging Sensitivity	
60_MiraLoma230kV - P4: 3Ph line fault on Mira Loma-Rancho Vista No.1 230 kV with stuck breaker at Mira Loma followed by loss of Mira Loma-Vista No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
61_RanchoVista230kV - P4: 3Ph line fault on Etiwanda-Rancho Vista No.1 230 kV with stuck breaker at Rancho Vista followed by loss of Mira Loma-Rancho Vista No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
62_RanchoVista230kV - P4: 3Ph line fault on Padua-Rancho Vista No.1 230 kV with stuck breaker at Rancho Vista followed by loss of Etiwanda-Rancho Vista No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
63_Serrano230kV - P4: 3Ph line fault on Chino-Serrano 230 kV with stuck breaker at Serrano followed by loss of Lewis-Serrano No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
64_Serrano230kV - P4: 3Ph line fault on Lewis-Serrano No.2 230 kV with stuck breaker at Serrano followed by loss of SONGS-Serrano 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
65_Vincent500kV - P4: 3Ph line fault on Mesa-Vincent 500 kV with stuck breaker at Vincent followed by loss of Midway-Vincent No.2 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
66_Vincent500kV - P4: 3Ph line fault on Antelope-Vincent No.1 500 kV with stuck breaker at Vincent followed by loss of Lugo-Vincent No.2 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
67_Vincent230kV - P4: 3Ph line fault on Mesa-Vincent No.2 230 kV with stuck breaker at Vincent followed by loss of Santa Clara-Vincent 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
69_Whirlwind500kV - P4: 3Ph line fault on Midway-Whirlwind 500 kV with stuck breaker at Whirlwind followed by loss of Vincent-Whirlwind 500 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
70_Chino230kV - P4: 3Ph line fault on Chino-Viejo 230 kV with stuck breaker at Chino followed by loss of Chino-Serrano 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
71_Ellis230kV - P4: 3Ph line fault on BarreW-Ellis No.2 230 kV with stuck breaker at Ellis followed by loss of Ellis-Santiago 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
72_Ellis230kV - P4: 3Ph line fault on Ellis-Johanna 230 kV with stuck breaker at Ellis followed by loss of BarreW-Ellis No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
73_Goodrich230kV - P4: 3Ph line fault on Goodrich-Gould 230 kV with stuck breaker at Goodrich followed by loss of Goodrich-Mesa 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
77_SantaClara230kV - P4: 3Ph line fault on Moorpark-Santa Clara No.1 230 kV with stuck breaker at Santa Clara followed by loss of Goleta-Santa Clara No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
80_Pardee230kV - P4: 3Ph line fault on Bailey-Pardee 230 kV with stuck breaker at Pardee followed by loss of Pardee-Vincent No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
85_VillaPark230kV - P4: 3Ph line fault on BarreW-Villa Park 230 kV with stuck breaker at Villa Park followed by loss of Serrano-Villa Park No.1 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
86_Lewis230kV - P4: 3Ph line fault on Barre-Lewis 230 kV with stuck breaker at Lewis followed by loss of Lewis-Serrano No.2 230 kV	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
040_P4-2_HAI500kV - P4-2: 3PH line fault at HAllen 500kV, loss of HAE with stuck HAllen CB	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
040a_P4-2_HAI500kV - P4-2: 3PH line fault at HAllen 500kV, loss of HAllen-Sloan with stuck HAllen CB	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
041_P4-2_Eld500kV - P4-2: 3PH line fault at Eldorado 500kV, loss of HAE with stuck Eld CB	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
042_P4-2_Sin500kV - P4-2: 3PH line fault at Sloan 500kV, HAllen-Sloan + Sloan 500/230kV Xfmr [stuck Sloan CB SC852]	P4	stuck breaker	stable	stable	stable	stable	stable	criteria met
122_Midway500kV - P6.1: 3PH 4 cycle fault at Midway 500 kV w/ loss of Midway-Vincent No.1 & Midway-Whirlwind No.3 + No RAS	P6	overlapping singles	stable	stable	stable	stable	stable	criteria met
128_IPPDC_bipole - P7.2: SLG fault at Adelanto 500kV followed by loss of IPP Bipole Converters with North-to-South flow	P7	common structure	stable	stable	stable	stable	stable	criteria met
129_PDCI_bipole_SPS - P7.2: SLG fault at Sylmar SCE followed by loss of PDCI Bipole with North-to-South flow	P7	common structure	stable	stable	stable	stable	stable	criteria met
144_MiraLoma500kV - P7.1: 1PH 4 cycle fault at Mira Loma 500kV w/ loss of Mesa-Mira Loma 500kV & Chino-Mira Loma No.3 230kV	P7	common structure	stable	stable	stable	stable	stable	criteria met
070a_P7-1_HAI500kV - P7-1: 3PH 4cycle HAllen500kV fault, loss of HAM + HA-Sin 500kV Lines [No RAS]	P7	common structure	stable	stable	stable	stable	stable	criteria met
071a_P7-1_HAI500kV - P7-1: 3PH 4cycle HAllen500kV fault, loss of HAM + HA-Sin 500kV Lines [wRAS]	P7	common structure	stable	stable	stable	stable	stable	criteria met



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)														Potential Mitigation Solutions
			Post Cont. Voltage Deviation % (Baseline Scenarios)										Post Cont. Voltage Deviation % (Sensitivity Scenarios)				
			B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Off Peak	B6: 2034 Winter Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity	S4: 2039 SP LA Basin Hi-gas retirement	

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



Substation	Load Served (MW)															Potential Mitigation Solutions
	2026 Summer Peak	Post Cont. Voltage Deviation % (Baseline Scenarios)										Post Cont. Voltage Deviation % (Sensitivity Scenarios)				
		B1: 2026 Summer Peak	B2: 2029 Summer Peak	B3: 2034 Summer Peak	B4: 2039 Summer Peak	B5: 2029 Summer-Off Peak	B6: 2034 Winter Peak	B7: 2026 Spring Off-Peak	B8: 2029 Spring Off-Peak	B9: 2034 Spring Off-Peak	B10: 2039 Spring Off-Peak	S1: 2029 SP High CEC Forecast	S2: 2026 SP Heavy Renewable & Min Gas Gen	S3: 2026 OP BESS Charging Sensitivity	S4: 2039 SP LA Basin Hi-gas retirement	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SPrOP	B8-29SPrOP	S1-29SP	S2-26SP	S3-26SPrOP	
TORTILLA-TAP705 115KV LINE	Base Case	P0	-	< 100	< 100	103.4	100.6	< 100	< 100	< 100	< 100	< 100	Congestion Management
VICTOR - LUGO 230KV LINE CK 1	Base Case	P0	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	Congestion Management
VICTOR - LUGO 230KV LINE CK 2	Base Case	P0	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	Congestion Management
VICTOR - LUGO 230KV LINE CK 3	Base Case	P0	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	Congestion Management
VICTOR - LUGO 230KV LINE CK 4	Base Case	P0	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	Congestion Management
KRAMER - VICTOR 230KV LINE CK 1	Base Case	P0	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.0	< 100	Congestion Management
KRAMER - VICTOR 230KV LINE CK 2	Base Case	P0	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.0	< 100	Congestion Management
COLWATER-TAP705 115KV LINE	Kramer-Accelerate 115KV Line	P1	N-1	< 100	106.7	103.0	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Kramer-Accelerate 115KV Line	P1	N-1	< 100	109.7	106.6	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
KRAMER - VICTOR 230KV LINE CK 2	Kramer-Victor 230KV Line ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.8	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Kramer-Victor 230KV Line ck 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.8	Reduce BESS Charging
VICTOR - LUGO 230KV LINE CK 1, 2, 3, 4	Victor-Lugo 230KV Line cks 1, 2, 3, 4	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.0	< 100	HDPP RAS
KRAMER - VICTOR 230KV LINE CK 2	Victor-Roadway 115KV line	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.0	< 100	Future Kramer CRAS
KRAMER - VICTOR 230KV LINE CK 1	Victor-Roadway 115KV line	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.0	< 100	Future Kramer CRAS
SANDLOT - KRAMER 230KV LINE	Kramer-Coolwater 230KV Line ck 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	141.7	< 100	Mojave Desert RAS
KRAMER - COLWATER 230KV LINE CK 2	Sandlot-Kramer 230KV Line	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	147.1	< 100	Mojave Desert RAS
KRAMER - VICTOR 230KV LINE CK 1	Kramer-Victor 230KV Line ck 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	159.6	< 100	Mojave Desert RAS
KRAMER - VICTOR 230KV LINE CK 2	Kramer-Victor 230KV Line ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	159.6	< 100	Mojave Desert RAS
COLWATER-TAP705 115KV LINE	Gen TOT812_G3I + Kramer-Accelerate 115KV Line	P3	N-1-1	< 100	107.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Gen TOT812_G3I + Kramer-Accelerate 115KV Line	P3	N-1-1	< 100	110.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
VICTOR - LUGO 230KV LINE CK 1, 2, 3, 4	Gen TOT904_ES1 + Victor-Lugo 230KV Line cks 1, 2, 3, 4	P3	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.5	< 100	HDPP RAS
COLWATER 230/115KV TRANSFORMER	Kramer 230/115KV Transformer ck 1 + Kramer 230/115KV Transformer ck 2	P6	N-1-1	< 100	< 100	100.8	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
KRAMER 115/12KV TRANSFORMER CK 1	Coolwater-Tortilla-Segs2 115KV Line + Kramer 230/115KV Transformer ck 2	P6	N-1-1	< 100	< 100	101.1	< 100	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
KRAMER 115/12KV TRANSFORMER CK 2	Coolwater-Tortilla-Segs2 115KV Line + Kramer 230/115KV Transformer ck 1	P6	N-1-1	< 100	< 100	101.1	< 100	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
COLWATER-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Victor-Lugo 230KV Line cks 1, 2, 3, 4	P6	N-1-1	< 100	< 100	104.1	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
COLWATER-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + TOT812_H-Coolwater 115KV Line	P6	N-1-1	< 100	107.1	104.2	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
KRAMER 230/12KV TRANSFORMER CK 1	Coolwater-Tortilla-Segs2 115KV Line + Kramer 230/115KV Transformer ck 2	P6	N-1-1	< 100	< 100	104.5	< 100	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
KRAMER 230/12KV TRANSFORMER CK 2	Coolwater-Tortilla-Segs2 115KV Line + Kramer 230/115KV Transformer ck 1	P6	N-1-1	< 100	< 100	104.5	< 100	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
IVANPAH - MTN PASS 115KV LINE	Kramer-Accelerate 115KV Line + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	107.5	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Victor-Lugo 230KV Line cks 1, 2, 3, 4	P6	N-1-1	< 100	< 100	107.9	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + TOT812_H-Coolwater 115KV Line	P6	N-1-1	< 100	110.6	107.9	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
COLWATER-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	109.0	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	113.5	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
COLWATER-TAP705 115KV LINE	Kramer 230/115KV Transformer ck 1 + Kramer 230/115KV Transformer ck 2	P6	N-1-1	< 100	< 100	117.5	< 100	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
KRAMER 230/12KV TRANSFORMER CK 1	Kramer 230/115KV Transformer ck 2 + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	120.3	101.6	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
KRAMER 230/12KV TRANSFORMER CK 2	Kramer 230/115KV Transformer ck 1 + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	120.3	101.6	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
KRAMER 115/12KV TRANSFORMER CK 1	Kramer 230/115KV Transformer ck 2 + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	120.6	100.6	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
KRAMER 115/12KV TRANSFORMER CK 2	Kramer 230/115KV Transformer ck 1 + Coolwater 230/115KV Transformer	P6	N-1-1	< 100	< 100	120.6	100.6	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
TORTILLA-TAP705 115KV LINE	Kramer 230/115KV Transformer ck 1 + Kramer 230/115KV Transformer ck 2	P6	N-1-1	< 100	< 100	121.3	< 100	< 100	< 100	< 100	< 100	< 100	RAS-Drop Load
VICTOR 230/115KV TRANSFORMER CK 2	Victor 230/115KV Transformer ck 1 + Victor 230/115KV Transformer ck 3	P6	N-1-1	127.4	< 100	153.1	< 100	143.6	< 100	< 100	< 100	142.6	Utilize Spare Victor 230/115KV Transformer
VICTOR 230/115KV TRANSFORMER CK 1	Victor 230/115KV Transformer ck 2 + Victor 230/115KV Transformer ck 3	P6	N-1-1	127.3	< 100	153.1	< 100	143.5	< 100	< 100	< 100	142.5	Utilize Spare Victor 230/115KV Transformer
VICTOR 230/115KV TRANSFORMER CK 3	Victor 230/115KV Transformer ck 1 + Victor 230/115KV Transformer ck 2	P6	N-1-1	127.0	< 100	153.1	< 100	143.1	< 100	< 100	< 100	142.1	Utilize Spare Victor 230/115KV Transformer
COLWATER-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Edwards-Holgate 115KV Line	P6	N-1-1	< 100	107.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
COLWATER-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Edwards-SouthBAS 115KV Line	P6	N-1-1	< 100	107.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
COLWATER-TAP705 115KV LINE	Kramer-Coolwater 115KV Line + Kramer-Accelerate 115KV Line	P6	N-1-1	< 100	107.8	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	Kramer-Coolwater Looping Tortilla/Reduce BESS charging
TORTILLA-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Edwards-Holgate 115KV Line	P6	N-1-1	< 100	110.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Kramer-Accelerate 115KV Line + Edwards-SouthBAS 115KV Line	P6	N-1-1	< 100	110.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Kramer-Coolwater Looping Tortilla
TORTILLA-TAP705 115KV LINE	Kramer-Coolwater 115KV Line + Kramer-Accelerate 115KV Line	P6	N-1-1	< 100	111.1	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	Kramer-Coolwater Looping Tortilla/Reduce BESS charging



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SPrOP	B8-29SPrOP	S1-29SP	S2-26SP	S3-26SPrOP	
BAKER - MTN PASS 115KV LINE	Kramer-Victor 230kV Line ck 1 + Kramer-Coolwater 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.6	Reduce BESS Charging
BAKER - MTN PASS 115KV LINE	Kramer-Victor 230kV Line ck 2 + Kramer-Coolwater 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.6	Reduce BESS Charging
IVANPAH - MTN PASS 115KV LINE	Victor-Roadway 115kV Line + Kramer-Victor 230kV Line ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	Reduce BESS Charging
IVANPAH - MTN PASS 115KV LINE	Victor-Roadway 115kV Line + Kramer-Victor 230kV Line ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	Reduce BESS Charging
IVANPAH - MTN PASS 115KV LINE	Kramer-Victor 230kV Line ck 1 + Kramer-Tortilla 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	Reduce BESS Charging
IVANPAH - MTN PASS 115KV LINE	Kramer-Victor 230kV Line ck 2 + Kramer-Tortilla 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	Reduce BESS Charging
IVANPAH - MTN PASS 115KV LINE	Kramer-Victor 230kV Line ck 2 + Kramer-Coolwater 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.4	Reduce BESS Charging
IVANPAH - MTN PASS 115KV LINE	Kramer-Victor 230kV Line ck 2 + Kramer-Coolwater 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.4	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Kramer-Victor 230kV Line ck 1 + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.7	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 2	Kramer-Victor 230kV Line ck 1 + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.7	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Kramer-Victor 230kV Line ck 2 + BLM East-BLM West 230kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.7	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 2	Kramer-Victor 230kV Line ck 2 + BLM East-BLM West 230kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.7	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Roadway-Kramer 115kV Line + Kramer-Victor 230kV Line ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.5	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 2	Roadway-Kramer 115kV Line + Kramer-Victor 230kV Line ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.5	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Victor-Kramer 115kV Line + Kramer-Victor 230kV Line ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.9	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 2	Victor-Kramer 115kV Line + Kramer-Victor 230kV Line ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.9	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Victor-Roadway 115kV Line + Kramer-Victor 230kV Line ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.9	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 2	Victor-Roadway 115kV Line + Kramer-Victor 230kV Line ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.9	Reduce BESS Charging
VICTOR - LUGO 230KV LINE CK 1, 2, 3, 4	Victor-Lugo 230kV Line cks 1, 2, 3, 4 + Ivanpah-Baker-Coolwater-Dunsmiding-Mtn Pass 115kV Line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.5	HOPP RAS
KRAMER - VICTOR 230KV LINE CK 1	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Victor 230kV Line ck 2	P6	N-1-1	< 100	< 100	< 100	101.8	< 100	< 100	< 100	< 100	< 100	Mojave Desert RAS
KRAMER - VICTOR 230KV LINE CK 2	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Victor 230kV Line ck 1	P6	N-1-1	< 100	< 100	< 100	101.8	< 100	< 100	< 100	< 100	< 100	Mojave Desert RAS
CASE DIVERGE	Lugo 500/230kV Tranformer Banks 1 + 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	Reduce BESS Charging
CASE DIVERGE	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Coolwater 115kV line	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	Reduce BESS Charging
KRAMER - VICTOR 230KV LINE CK 1	Victor-Kramer 115kV Line + Roadway-Kramer 115kV Line	P7	N-2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.9	Future Kramer CRAS
KRAMER - VICTOR 230KV LINE CK 2	Victor-Kramer 115kV Line + Roadway-Kramer 115kV Line	P7	N-2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.9	Future Kramer CRAS
KRAMER - VICTOR 230KV LINE CK 1	Victor-Roadway 115kV Line + Victor-Kramer 115kV Line	P7	N-2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	118.0	Future Kramer CRAS
KRAMER - VICTOR 230KV LINE CK 2	Victor-Roadway 115kV Line + Victor-Kramer 115kV Line	P7	N-2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	118.0	Future Kramer CRAS
CASE DIVERGE	Kramer-Victor 230kV Line cks 1 & 2	P7	N-2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	Reduce BESS Charging



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)							Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SPrOP	B8-29SPrOP	S1-29SP	S2-26SP	S3-26SPrOP		
MTN PASS 115 Kv	Ivanpah-Mtn Pass 115kV Line	P1	N-1	0.80	0.89	0.9 <V<1.1	0.87	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	0.9 <V<1.1	Power Factor Correction	
BAKER 115 kV	Ivanpah-Mtn Pass 115kV Line	P1	N-1	0.82	0.9 <V<1.1	0.9 <V<1.1	0.89	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line	P1	N-1	0.89	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line	P1	N-1	0.9 <V<1.1	0.67	0.66	0.71	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line	P1	N-1	0.9 <V<1.1	0.68	0.67	0.72	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater 230/115kV Transformer	P1	N-1	0.9 <V<1.1	0.87	0.9 <V<1.1	0.88	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater 230/115kV Transformer	P1	N-1	0.9 <V<1.1	0.87	0.9 <V<1.1	0.88	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Kramer-Accelerate 115kV Line	P1	N-1	0.9 <V<1.1	0.88	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Kramer-Accelerate 115kV Line	P1	N-1	0.9 <V<1.1	0.88	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
MTN PASS 115 kV	Gen TOTB12_G3I + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	0.79	0.88	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.84	0.9 <V<1.1	Power Factor Correction	
BAKER 115 kV	Gen TOTB12_G3I + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	0.81	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.87	0.9 <V<1.1	Power Factor Correction	
DUNNSIDE 115 kV	Gen TOTB12_G3I + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	0.88	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
MTN PASS 115 kV	Gen TOTB12_G3B + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.88	0.9 <V<1.1	Power Factor Correction	
DUNNSIDE 115 kV	Gen TOTB12_G3I + Coolwater 230/115kV Transformer	P3	N-1-1	0.9 <V<1.1	0.87	0.9 <V<1.1	0.86	0.9 <V<1.1	0.89	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
BAKER 115 kV	Gen TOTB12_G3I + Coolwater 230/115kV Transformer	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.88	0.9 <V<1.1	0.90	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
DUNNSIDE 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.86	Power Factor Correction/Reduce BESS charging		
DUNNSIDE 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.87	Power Factor Correction/Reduce BESS charging		
BAKER 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Power Factor Correction/Reduce BESS charging		
BAKER 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Power Factor Correction/Reduce BESS charging		
TAP705 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.88	Reduce BESS charging		
TOTB12_H 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.88	Reduce BESS charging		
TAP705 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Reduce BESS charging		
TOTB12_H 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Reduce BESS charging		
TOTB12_H 115 kV	Gen TOTB12_G3I + Coolwater-Tortilla-Segs2 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.90	Reduce BESS charging		
COLWATER 115 kV	Gen TOTB12_G3I + Coolwater 230/115kV Transformer	P3	N-1-1	0.9 <V<1.1	0.84	0.9 <V<1.1	0.84	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TOTB12_H 115 kV	Gen TOTB12_G3I + Coolwater 230/115kV Transformer	P3	N-1-1	0.9 <V<1.1	0.84	0.9 <V<1.1	0.85	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TAP705 115 kV	Gen TOTB12_G3I + Coolwater 230/115kV Transformer	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.85	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
SEGS2 115 kV	Gen TOTB12_G3I + Coolwater 230/115kV Transformer	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.85	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
COLWATER 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.88	Tortilla Shunt Cap/Reduce BESS charging		
SEGS2 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.88	Tortilla Shunt Cap/Reduce BESS charging		
COLWATER 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Tortilla Shunt Cap/Reduce BESS charging		
TORTILLA 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Tortilla Shunt Cap/Reduce BESS charging		
SEGS2 115 kV	Gen TOTB12_G3I + Kramer-Tortilla 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	Tortilla Shunt Cap/Reduce BESS charging		
TORTILLA 115 kV	Gen TOTB12_G3I + Kramer-Coolwater 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.90	Tortilla Shunt Cap/Reduce BESS charging		
COLWATER 115 kV	Gen TOTB12_G3I + Coolwater-Tortilla-Segs2 115kV Line	P3	N-1-1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.90	Tortilla Shunt Cap/Reduce BESS charging		
TAP705 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.71	0.70	0.75	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TAP705 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.71	0.9 <V<1.1	0.75	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
SEGS2 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.71	0.70	0.75	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
SEGS2 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.71	0.9 <V<1.1	0.75	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TAP705 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.9 <V<1.1	0.70	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.9 <V<1.1	0.69	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.9 <V<1.1	0.69	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.9 <V<1.1	0.70	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.9 <V<1.1	0.70	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
SEGS2 115 kV	Coolwater-Tap 705 115kV Line	P5	Delayed Fault Clearing	0.9 <V<1.1	0.9 <V<1.1	0.70	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
MTN PASS 115 Kv	Ivanpah-Mtn Pass 115kV Line + TOTB12_H-Coolwater 115kV Line	P6	N-1-1	0.76	0.87	0.9 <V<1.1	0.77	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.87	0.9 <V<1.1	Power Factor Correction	
BAKER 115 kV	Ivanpah-Mtn Pass 115kV Line + TOTB12_H-Coolwater 115kV Line	P6	N-1-1	0.78	0.88	0.9 <V<1.1	0.79	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	0.9 <V<1.1	Power Factor Correction	
MTN PASS 115 kV	Kramer-Accelerate 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.80	0.85	0.9 <V<1.1	0.76	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
MTN PASS 115 kV	Kramer-Coolwater 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.81	0.9 <V<1.1	0.9 <V<1.1	0.77	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	
MTN PASS 115 kV	Kramer-Victor 230kV Line c&k 1 + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.81	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.89	0.9 <V<1.1	Power Factor Correction	
MTN PASS 115 kV	Ivanpah-Mtn Pass 115kV Line + Cumberland-Silver Springs 230kV Line	P6	N-1-1	0.81	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	0.9 <V<1.1	Power Factor Correction	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SPrOP	B8-29SPrOP	S1-29SP	S2-26SP	S3-26SPrOP			
MTN PASS 115 kV	Roadway-Kramer 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.81	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
MTN PASS 115 kV	Ivanpah-Mtn Pass 115kV Line + Kramer-Sun_HV 115kV Line	P6	N-1-1	0.82	0.89	0.9 < V < 1.1	0.78	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Kramer-Accelerate 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.82	0.87	0.9 < V < 1.1	0.78	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Kramer-Coolwater 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.83	0.9 < V < 1.1	0.9 < V < 1.1	0.79	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.83	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
DUNNSIDE 115 kV	Kramer-Coolwater 115kV Line + Kramer-Tortilla 115kV Line	P6	N-1-1	0.85	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
DUNNSIDE 115 kV	Ivanpah-Mtn Pass 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.86	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
ROADWAY 115 kV	Victor-Roadway 115kV Line + Roadway-Hamlin 115kV Line	P6	N-1-1	0.86	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Kramer-Tortilla 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TAP705 115 kV	Kramer-Tortilla 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
COLWATER 115 kV	Kramer-Tortilla 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
SEGS2 115 kV	Kramer-Tortilla 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
DUNNSIDE 115 kV	Kramer-Tortilla 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
DUNNSIDE 115 kV	Baker-Mtn Pass 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line + Cumberland-Silver Springs 230kV Line	P6	N-1-1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line + Edwards-Holgate 115kV Line	P6	N-1-1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line + Edwards-SouthBAS 115kV Line	P6	N-1-1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line + Kramer-Sun_HV 115kV Line	P6	N-1-1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Kramer-Tortilla 115kV Line + TOT812_H-Coolwater 115kV Line	P6	N-1-1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
INYO PS 115 kV	Control N-1: Control-Casa Diablo-Shenwin Tap704-Control 115kV Line + Casa Diablo-Control 115kV Line	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	1.11	1.11	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
CONTROL 115 kV	Control N-1: Control-Casa Diablo-Shenwin Tap704-Control 115kV Line + Casa Diablo-Control 115kV Line	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	1.11	1.12	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
OXBOW B 115 kV	Control N-1: Control-Casa Diablo-Shenwin Tap704-Control 115kV Line + Casa Diablo-Control 115kV Line	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	1.11	1.12	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
INYO 115 kV	Control N-1: Control-Casa Diablo-Shenwin Tap704-Control 115kV Line + Casa Diablo-Control 115kV Line	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	1.11	1.12	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
INYO PS 115 kV	Control-Inyo 115kV Line + OwensCon-Inyo 230kV Line	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	1.12	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
INYO 115 kV	Control-Inyo 115kV Line + OwensCon-Inyo 230kV Line	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	1.12	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
INYO PS 115 kV	OwensCon-Inyo 230kV Line + Inyo-Inyo PS 115kV Transformer	P6	N-1-1	1.11	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	1.12	0.9 < V < 1.1	0.9 < V < 1.1	System adjustments in between contingencies	
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer 230115kV Transformer ck 1	P6	N-1-1	0.9 < V < 1.1	0.67	0.65	0.70	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer 230115kV Transformer ck 2	P6	N-1-1	0.9 < V < 1.1	0.67	0.65	0.70	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Luz LSP-Kramer 230kV Line	P6	N-1-1	0.9 < V < 1.1	0.67	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Victor-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.67	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Roadway-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.67	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer 230115kV Transformer ck 1	P6	N-1-1	0.9 < V < 1.1	0.68	0.66	0.71	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer 230115kV Transformer ck 2	P6	N-1-1	0.9 < V < 1.1	0.68	0.66	0.71	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Luz LSP-Kramer 230kV Line	P6	N-1-1	0.9 < V < 1.1	0.68	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Victor-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.68	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Roadway-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.68	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
TAP705 115 kV	Kramer-Accelerate 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.79	0.9 < V < 1.1	0.83	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla	
MTN PASS 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.79	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
MTN PASS 115 kV	Ivanpah-Mtn Pass 115kV Line + Kramer 230kV SVD "e"	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
MTN PASS 115 kV	Kramer-Victor 230kV Line ck 2 + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
MTN PASS 115 kV	Kramer-Coolwater 230kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Ivanpah-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
DUNNSIDE 115 kV	Baker-Dunnsiding 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Baker-Mtn Pass 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.80	0.9 < V < 1.1	0.73	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
DUNNSIDE 115 kV	Baker-Mtn Pass 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.83	0.9 < V < 1.1	0.79	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
MTN PASS 115 kV	Ivanpah-Mtn Pass 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.74	0.9 < V < 1.1	0.68	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
BAKER 115 kV	Ivanpah-Mtn Pass 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.76	0.9 < V < 1.1	0.70	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
DUNNSIDE 115 kV	Ivanpah-Mtn Pass 115kV Line + Coolwater 230115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.81	0.9 < V < 1.1	0.78	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Power Factor Correction	
MTN PASS 115 kV	Ivanpah-Mtn Pass 115kV Line + Kramer-Twinkle 230kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.78	0.9 < V < 1.1	0.9 < V <						







Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)							Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SPrOP	B8-29SPrOP	S1-29SP	S2-26SP	S3-26SPrOP		
SEGS2 115 kV	Kramer-Coolwater 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.84	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TOTR12_H 115 kV	Kramer-Coolwater 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.84	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Ivanpah-Mtn Pass 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TOTR12_H 115 kV	Ivanpah-Mtn Pass 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Accelerate 115kV Line + Baker-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Accelerate 115kV Line + Kramer-Sun_HV 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Accelerate 115kV Line + Coolwater-Dunnisdning 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Accelerate 115kV Line + Ivanpah-Baker-Coolwater-Dunnisdng-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Kramer-Accelerate 115kV Line + Baker-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Accelerate 115kV Line + Baker-Dunnisdning 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Kramer-Accelerate 115kV Line + Kramer-Sun_HV 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TOTR12_H 115 kV	Baker-Mtn Pass 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Kramer-Accelerate 115kV Line + Coolwater-Dunnisdning 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Kramer-Accelerate 115kV Line + Ivanpah-Baker-Coolwater-Dunnisdng-Mtn Pass 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Kramer-Accelerate 115kV Line + Baker-Dunnisdning 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TAP705 115 kV	Oxbow B 230/115kV Transformer + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TAP705 115 kV	Oxbow B-Oxbow A 230kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TAP705 115 kV	Kramer-Victor 230kV Line ck 1 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TAP705 115 kV	Kramer-Victor 230kV Line ck 2 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Oxbow B 230/115kV Transformer + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Oxbow B-Oxbow A 230kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Kramer-Victor 230kV Line ck 1 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Kramer-Victor 230kV Line ck 2 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
SEGS2 115 kV	Oxbow B 230/115kV Transformer + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
SEGS2 115 kV	Oxbow B-Oxbow A 230kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
SEGS2 115 kV	Kramer-Victor 230kV Line ck 1 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
SEGS2 115 kV	Kramer-Victor 230kV Line ck 2 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TAP705 115 kV	Baker-Dunnisdning 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Baker-Dunnisdning 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
SEGS2 115 kV	Baker-Dunnisdning 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.90	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Iryckem-Kramer 115V Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.66	0.71	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Iryckem-Kramer 115V Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.67	0.72	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Coolwater 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.66	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Coolwater 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.67	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Sun_HV 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.66	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Kramer-Sun_HV 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.67	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Oxbow B 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.66	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Oxbow B 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.67	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Sandlot-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.71	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Sandlot-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.72	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Tap 701-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.66	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Tap 701-Kramer 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.68	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Victor-Roadway 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.71	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line + Victor-Roadway 115kV Line	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.72	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Edwards-Hoigate 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Edwards-SouthBAS 115kV Line + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Sh



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SprOP	B8-29SprOP	S1-29SP	S2-26SP	S3-26SprOP	
TORTILLA 115 kV	Kramer-Victor 230kV Line ck 1 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Victor 230kV Line ck 1 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Kramer-Victor 230kV Line ck 2 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
ACCELERATE 115 kV	Kramer-Victor 230kV Line ck 2 + Coolwater 230/115kV Transformer	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla



Overloaded Facility	Contingency (All and Worst PE)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SprOP	B8-29SprOP	S1-29SP	S2-26SP	S3-26SprOP	
MTN PASS 115 kV	Ivanpah-Mtn Pass 115kV Line	P1	N-1	19.54	10.06	< 8	12.14	< 8	< 8	< 8	9.62	< 8	Power Factor Correction
ACCELERATE 115 kV	Coolwater-Tortilla-Segs2 115kV Line	P1	N-1	< 8	26.07	29.04	23.94	< 8	8.78	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater-Tortilla-Segs2 115kV Line	P1	N-1	< 8	27.09	30.18	24.85	< 8	8.98	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
SEGS2 115 kV	Coolwater 230/115kV Transformer	P1	N-1	< 8	10.09	< 8	8.40	< 8	< 8	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Coolwater 230/115kV Transformer	P1	N-1	< 8	10.15	< 8	8.54	< 8	< 8	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
BAKER 115 kV	Ivanpah-Mtn Pass 115kV Line	P1	N-1	14.92	< 8	< 8	10.53	< 8	< 8	< 8	< 8	< 8	Power Factor Correction
ACCELERATE 115 kV	Coolwater 230/115kV Transformer	P1	N-1	< 8	9.42	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Coolwater 230/115kV Transformer	P1	N-1	< 8	9.73	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
DUNNSIDE 115 kV	Ivanpah-Mtn Pass 115kV Line	P1	N-1	8.92	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Power Factor Correction
TORTILLA 115 kV	Gen TOT812_G3 + Kramer-Coolwater 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9.35	Reduce BESS charging
DUNNSIDE 115 kV	Gen TOT812_G3 + Kramer-Coolwater 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9.52	Reduce BESS charging
TORTILLA 115 kV	Gen TOT812_G3 + Kramer-Tortilla 115kV Line	P3	N-1-1	8.30	< 8	< 8	< 8	< 8	< 8	< 8	< 8	10.34	Tortilla Shunt Cap/Reduce BESS charging
SEGS2 115 kV	Gen TOT812_G3 + Kramer-Coolwater 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	10.56	Reduce BESS charging
TAP705 115 kV	Gen TOT812_G3 + Kramer-Coolwater 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	10.66	Reduce BESS charging
COLWATER 115 kV	Gen TOT812_G3 + Kramer-Coolwater 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	10.68	Reduce BESS charging
TOT812_H 115 kV	Gen TOT812_G3 + Kramer-Coolwater 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	10.88	Reduce BESS charging
MTN PASS 115 kV	Gen TOT812_G3B + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	10.10	< 8	Power Factor Correction
BAKER 115 kV	Gen TOT812_G3 + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	16.08	< 8	< 8	< 8	< 8	< 8	< 8	11.03	< 8	Power Factor Correction
MTN PASS 115 kV	Gen TOT812_G3 + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	20.64	12.45	< 8	< 8	< 8	< 8	< 8	13.87	< 8	Power Factor Correction
ACCELERATE 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	10.05	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TORTILLA 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	< 8	< 8	< 8	< 8	10.29	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
DUNNSIDE 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	11.67	< 8	11.77	< 8	10.52	< 8	< 8	< 8	Power Factor Correction
SEGS2 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	< 8	< 8	15.07	< 8	10.90	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TOT812_H 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	15.51	< 8	15.21	< 8	10.99	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
TAP705 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	< 8	< 8	15.21	< 8	11.04	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
COLWATER 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	15.41	< 8	15.24	< 8	11.06	< 8	< 8	< 8	Tortilla Shunt Cap & Kramer-Coolwater Looping Tortilla
BAKER 115 kV	Gen TOT812_G3 + Coolwater 230/115kV Transformer	P3	N-1-1	< 8	< 8	< 8	8.59	< 8	< 8	< 8	< 8	< 8	Power Factor Correction
DUNNSIDE 115 kV	Gen TOT812_G3 + Ivanpah-Mtn Pass 115kV Line	P3	N-1-1	10.82	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Power Factor Correction



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2-29SP	B3-34SP	B7-26SprOP	S1-29SP	S3-26SprOP	
Kramer-Sandlot 230 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Coolwater-Sandlot 230 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Coolwater 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Tortilla 115 kV TL	P1	N-1	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Accelerate 115 kV TL	P1	N-1	No Issues	No Issues	N/A	No Issues	N/A	
Accelerate-Tortilla 115 kV TL	P1	N-1	No Issues	No Issues	N/A	No Issues	N/A	
Coolwater-Segs 2-Tortilla 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Ivanpah-Baker-Coolwater-Dunn Siding- Mountain Pass 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Inyokern-Randsburg No. 1 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Inyokern-Randsburg No. 3 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Inyokern-Searles 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Inyokern-Downs 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Downs-Searles 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Coso-Haiwee-Inyokern 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Haiwee-Inyokern 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Inyo 115 kV TL (Path 60)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Casa Diablo 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Casa Diablo-Sherwin 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Silver Peak A 55 kV TL (Path 52)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Silver Peak C 55 kV TL (Path 52)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo 1AA or 2AA 500230 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Victor 1A, 2A, 3A, or 4A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer 1A or 2A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Coolwater 1A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	N/A	No Issues	N/A	
Control 1B or 2B 11555 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Inyo-Control 115 kV T/L	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Ivanpah 1A or 2A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Victor No. 1 230 kV T/L	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Coolwater 230 kV T/L	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Ivanpah-Baker-Coolwater-Dunn Siding- Mountain Pass 115 kV T/L (Coolwater-Dunn Siding Segment)	P2	Open Line Section No Fault	No Issues	No Issues	No Issues	No Issues	No Issues	
Ivanpah-Baker-Coolwater-Dunn Siding- Mountain Pass 115 kV T/L (Ivanpah-Mountain Pass Segment)	P2	Open Line Section No Fault	No Issues	No Issues	No Issues	No Issues	No Issues	
HDPP Units 1, 2, 3 & ST Generation (POI: Victor 230 kV Bus) out of service, and the loss of either Kramer-Victor No. 1 or No. 2	P3	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
HDPP Units 1, 2, 3 & ST Generation (POI: Victor 230 kV Bus) out of service, and the loss of Victor Shunt Capacitor	P3	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
HDPP Units 1, 2, 3 & ST Generation (POI: Victor 230 kV Bus) out of service, and the loss of either Lugo 500230 kV 1AA or 2AA Tr	P3	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Casa Diablo IV Generation (POI: Casa Diablo 115 kV Bus) out of service and the loss of Control-Coso-Haiwee-Inyokern 115 kV TL	P3	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo-Rancho Vista 500 kV and Lugo-Vincent No. 1 500 kV -SLG 15 cycle fault at Lugo 500	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo-Victorville 500 kV and Lugo-Vincent No.2 500 kV-SLG 15 cycle fault at Lugo 500	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo-Pisgah No. 1 220 kV and Lugo-Victor No. 3 220 kV-SLG 15 cycle fault at Lugo 220	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo-Victor No. 4 220 kV and Lugo 2AA Bank-SLG 15 cycle fault at Lugo 220	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Tortilla 115 kV and Kramer-Inyokern-Randsburg No. 3 115 kV-SLG 15 cycle fault at Kramer 115	P4	Stuck Breaker	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Sandlot 220 kV and Coolwater-Sandlot 220 kV-SLG 15 cycle fault at Sandlot 220	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer- Victor No. 2 220 kV and Kramer -Coolwater 220 kV-SLG 15 cycle fault at Kramer 220	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Coolwater-Kramer 115 kV and Kramer -Victor 115 kV-SLG 15 cycle fault at Kramer 115	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Sungen 115 kV and Kramer -Roadway 115 kV-SLG 15 cycle fault at Kramer 115	P4	Stuck Breaker	No Issues	N/A	No Issues	No Issues	No Issues	
Control 115 kv East Bus	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant bus differential relay
Cool Water 115 kv East Bus	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant bus differential relay
Kramer 115 kv East Bus	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant bus differential relay
Tortilla 115 kv East Bus	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant bus differential relay
Victor 115 kV North Bus SecAB	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control 55 kV Bus	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern 115 kv Bus	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant bus differential relay
P5.3.13c Kramer 230 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Sandlot 230 kV	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.3.13c Victor 230 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Control 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Cool Water 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Inyokern 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Kramer 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Tortilla 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2-29SP	B3-34SP	B7-26SprOP	S1-29SP	S3-26SprOP	
P5.3.13c Victor 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Cool Water 220 kV	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.3.13c Ivanpah 220 kV	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.3.13c Ivanpah 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Roadway 115 kV	P5	Non-Redundant Relay	N/A	N/A	WECC criteria not met	N/A	WECC criteria not met	Add redundant DC supply
P5.3.13c Control 55 kV	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-BLM West 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Cool Water 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-LSP 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Victor No. 1 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Victor No. 2 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Victor-Lugo No. 1 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Victor-Lugo No. 2 220 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control-Coso-Haiwee-Inyokern 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control-Haiwee-Inyokern 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control-Inyo 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control No. 1 Transformer	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control No. 3 Transformer	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control-Sherwin-Casa Diablo 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Control-Casa Diablo 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Cool Water-Baker-Dunn Siding -Ivanpah-Mt. Pass 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Cool Water-Gale 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Cool Water-Kramer 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Cool Water-SEGS-Tortilla 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Cool Water-Tiefert 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyo-Control 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern-Control-Coso-Haiwee 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern-Control-Haiwee 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern-Downs 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern-Kramer-Randsburg No. 1 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern-Kramer-Randsburg No. 3 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Inyokern-Searles 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Cool Water 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Inyokern-Randsburg No. 1 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Inyokern-Randsburg No. 3 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Roadway 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Tortilla 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Kramer-Victor 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Tortilla-Kramer 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Victor-Kramer 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Victor-Roadway 115 kV Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b BLM West-Kramer 230 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b BLM West-Kramer 230 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b LUZ LSP-Kramer 230 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b LUZ LSP-Kramer 230 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Coso-Haiwee-Inyokern-Control 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Coso-Haiwee-Inyokern-Control 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Haiwee-Inyokern-Control 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Haiwee-Inyokern-Control 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Colwater-Baker-Dunn Siding-Ivanpah-Mt. Pass 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Colwater-Baker-Dunn Siding-Ivanpah-Mt. Pass 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Colwater 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Colwater 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Colwater-SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Colwater-SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Colwater-Tiefert 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Colwater-Tiefert 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Coso-Haiwee-Control-Inyokern 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Coso-Haiwee-Control-Inyokern 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			B2-29SP	B3-34SP	B7-26SprOP	S1-29SP	S3-26SprOP	
P5.b Haiwee-Control-Inyokern 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Haiwee-Control-Inyokern 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Inyokern-Downs 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Inyokern-Downs 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Inyokern-Randsburg No.1 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Inyokern-Randsburg No.1 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Inyokern-Randsburg No.3 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Inyokern-Randsburg No.3 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Inyokern-Searles 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Inyokern-Searles 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Roadway 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Roadway 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Victor 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Victor 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Tortilla 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
P5.b Kramer-Tortilla 115 kv Line	P5	Non-Redundant Relay	N/A	N/A	No Issues	N/A	No Issues	
Lugo-Pisgah No. 1 and No. 2 230 kV T/L	P6	N-1-1	N/A	N/A	No Issues	N/A	No Issues	
Calcite-Lugo 230 kV T/L and Lugo-TOT1080 230 kV T/L	P6	N-1-1	No Issues	No Issues	N/A	No Issues	N/A	
Lugo 1AA or 2AA 500/230 kV Transformer Bank and Calcite-Lugo 230 kV T/L	P6	N-1-1	No Issues	No Issues	N/A	No Issues	N/A	
Lugo 1AA and 2AA 500/230 kV Transformer Bank	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	Unstable	System adjustments in between contingencies
Coolwater-Segs 2-Tortilla 115 kV T/L and Kramer-Coolwater 230 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Coolwater 1A 230/115 kV Transformer Bank and Kramer-Accelerate 115 kV T/L	P6	N-1-1	No Issues	No Issues	N/A	No Issues	N/A	
Control-Coso-Haiwee-Inyokern 115 kV T/L and Kramer-Inyokern-Randsburg No. 3 115 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer 1A or 2A 230/115 kV Transformer Bank and Kramer-Victor No. 1 or No. 2 230 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Sandlot 230 kV T/L and Coolwater 1A 230/115 kV Transformer Bank	P6	N-1-1	No Issues	No Issues	N/A	No Issues	N/A	
Ivanpah 1A or 2A 230/115 kV Transformer Bank and Coolwater-Sandlot 230 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Victor No. 1 and No. 2 230 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	Unstable	Reduce BESS Charging
Kramer-Inyokern-Randsburg No. 1 115 kV T/L and Kramer-Inyokern-Randsburg No. 3 115 kV T/L	P6	N-1-1	Oscillations	No Issues	No Issues	Oscillations	Unstable	System adjustments in between contingencies
Control-Inyo 115 kV T/L (Path 60) and Control-Coso-Haiwee-Inyokern 115 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo-Victor No. 1 and No. 2 230 kV Lines-SLG 15 cycle fault at Lugo 220	P7	N-2	No Issues	No Issues	No Issues	No Issues	No Issues	
Lugo-Victor No. 3 and No. 4 230 kV Lines-SLG 15 cycle fault at Lugo 220	P7	N-2	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer-Victor No. 1 and No. 2 230 kV Lines-SLG 15 cycle fault at Kramer 220	P7	N-2	No Issues	No Issues	No Issues	No Issues	No Issues	
Kramer- Victor 115 kV and Victor-Roadway 115 kV-SLG 15 cycle fault at Victor 115	P7	N-2	No Issues	N/A	No Issues	No Issues	No Issues	
Victor-Roadway No. 1 and No. 2 115 kV-SLG 15 cycle fault at Victor 115	P7	N-2	N/A	WECC criteria not met	N/A	N/A	N/A	Future Kramer CRAS
Kramer- Victor 115 kV and Kramer-Roadway 115 kV-SLG 15 cycle fault at Kramer 115	P7	N-2	No Issues	N/A	No Issues	No Issues	No Issues	
Kramer-Sandlot 230 kV and Kramer-Coolwater 230 kV-SLG 15 cycle fault at Kramer 220	P7	N-2	No Issues	No Issues	No Issues	No Issues	No Issues	
Coolwater- Sandlot 230 kV and Kramer -Coolwater 230 kV-SLG 15 cycle fault at Coolwater 220	P7	N-2	No Issues	No Issues	No Issues	No Issues	No Issues	
Control-Coso-Haiwee-Inyokern 115 kV and Control- Haiwee-Inyokern 115 kV-SLG 15 cycle fault at	P7	N-2	No Issues	No Issues	No Issues	No Issues	No Issues	





Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SprOP	B8-29SprOP	S1-29SP	S2-26SP	S3-26SprOP	

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



2024-2025 ISO Reliability Assessment - Study Results

Study Area: **SCE North of Lugo**

*Single Source Substation with more than 100 MW Load*



Substation	Load Served (MW)									Potential Mitigation Solutions
	B1-26SP	B2-29SP	B3-34SP	B5-29OP	B7-26SprOP	B8-29SprOP	S1-29SP	S2-26SP	S3-26SprOP	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
22886 SUNCREST    230    22832 SYCAMORE    230   1   1	TL50001_Line ECO-ML 500kV ck 1 AND TL23055_Line SCR-SX 230kV ck 2	P6	N-1-1	127.5	128.3	< 100	< 100	124.4	< 100	< 100	< 100	< 100	< 100	143.5	108.9	132.0	< 100	On the near term, rely on the existing TL23054/ TL23055 RAS, along with the 30-minute short-term emergency ratings of the 230 kV lines (30% higher than their continuous ratings), to allow the market and operators to bring down the overloads that do not exceed 130% for the P6 contingencies within the continuous ratings in 30 minutes as operational mitigation measures. These could involve system adjustments, such as reducing generation output in the greater Imperial Valley area, dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area, adjusting the Imperial Valley phase shifting transformers, and bypassing the series capacitor banks in the 500 kV transmission lines between Hassayampa and North Gila as needed.
	TL50001_Line ECO-ML 500kV ck 1 AND TL23055+RAS_Line SCR-SX 230kV ck 2 + RAS	P6	N-1-1	103.5	106.4	< 100	< 100	101.1	< 100	< 100	< 100	< 100	< 100	110.9	< 100	110.3	< 100	
22886 SUNCREST    230    22832 SYCAMORE    230   2   1	TL50001_Line ECO-ML 500kV ck 1 AND TL23054_Line SCR-SX 230kV ck 1	P6	N-1-1	127.5	128.3	< 100	< 100	124.4	< 100	< 100	< 100	< 100	< 100	143.5	109.0	132.1	< 100	The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term.
	TL50001_Line ECO-ML 500kV ck 1 AND TL23054+RAS_Line SCR-SX 230kV ck 1 + RAS	P6	N-1-1	103.5	106.4	< 100	< 100	101.2	< 100	< 100	< 100	< 100	< 100	111.9	< 100	110.3	< 100	
22886 SUNCREST    230    22888 SNCRSMP1    500   1   1	TL50001_Line ECO-ML 500kV ck 1 AND SCR_BK81_Tran SCR 500/230kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.7	< 100	< 100	< 100	On the near term, rely on the 24-hr emergency ratings of the Suncrest banks (if necessary, the 30-min emergency rating may also be utilized). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 Suncrest – Sycamore Canyon overload issues.
22886 SUNCREST    230    22889 SNCRSMP2    500   1   1	TL50001_Line ECO-ML 500kV ck 1 AND SCR_BK80_Tran SCR 500/230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.7	< 100	< 100	< 100	The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Suncrest 500/230 kV bank.
22464 MIGUEL    230    22468 MIGUEL    500   2   1	TL50003_Line OCO-SCR 500kV ck 1 AND ML_BK80_Tran ML 500/230kV ck 1	P6	N-1-1	109.9	111.3	< 100	< 100	109.2	< 100	< 100	< 100	< 100	< 100	124.4	< 100	114.5	< 100	On the near term, rely on the existing Miguel BK 80/81 RAS (if necessary, the 24-hr or 30-min emergency ratings may also be utilized). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 overload issues.
22464 MIGUEL    230    22472 MIGUELMP    500   1   1	TL50003_Line OCO-SCR 500kV ck 1 AND ML_BK81_Tran ML 500/230kV ck 2	P6	N-1-1	108.3	109.7	< 100	< 100	108.7	< 100	< 100	< 100	< 100	< 100	125.4	< 100	113.4	< 100	The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Miguel 500/230 kV bank.
223562 IMPRLVLY B    230    22362 IV BK82 MP    500   1   1	Q1166_Gen Q1166 GEN1 ID 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.5	< 100	< 100	< 100	Rely on the 30-min emergency rating to allow the operators to connect the normally open Imperial Valley 230 kV current limiting reactor after the first contingency for the P3 and P6 events.
	IV_GEN4_IV GEN4 ID 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.0	< 100	< 100	< 100	
	DW_GEN8_Gen DW GEN8 ID 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.4	< 100	< 100	< 100	
	GR1215_ALL_Gen GR1215 GEN1/GEN2 ID VS AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.2	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.0	< 100	< 100	< 100	
	TL23043_Line IV-WCS-Q1166 230kV ck 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.8	< 100	< 100	< 100	
22356 IMPRLVLY    230    22357 IV PFC1    230   1   1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	100.9	105.5	< 100	< 100	103.0	< 100	< 100	< 100	< 100	< 100	110.6	< 100	106.1	< 100	On the near term, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones
22357 IV PFC1    230    22358 IV PFC    230   1   1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	115.3	121.4	< 100	< 100	117.5	< 100	< 100	< 100	< 100	< 100	123.7	< 100	122.1	< 100	
22357 IV PFC1    230    22358 IV PFC    230   2   1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	115.3	121.4	< 100	< 100	117.5	< 100	< 100	< 100	< 100	< 100	123.7	< 100	122.1	< 100	



Overloaded Facility				Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
							2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
22358 IV PFC	230	20118 ROA-230	230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	100.9	105.4	< 100	< 100	103.0	< 100	< 100	< 100	< 100	110.6	< 100	106.1	< 100	described above for the TL23054/TL23055 overload issues.  The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term.	
22609 OTAYMESA	230	20149 TJI-230	230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	136.4	138.7	< 100	< 100	136.4	< 100	< 100	< 100	< 100	160.3	112.1	139.3	< 100		
				TL50001+GEN_DROP_RAS_Line ECO-ML 500kV ck 1 + GEN DROP RAS AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	104.2	109.7	< 100	< 100	103.4	< 100	< 100	< 100	< 100	< 100	113.5	< 100	110.4	< 100	
				TL23041_Line SX-OM-ML 230kV ck 1 AND TL23042_Line BB-OM-ML 230kV ck 1	P6	N-1-1	103.6	102.4	103.2	103.5	< 100	102.2	< 100	< 100	< 100	< 100	< 100	< 100	102.4	103.5	Rely on existing 230 kV Otay Mesa Gen Drop RAS.
				TL23041+23042_Lines SX-OM-ML 230kV ck 1 + BB-OM-ML 230kV ck 1	P7	DCTL	103.6	102.4	103.3	103.5	< 100	102.2	< 100	< 100	< 100	< 100	< 100	< 100	102.4	103.5	
20102 RUM-230	230	20118 ROA-230	230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	109.2	103.0	< 100	< 100	102.4	< 100	< 100	< 100	< 100	121.6	< 100	103.2	< 100	On the near term, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS.	
20103 WIS-230	230	20100 ROA-TAP	230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	101.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.2	< 100	< 100	< 100			
20238 HRA-230	230	20102 RUM-230	230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.8	< 100	< 100	< 100	The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term.	
20238 HRA-230	230	20118 ROA-230	230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	100.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.1	< 100	< 100	< 100	Rely on existing TL23041/TL23042 RAS. The 30-min emergency rating (6.8% higher than their normal rating) may also be utilized when RAS is not sufficient to mitigate the overloads, giving the market and operators enough time to eliminate the identified thermal overloads. The system adjustment that can be implemented is to reduce remaining generation output in Otay Mesa.	
22609 OTAYMESA	230	22466 MLMS3TAP	230 1 1	TL23041_Line SX-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	120.6	123.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	122.1	< 100		
				TL23041+RAS_Line SX-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	< 100	103.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.6	< 100		
22609 OTAYMESA	230	22467 MLSXTAP	230 1 1	TL23042_Line BB-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	119.6	122.6	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120.9	102.1		
				TL23042+RAS_Line BB-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	< 100	101.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.3	< 100		
22464 MIGUEL	230	22467 MLSXTAP	230 1 1	TL23042_Line BB-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	118.8	123.4	< 100	101.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	122.7	103.7		
				TL23042+RAS_Line BB-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	102.5	107.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.5	< 100		
22430 SILVERGT	230	22596 OLD TOWN	230 1 1	TL23028_Line SG-MS-OT 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	100.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency ratings (29% higher than their normal ratings), giving the market and operators enough time to eliminate the identified thermal overloads. The system adjustments that can be implemented are to reduce generation output in Otay Mesa and/or Otay substations.	
22430 SILVERGT	230	22771 BAY BLVD	230 1 1	TL23023_Line ML-MS 230kV ck 2 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100		
22420 SILVERGT	69.0	22144 CORONADO	69.0 1 1	TL650_Line B-CR 69kV ck 1	P1	N-1	< 100	122.9	131.2	137.7	122.3	118.0	< 100	< 100	< 100	105.5	< 100	< 100	123.5	137.8	The Coronado Island Reliability Reinforcement Phase I and II projects will mitigate these thermal overloads.
				TL604_Line OT-VN 69kV ck 1	P1	N-1	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	
				TL605_Line SG-UB 69kV ck 1	P1	N-1	< 100	< 100	< 100	107.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.6	
22024 B	69.0	22144 CORONADO	69.0 1 1	TL655_Line SG-CR 69kV ck 1	P1	N-1	< 100	117.0	125.0	130.0	116.6	112.2	< 100	< 100	< 100	100.1	< 100	< 100	117.6	130.2	
22024 B	69.0	22420 SILVERGT	69.0 1 1	TL604_Line OT-VN 69kV ck 1	P1	N-1	< 100	< 100	< 100	104.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.0	
				TL605_Line SG-UB 69kV ck 1	P1	N-1	< 100	< 100	< 100	111.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.2	
				OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL605_Line SG-UB 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
22576 NOISLMTR 69.0 22144 CORONADO 69.0 2 1	TL6902_Line NIM-CR 69kV ck 1	P1	N-1	< 100	< 100	< 100	106.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.9	
22592 OLD TOWN 69.0 22596 OLD TOWN 230 1 1	OT_BK71_Trان OT 230/69kV ck 2	P1	N-1	< 100	101.1	111.7	115.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.4	115.0	The Downtown Reliability Reinforcement project will mitigate these thermal overloads.
	OT-230-2S_CB OLD TOWN 230KV 2S	P4	Fault + Stuck Breaker	< 100	101.2	111.7	115.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.5	114.6	
	OT-230-1S_CB OLD TOWN 230KV 1S	P4	Fault + Stuck Breaker	< 100	100.1	110.8	114.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	114.2	
22592 OLD TOWN 69.0 22596 OLD TOWN 230 2 1	OT_BK70_Trان OT 230/69kV ck 1	P1	N-1	< 100	101.1	111.7	115.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.4	115.0	
	OT-230-2N_CB OLD TOWN 230KV 2N	P4	Fault + Stuck Breaker	< 100	100.4	110.5	113.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.6	113.4	
	OT-230-1N_CB OLD TOWN 230KV 1N	P4	Fault + Stuck Breaker	< 100	100.0	110.8	115.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	114.5	
22592 OLD TOWN 69.0 22871 VINE SUB 69.0 1 1	SG_BK70_Trان SG 230/69kV ck 1	P1	N-1	< 100	< 100	103.8	101.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	100.9	
	SG_BK72_Trان SG 230/69kV ck 2	P1	N-1	< 100	< 100	103.9	101.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	101.0	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND SG_BK72_Trان SG 230/69kV ck 2	P3	G-1/N-1	< 100	101.1	106.8	104.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.6	104.0	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND SG_BK70_Trان SG 230/69kV ck 1	P3	G-1/N-1	< 100	101.1	106.8	104.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.6	103.9	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND SG_BK72_Trان SG 230/69kV ck 2	P3	G-1/N-1	< 100	100.7	106.8	104.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.3	103.9	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND SG_BK70_Trان SG 230/69kV ck 1	P3	G-1/N-1	< 100	100.7	106.8	104.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.2	103.9	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND SG_BK72_Trان SG 230/69kV ck 2	P3	G-1/N-1	< 100	100.7	106.4	105.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.2	104.3	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND SG_BK70_Trان SG 230/69kV ck 1	P3	G-1/N-1	< 100	100.7	106.4	105.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.2	104.3	
	BD_GEN3_Gen CALPK_BD ID 1 AND SG_BK70_Trان SG 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	107.1	105.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	
	BD_GEN3_Gen CALPK_BD ID 1 AND SG_BK72_Trان SG 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	107.2	105.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	
	OY_GEN_Gen OY GEN ID 1 AND SG_BK70_Trان SG 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	
	OY_GEN_Gen OY GEN ID 1 AND SG_BK72_Trان SG 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	105.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	
	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.4	< 100	< 100	
	TL6926_Line RIN-VC 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	168.1	< 100	< 100	
	TL683_Line RIN-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	162.5	< 100	< 100	
	TL688_Line ES-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	162.5	< 100	< 100	
	TL637_Line ST-CRE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	145.9	< 100	< 100	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
22870 VALCNTR 69.0 22012 ASH TP 69.0 1 1	TL685_Line WR-ST 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	142.7	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage, mainly outside daylight hours, to avoid the P0 concerns. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for P1, P3, and P6 events.  The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	137.9	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	136.3	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL694_Line ME-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	135.9	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6901_Line MN-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	135.3	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6917_Line CRE-SX 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	134.7	< 100	< 100	
	PA_U1_Gen PALA ID 88 AND TL698_Line AV-MN-PA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	134.7	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL635_Line CRE-LC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	133.4	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23011_Line SA-EA-PEN 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	128.0	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6956_Line ES-AS 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	125.0	< 100	< 100	
	TL13821_Line SX-SN 138kV ck 1 AND TL13824_Line ML-TC-LC 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	137.9	< 100	< 100	
22008 ASH 69.0 22012 ASH TP 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.8	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage outside daylight hours to avoid the P0, P1 and P3 concerns.  The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
	TL6926_Line RIN-VC 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	131.0	< 100	< 100	
	TL688_Line ES-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.7	< 100	< 100	
	TL683_Line RIN-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.2	< 100	< 100	
	TL689_Line BE-FE-ES 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.7	< 100	< 100	
	OMECE_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL23072_Line ARR-PEN 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.9	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL685_Line WR-ST 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.8	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL679_Line ES-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.7	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.0	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL682_Line WR-RIN 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.8	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND ARR_BK70_Tran ARR 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.9	< 100	< 100	
22256 ESCNDIDO 69.0 22404 LILAC 69.0 1 1	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.2	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage outside daylight hours to avoid the previously mentioned P0



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)											Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio		
22688 RINCON 69.0 22404 LILAC 69.0 1 1	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.4	< 100	< 100	concerns. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for P1 events.
22688 RINCON 69.0 22870 VALCNTR 69.0 1 1	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	164.0	< 100	< 100	The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
22884 WARNERS 69.0 22736 SANTYSBL 69.0 1 1	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.0	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage outside daylight hours to avoid the previously mentioned P0 concerns, which will protect TL685 Warners - Santa Ysabel against P1 and P3 contingencies.  The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.1	< 100	< 100		
	Q1673_Gen Q1673 GEN1 ID 1 AND TL681_Line AS-VC-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	129.6	< 100	< 100	
22256 ESCNDIDO 69.0 22260 ESCNDIDO 230 2 1	ES-230-2N_CB ESCONDIDO 230KV 2N	P4	Fault + Stuck Breaker	< 100	< 100	110.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.9	< 100	< 100	Rely on the dispatch of an Escondido gas fired unit in the 2034 Summer Peak case and limit the charging of Valley Center battery energy storage in the 2026 Spring Off Peak sensitivity case, as previously described.
22540 NARROWS 69.0 22884 WARNERS 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.0	101.1	100.5	< 100	< 100	< 100	< 100	< 100	Rely on congestion management to mitigate the P0 overload in the near term and potentially relocate generic portfolio energy storage resources to Borrego substation as a long term mitigation.
22046 BASILONE 69.0 22368 JAP MESA 69.0 1 1	TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	110.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	198.0	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term.
	TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	110.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	198.0	< 100	< 100	TL695B Japanese Mesa-Talega Tap Reconductor project (ISD May 2027) mitigates the overload in the long-term.
22588 OCNSDETP 69.0 22808 STUARTTP 69.0 1 1	TL23052_Line TA-SO 230kV ck 1 AND TL23007_Line CP-SO 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.0	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term.
	TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.0	< 100	< 100	
22808 STUARTTP 69.0 22400 LASPULGS 69.0 1 1	TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	126.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	208.4	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term.
	TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	126.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	208.4	< 100	< 100	TL690E Stuart Tap-Las Pulgas 69 kV Reconductor project (ISD May 2028) mitigates the overload in the long-term.
22844 TALEGA 230 24131 S.ONOFRE 230 1 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23007_Line CP-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.6	< 100	< 100	Limit the charging of Q1806 battery energy storage that will connect to a new 138 kV substation (looping-in TL13833 Capistrano - Trabuco), particularly outside daylight hours, to avoid the P1 and P7 concerns.  By limiting the charging to protect against the worst P7 contingency, then the P1, P2, P3, and P6 concerns would also be mitigated.
	TL23007_Line CP-SO 230kV ck 1 AND TL50002_Line NG-IV 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.9	< 100	< 100	
22112 CAPSTRNO 138 22860 TRABUCO 138 1 1	TL13831_Line TA-RMV 138kV ck 1 AND TL13833_Loop-in1_Line CP-Q1806 138kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	145.4	< 100	< 100		
	TL13830_Line MAR-TB 138kV ck 1 AND TL13833_Loop-in1_Line CP-Q1806 138kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	100.0	< 100	118.6	< 100	< 100		
22112 CAPSTRNO 138 22895 Q1806_POI 138 2 1	TL13834_Line CP-TB 138kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.0	< 100	< 100		
	TB-138-S_Bus TRABUCO 138kV S	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.3	< 100	< 100	< 100	117.9	< 100	< 100		
	TL13831_Line TA-RMV 138kV ck 1 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144.5	< 100	< 100		
	TL13830_Line MAR-TB 138kV ck 1 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.3	< 100	< 100	< 100	117.9	< 100	< 100		
22432 MARGARTA 138 22860 TRABUCO 138 1 1	TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	100.1	100.5	< 100	120.7	< 100	< 100		
	TL13833_Loop-in1+13834_Lines CP-TB 138kV ck 1 + CP-Q1806POI 138kV ck 2	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	100.1	100.5	< 100	120.7	< 100	< 100		



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)											Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio		
22678 R.MSNVJO 138 22432 MARGARTA 138 1 1	TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.4	< 100	< 100	Rely on battery energy storage charging curtailment, at Sycamore Canyon connected to the 138 kV bus, after the first contingency for the P6 events.
	TL13833_Loop-in1+13834_Lines CP-TB 138kV ck 1 + CP-Q1806POI 138kV ck 2	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.4	< 100	< 100	
22840 TALEGA 138 22678 R.MSNVJO 138 1 1	TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.9	< 100	< 100	
	TL13833_Loop-in1+13834_Lines CP-TB 138kV ck 1 + CP-Q1806POI 138kV ck 2	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.9	< 100	< 100	
22840 TALEGA 138 22720 SANMATEO 138 1 1	TL13831_Line TA-RMV 138kV ck 1 AND TL13836_Line TA-PI 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.7	< 100	< 100	
22124 CHCARITA 138 22578 NRTHCTYMT RTP 138 1 1	SX_BK60_Tran SX 230/138kV ck 1 AND TL13822_Line MS-CH 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	121.6	< 100	< 100	
22500 MISSION 138 22120 CARLTNHS 138 1 1	SX_BK60_Tran SX 230/138kV ck 1 AND TL13811_Line SH-NCM-CC 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.6	< 100	< 100	
22208 EL CAJON 69.0 22408 LOSCOCHS 69.0 1 1	TL632_Line GR-LC-ML 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113.2	< 100	< 100	Rely on pre-contingency congestion management to protect against the P1 contingency by limiting the charging of El Cajon battery energy storage. Further reduction of El Cajon battery energy storage is needed to mitigate the remaining P3 concerns.
	Q1673_Gen Q1673 GEN1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.3	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL620_Line MY-GA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	121.2	< 100	< 100	
	VC_GEN1_Gen VC GEN1 ID GEN1/GEN2/GEN3 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.5	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.3	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL6925_Line GA-EC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.2	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL624_Line EC-JM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.0	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL618_Line MS-MY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.8	< 100	< 100	
	Q1673_Gen Q1673 GEN1 ID 1 AND TL620_Line MY-GA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.7	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL619_Line MS-MY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.7	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND ML_BK70_Tran ML 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.7	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND ML_BK71_Tran ML 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL620_Line MY-GA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.4	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL630_Line EC-GR 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL620_Line MY-GA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.6	< 100	< 100	
	EC GEN2_Gen EC GEN2 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	105.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	133.7	< 100	< 100	On the near term, rely on system adjustments after the first contingency for the P3 events by dispatching El Cajon battery energy storage.



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
	EC GEN1_Gen EC GEN1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1	P3	G-1/N-1	104.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.9	< 100	< 100	< 100	TL632 Granite Loop-In and TL6914 Reconfiguration project (ISD May 2027) mitigates the overload in the long term.
	EC GEN1_Gen EC GEN1 ID 1 AND TL620_Line MY-GA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	The thermal overload reappears in the 2039 Summer Peak scenarios, thus there would be a need to rely on system adjustments after the first contingency for the P3 events by dispatching El Cajon battery energy storage. The ISO will continue to monitor this thermal overload in future planning cycles.
	EC GEN1_Gen EC GEN1 ID 1 AND TL624_Line EC-JM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	
	EC GEN1_Gen EC GEN1 ID 1 AND TL632_Line GR-LC 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	102.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	
	EC GEN1_Gen EC GEN1 ID 1 AND TL6985_Line GR-LC 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	104.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.2	
22604 OTAY 69.0 22616 OTAYLKTP 69.0 1 1	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	120.0	< 100	101.9	103.9	< 100	130.1	< 100	< 100	< 100	< 100	128.9	125.2	101.9	On the near term, rely on system adjustments after the first contingency for the P3 events by dispatching additional Border gas fired generation.
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	117.8	< 100	101.5	100.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	123.0	101.5	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6935_Line BD-BD GEN1&2 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	109.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.4	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	108.3	< 100	< 100	< 100	< 100	< 100	< 100	147.3	< 100	< 100	108.3	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	101.9	< 100	< 100	< 100	< 100	100.9	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	123.9	< 100	< 100	< 100	
22768 BAY BLVD 69.0 22352 IMPRLBCH 69.0 1 1	OY_GEN_Gen OY GEN ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	105.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.0	Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles.
	BD_GEN3_Gen CALPK_BD ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	101.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.2	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	100.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.3	100.3	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	100.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	
22828 SYCAMORE 69.0 22756 SCRIPPS 69.0 1 1	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	For 2026, 2029 and 2034 Summer Peak case, rely on 30-min emergency rating and/or system adjustments after the first contingency for the P3 and P6 events on the BES by dispatching additional Miramar gas fired generation.
	MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.3	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	103.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	104.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL668_Line MRGT-MR 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.5	Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles.
	MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.1	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
	TL23026_Line SG-BB 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	105.2	< 100	102.4	105.4	104.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.8	107.2	
	TL23071_Line SX-PQ 230kV ck 1 AND TL668_Line MRGT-MR 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	109.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.7	
22644 PENSQTOS 69.0 22444 MESA RIM 69.0 1 1	TL668_Line MRGT-MR 69kV ck 1 AND TL6916_Line SX-SS 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	100.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.6	Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles.
22331 MIRASNT0 69.0 22644 PENSQTOS 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	104.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.7	
22592 OLD TOWN 69.0 22660 POINTLMA 69.0 1 1	TL612_Line OT-PL 69kV ck 2	P1	N-1	< 100	< 100	< 100	102.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.8	Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles.
22708 SANLUSRY 69.0 22582 OCEAN RANCH 69.0 1 1	TL693_Line ME-SA 69kV ck 1	P1	N-1	< 100	< 100	101.9	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.5	< 100	105.3	For the 2034 and 2039 Summer Peak cases, rely on pre-contingency congestion management to protect against the P1 outage by dispatching Melrose battery energy storage. Furthermore, for P3 events, rely on Pala gas fired generation or Avocado battery energy storage after the first contingency.  For the 2026 Spring Off-Peak sensitivity case, rely on pre-contingency congestion management to protect against the P1 outages by limiting the charging of Melrose battery energy storage. Furthermore, for P3 and P6 events, rely on additional Melrose battery energy storage charging curtailment after the first contingency.  Continue to monitor the P5 concern in the sensitivity case.
	TL680_Line SA-ME-SM 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.5	< 100	< 100	
	TL6912_Line PN-SA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.1	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	109.6	113.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	123.9	< 100	112.9	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL680_Line SA-ME-SM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.7	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.8	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	102.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.6	< 100	102.3	
	Bus-PEN230-EW_PALOMAR ENERGY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	< 100	
	TL23014_Line PEN-ES 230kV ck 1 AND TL23015_Line PEN-ES 230kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	
22440 MELROSE 69.0 22708 SANLUSRY 69.0 1 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6966_Line OR-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	Rely on pre-contingency congestion management to protect against the P1 outage by limiting the charging of Avocado battery energy storage. Furthermore, for P3 events, rely on additional Avocado battery energy storage charging curtailment after the first contingency.
22528 NORTHVALLEY 69.0 22440 MELROSE 69.0 1 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.7	< 100	< 100	
22640 PENDLETN 69.0 22708 SANLUSRY 69.0 1 1	TL694_Line ME-NORTHVALLEY 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.5	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6901_Line MN-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.7	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL694_Line ME-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.8	< 100	< 100	
22016 AVCADOTP 69.0 22020 AVOCADO 69.0 1 1	TL698_Line AV-MN-PA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	< 100	< 100	< 100	< 100	Rely on existing Avocado RAS that reduces the charging of Avocado battery energy storage.
22020 AVOCADO 69.0 22508 MNSRATTP 69.0 1 1	TL691_Line MN-PN-AV 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.2	< 100	< 100	< 100	< 100	
	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.1	127.0	< 100	< 100	< 100	< 100	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.7	117.2	< 100	< 100	< 100	< 100	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
21072 YUCCA161 161 21059 PILOT_KNB161 161 1 1	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.9	< 100	< 100	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.4	< 100	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.3	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	122.5	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.1	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.0	< 100	< 100	< 100	< 100	
	RMN-DEV_1_Line RAMON-DEVERS 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.7	132.3	< 100	< 100	< 100	< 100	
	JHND-MRG_Line J.HINDS-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.1	132.4	< 100	< 100	< 100	< 100	
	HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	107.2	111.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.1	IID would need to rely on system adjustments after the first contingency for the P6 event.
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	105.7	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	101.9	Rely on a new operational procedure that will connect the normally open Imperial Valley 230 kV current limiting reactor after the first contingency for the P6 event.
21331 EC161_SS 161 21059 PILOT_KNB161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.0	< 100	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads in most scenarios with the exception of the 2034 and 2039 Spring Off-Peak cases where line is still overloaded. For those scenarios, either the expansion of IID's planned RAS to trip additional resources or pre-contingency congestion management in IID area will be needed to prevent the overload of this transmission line.  Additionally, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of Imperial Valley 500/230 kV Bank 82 and on system adjustments after the first contingency for P3 events.
	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	107.2	119.2	< 100	150.8	163.8	179.2	< 100	< 100	< 100	< 100	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	104.0	< 100	133.9	148.7	163.5	< 100	< 100	< 100	< 100	
	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	166.4	< 100	< 100	< 100	< 100	< 100	
	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	151.2	< 100	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	182.8	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	167.0	< 100	< 100	< 100	< 100	
	DW_GEN8_Gen DW GEN8 ID 1 AND IV_BK82_Tran IV 500/230kV ck 3	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.3	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND IV_BK82_Tran IV 500/230kV ck 3	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.4	< 100	< 100	< 100	< 100	
	IV_GEN4_IV GEN4 ID 1 AND IV_BK82_Tran IV 500/230kV ck 3	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.6	< 100	< 100	< 100	< 100	
	Q1166_Gen Q1166 GEN1 ID 1 AND IV_BK82_Tran IV 500/230kV ck 3	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.0	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	107.2	119.2	< 100	150.8	163.8	< 100	< 100	< 100	< 100	< 100	
	IV-230-17T_CB IMPERIAL VALLEY 230KV 17T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.2	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	182.4	< 100	< 100	< 100	< 100	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
	IV-500-8032_CB IMPERIAL VALLEY 500KV 8032	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.0	< 100	< 100	< 100	
	S-LINE1_Line IV-WIXOM_SS 230kV ck 1 AND CVSUB-MRG_Line CVSUB230-MIRAGE 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	115.1	124.3	101.2	161.9	171.3	186.8	< 100	100.3	< 100	< 100	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	116.2	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	113.4	
21072 YUCCA161 161 84846 YUCCA W 69.0 1 1	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.2	120.5	< 100	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.2	113.1	< 100	< 100	< 100	< 100	
	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.7	< 100	< 100	< 100	< 100	< 100	
	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.7	< 100	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.7	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.5	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.2	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.1	< 100	< 100	< 100	< 100	
	RMN-DEV_1_Line RAMON-DEVERS 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.7	123.8	< 100	< 100	< 100	< 100	
	TL23066_Line IV-DW 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.4	124.1	< 100	< 100	< 100	< 100	
	HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	110.8	112.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.9	IID would need to rely on system adjustments after the first contingency for the P6 event.
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	105.6	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	102.8	Rely on a new operational procedure that will connect the normally open Imperial Valley 230 kV current limiting reactor after the first contingency for the P6 event.
21072 YUCCA161 161 84846 YUCCA W 69.0 2 1	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.4	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.0	< 100	< 100	< 100	< 100	
	TL23066_Line IV-DW 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.0	< 100	< 100	< 100	< 100	
21281 AVE58 92.0 21380 OASIS_RTAP 92.0 1 1	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	107.1	< 100	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.2	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.8	< 100	< 100	< 100	< 100	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)										Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
	JHND-MRG_Line J.HINDS-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.3	109.4	< 100	< 100	< 100	< 100	
21379 DSERT_SHORES 92.0 21380 OASIS_RTAP 92.0 1 1	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.8	< 100	107.2	< 100	< 100	< 100	< 100	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.3	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.9	< 100	< 100	< 100	< 100	
	JHND-MRG_Line J.HINDS-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.4	109.5	< 100	< 100	< 100	< 100	
21731 VEGA_3_SS 161 21047 NILAND161 161 1 1	CVSUB-MRG_Line CVSUB230-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.8	101.2	107.3	< 100	< 100	< 100	< 100	
19020 BLYTHE 161 21731 VEGA_3_SS 161 1 1	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.0	129.6	136.7	< 100	< 100	< 100	< 100	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	121.2	120.9	127.4	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	137.0	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.0	129.6	< 100	< 100	< 100	< 100	< 100	
	CVSUB-MRG_Line CVSUB230-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144.3	137.7	145.0	< 100	< 100	< 100	< 100	
19050 GILA 161 19051 KNOB 161 1 1	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.7	107.4	< 100	< 100	< 100	< 100	
	GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.2	< 100	< 100	< 100	< 100	
	GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.3	< 100	< 100	< 100	< 100	
	IV-230-14T_CB IMPERIAL VALLEY 230KV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.7	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.0	< 100	< 100	< 100	< 100	
	S-LINE1_Line IV-WIXOM_SS 230kV ck 1 AND RMN-DEV_1_Line RAMON-DEVERS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.8	111.7	< 100	< 100	< 100	< 100	



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)										Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
HRA-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	On the near term, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS.  The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term.
MEP-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
MIS-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
RUM-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
SAM-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TJI-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TOY-230 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the low voltage concerns.
KNOB 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
PILOT_KNB161 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
YUCCA161 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	



Overloaded Facility	Contingency (P1 and P3)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)										Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	
KOFA 69 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.56	< 8	< 8	< 8	< 8	Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the voltage deviation concerns.
GILA 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.60	< 8	< 8	< 8	< 8	
KNOB 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.23	8.38	9.76	< 8	< 8	< 8	< 8	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.54	< 8	< 8	< 8	< 8	
KOFA 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.33	< 8	< 8	< 8	< 8	
PILOT_KNB161 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.53	8.72	10.22	< 8	< 8	< 8	< 8	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9.01	< 8	< 8	< 8	< 8	
WLTNMOHK 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.60	< 8	< 8	< 8	< 8	
YUCCA161 161 kV	S-LINE1_Line IV-WIXOM_SS 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.47	8.62	10.18	< 8	< 8	< 8	< 8	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.96	< 8	< 8	< 8	< 8	



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	
SLO 3PH Fault at DEVERS 500, trip DEVERS - VALLEYSC 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PALO VERDE 500kV, trip PALO VERDE - COLRIVER 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - ECO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - N.GILA 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at HAA 500kV, trip HAA - HDWSH 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at NG 500kV, trip NG - HAA 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at HDWSH 500kV, trip HDWSH - NG 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at ML 500kV, trip MIGUEL - ECO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - OCOTILLO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SCR 500kV, trip SUNCREST - OCOTILLO 500kV ck 1	P1	N-1	No issues	-	No issues	No issues	No issues	No violation
SLO 3PH Fault at SCR 500kV, trip SUNCREST - GR1204 500kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
SLO 3PH Fault at PEN 230kV, trip PEN - ESCNDIDO 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - OLD TOWN 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at TA 230kV, trip S.ONOFRE - TALEGA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - SYCAMORE 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SG 230kV, trip SILVERGT - BAY BLVD 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY PFC - ROA-230 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at TA 230kV, trip TALEGA - ESCNDIDO - CAPSTRNO 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at ML 230kV, trip MIGUEL - BAY BLVD - OTAY MESA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at OT 230kV, trip OLD TOWN - MISSION - SILVERGT 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at OM 230kV, trip OTAYMESA - TJI-230 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY - WIXOM_SS 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - NSONGS 500kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
SLO 3PH Fault at NSONGS 500kV, trip NSONGS - SERRANO 500kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
SLO 3PH Fault at NSONGS 230kV, trip NSONGS - VIEJO 230kV ck 1	P1	N-1	-	No issues	-	-	-	No violation
BQ-138 Bus BATIQUITOS 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
BUE-138 BUS BOULEVARD EAST 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
CAN-138 BUS CANNON 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
ECO-138 BUS EAST COUNTY 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	
FR-138 BUS FRIARS 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
GHL-138 BUS GRANT HILL 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
MS-230 Bus MISSION 230kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
MS-138 Bus MISSION 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PAR-138 BUS PALOMAR AIRPORT 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PEN-230 BUS PALOMAR ENERGY 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PI-138 BUS PICO 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
PV-138 BUS PROCTOR VALLEY 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
RMV-138 BUS RANCHO MISSION VIEJO 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SA-230 BUS SAN LUIS REY 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SN-138 BUS SANTEE 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SH-138 BUS SHADOWRIDGE 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
SX-138 BUS SYCAMORE CANYON 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
TA-138 BUS TALEGA 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
TC-138 BUS TELEGRAPH CANYON 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip both lines MIGUEL - MISSION 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SA 230kV, trip TL23002 and TL23010 SANLUSRY - S.ONOFRE 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SO 230kV, trip both lines S.ONOFRE - SANTIAGO 230kV	P7	DCTL	No issues	-	No issues	No issues	No issues	No violation
DLO 3PH Fault at NSONGS 230kV, trip both lines NSONGS - SANTIAGO 230kV	P7	DCTL	-	No issues	-	-	-	No violation
DLO 3PH Fault at SA 230kV, trip both lines SANLUSRY SC - MISSION 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at OM 230kV, trip MIGUEL - BAY BLVD - OTAYMESA and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SYCAMORE 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	No issues	-	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SUNCREST 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	-	No issues	-	-	-	No violation
DLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV and SANLUSRY - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at PEN 230kV, trip PEN - ARTESN 230kV and PEN - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SCR 230kV, trip both lines SUNCREST - SYCAMORE 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at NSONGS 230kV, trip two lines S.ONOFRE - NSONGS 230kV	P7	DCTL	-	No issues	-	-	-	No violation
DLO 3PH Fault at SO 230kV, trip S.ONOFRE - NSONGS ck 3 230kV and S.ONOFRE - SERRANO 230kV ck 1	P7	DCTL	-	No issues	-	-	-	No violation



Worst Contingency	Category	Category Description	Amount of Load Drop (MW)														Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	

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



Substation	Load Served (MW)														Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2029 Summer Off-Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Spring Off-Peak	2039 Spring Off-Peak	2026 Summer Peak Heavy Renewable & Minimum Gas Generation	2026 Spring Off-Peak Storage charging in load pockets	2029 Summer Peak 1-in-20 load forecast	2039 Summer Peak High gas retirement portfolio	

No single source substation with more than 100 MW



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)							Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Winter Peak	2026 SP with Forecasted Load Addition	2029 SP with Forecasted Load Addition	2026 OP BESS Charging	
Amargosa 230/138kV Transformer	PAHRUMP 230.0 to INNOVATION 230.0 Circuit 1 GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1	P6	N-1-1	118	<100	<100	<100	<100	<100	<100	136	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
Amargosa 230/138kV Transformer	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	110	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
CANYON 138 18102 SNOW MTN 138	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	126	<100	<100	<100	<100	<100	<100	143	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
CANYON 138 18102 SNOW MTN 138	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	135	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
CANYON 138 18698 SIL FLG 138	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	124	<100	<100	<100	<100	<100	<100	142	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
CANYON 138 18698 SIL FLG 138	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	136	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
COLDCREK 138 18091 RADAR 138	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	118	<100	<100	<100	<100	<100	<100	135	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
COLDCREK 138 18091 RADAR 138	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	139	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
IS TAP 138 18091 RADAR 138	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	116	<100	<100	<100	<100	<100	<100	133	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
IS TAP 138 18091 RADAR 138	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	141	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
IS TAP 138 189101 MERCYSW 138	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	106	NA	NA	NA	<100	NA	NA	123	NA	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
NWEST 138 18102 SNOW MTN 138 1	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	127	<100	<100	<100	<100	<100	<100	144	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
NWEST 138 18102 SNOW MTN 138 1	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	133	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
SIL FLG 138 18050 COLDCREK 138 1	GAMEBIRD 230.0 to TROUT CANYON 230.0 Circuit 1 INNOVATION 230.0 to DESERT VIEW 230.0 Circuit 1	P6	N-1-1	124	<100	<100	<100	<100	<100	<100	141	<100	<100	Existing UVLS scheme. The GLW core upgrades will mitigate the overload in the long term.
SIL FLG 138 18050 COLDCREK 138 1	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	137	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
Remaining Pahrump 230/138kV Transformer	One Pahrump 230/138kV transformer Gamebird 230/138kV transformer	P6	N-1-1	<100	105	141	<100	<100	<100	<100	<100	124	<100	Existing UVLS scheme.
GAMEBIRD 230 189160 TROUT CANYON 230 1	Eldorado2 230/500-kV Tran Bnk 5 MEAD 5 230.0 to SLOAN CANYON 230.0 Circuit 1	P6	N-1-1	153	<100	<100	<100	<100	<100	<100	154	<100	<100	System adjustments, Gen redispatch. The GLW core upgrades will mitigate the overload in the long term.
TROUT CANYON 230 189040 SLOAN CANYON 230 1	Eldorado2 230/500-kV Tran Bnk 5 MEAD 5 230.0 to SLOAN CANYON 230.0 Circuit 1	P6	N-1-1	129	<100	<100	<100	<100	<100	<100	129	<100	<100	System adjustments, Gen redispatch. The GLW core upgrades will mitigate the overload in the long term.
VEA PST-IS Tap 138kV Line	PAHRUMP 138.0 to VISTA 138.0 Circuit 1 Tran INNOVATION 230.0 to INNOVATION 138.0	P6	N-1-1	<100	<100	<100	<100	<100	120	<100	<100	<100	<100	System adjustments, Gen redispatch
VEA_PST_2 138 18073 IS TAP 138 1 1	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	150	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
AMARGOSA 138 189008 SANDY 138 1	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	146	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
SANDY 138 189020 GAMEBIRD 138 1	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	127	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
Gamebird 230/138kV Transformer	TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 1 TROUT CANYON 500.0 to SLOAN_CYN_5 500.0 Circuit 2	P7	DCTL	<100	<100	<100	164	<100	<100	<100	<100	<100	<100	Future Trout Canyon RAS, trip approximately 1,400MW installed capacity generation at Trout Canyon.
Gamebird 230/138kV Transformer	Two Pahrump 230/138kV transformers	P6	N-1-1	<100	<100	<100	120	<100	<100	<100	<100	<100	<100	Existing UVLS scheme, System adjustments
System	NWEST 230.0 to DESERT VIEW 230.0 Circuit 1 TROUT CANYON 230.0 to SLOAN CANYON 230.0 Circuit 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	Diverge	System adjustments
System	Eldorado2 230/500-kV Tran Bnk 5 ELDORDO2 230.0 to SLOAN CANYON 230.0 Circuit 1	P6	N-1-1	Diverge	<100	Diverge	<100	<100	Diverge	<100	Diverge	Diverge	<100	Ivanpah RAS System adjustments, Gen redispatch



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)							Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Winter Peak	2026 SP with Forecasted Load Addition	2029 SP with Forecasted Load Addition	2026 OP BESS Charging	
Gamebird, Charleston, Thousandaire, Sandy 138kV	Gamebird-Parhump 138kV line and Gamebird 230/138kV transformer	P6	N-1-1	Low Voltage	<0.9	<0.9	<0.9	<0.9	0.9<P.U.<1.1	<0.9	0.9<P.U.<1.1	<0.9	<0.9	0.9<P.U.<1.1	Existing UVLS scheme
Pahrump 230kV, Gamebird 230kV	Gamebird-Trout Canyon 230kV and Parhump-Innovation 230kV lines	P6	N-1-1	Low Voltage	<0.9	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	<0.9	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	<0.9	<0.9	Short term: Existing UVLS scheme Long term: Previously approved GLW Core Upgrade
Pahrump, Gamebird, Charleston, Thousandaire, Sandy, Vista 138kV	Gamebird-Trout Canyon 230kV and Parhump-Innovation 230kV lines	P6	N-1-1	Low Voltage	<0.9	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	<0.9	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	<0.9	<0.9	Short term: Existing UVLS scheme Long term: Previously approved GLW Core Upgrade



2024-2025 ISO Reliability Assessment - Preliminary Study Results

Study Area: Valley Electric Association

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
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Winter Peak	2026 SP with Forecasted Load Addition	2029 SP with Forecasted Load Addition	2026 OP BESS Charging	

No P1 or P3 contingencies resulted in voltage deviation greater than 8%







Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP BESS Charging	2029 SP with Forecasted Load Addition	
Pahrump-Vista and Gambird-Pahrump 138kV lines Fault-Pahrump-Vista 138kV line slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #2 and Pahrump-Vista 138kV line Fault-Pahrump 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #1 and Pahrump-Gamebird 138kV line Fault-Pahrump 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #1 and Pahrump-Gamebird 230kV line Fault-Pahrump 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #2 and Pahrump 2-Vista 230kV line Fault-Pahrump 2 230kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Pahrump-Gamebird 230kV and Sandy-Gamebird 138kV Fault-Pahrump-Gamebird 230kV line slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Gamebird 230/138kV trf and Gamebird-Pahrump 138kV line Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Gamebird-Pahrump and Gamebird-Thousandair 138kV lines Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Gamebird-Sandy 138kV line and Gamebird-Thousandair 138kV lines Fault-Gambird 138kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Gamebird 230/138kV trf and Gamebird-Sandy 138kV line Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Trout Canyon 500/230kV trf #2 and Trout Canyon-Sloan Canyon5 500kV line Fault-Trout Canyon5 500kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Trout Canyon 500/230kV trf #3 and Trout Canyon-Sloan Canyon5 500kV line Fault-Trout Canyon5 500kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Gamebird-Trout Canyon and Yellow Pine 2-Trout Canyon 230kV lines Fault-Trout Canyon 230kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Sloan Canyon5 500/230kV trf and HAE SVCL-Sloan Canyon5 500kV line Fault-Sloan Canyon5 500kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Sloan Canyon-Trout Canyon #1 and Sloan Canyon-Trout Canyon #2 500kV lines Fault-Sloan Canyon 500kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Johnnie-Valley Switch #1 and Johnnie-Lathrop Wells 230kV #1 lines Fault-Valley Switch 230kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Johnnie-Valley Switch #2 and Johnnie-Lathrop Wells 230kV #2 lines Fault-Valley Switch 230kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Lathrop Wells-Valley Switch #1 and Beatty-Bondgap230kV lines Fault-Lathrop Wells 230kV Bus slg	P4	Stuck breaker	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Pahrump 231/138kV trf #2 and Pahrump-Gamebird 230kV line Fault-Pahrump 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Pahrump 231/138kV trf #1 and Pahrump-Innovation 230kV line Fault-Pahrump 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Pahrump 231/138kV trf #2 and Pahrump-Gamebird 230kV line Fault-Pahrump 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Pahrump-Gamebird 230kV and Trout Canyon-Gamebird 230kV lines Fault-Gamebird 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Pahrump-Gamebird 230kV line and Trout Gamebird 230/138kV trf Fault-Gamebird 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Gamebird 138kV isolated Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Sloan Canyon 230kV isolated Fault-Sloan Canyon 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Sloan Canyon-Eldorado2 and Sloan Canyon-Trout Canyon 230kV lines Fault-Sloan Canyon 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Desert View 230kV isolated Fault-Desert View 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Trout Canyon 230kV isolated Fault-Trout Canyon 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Lathrop Wells 138kV isolated Fault-Lathrop Wells 138kV Bus slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Thousandairs 138kV isolated Fault-Thousandairs 138kV Bus slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Bondgap 138kV line Fault-Lathrop Wells-Bondgap 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Valley Switch 138kV line Fault-Lathrop Wells-Valley Switch 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Jackass Flats 138kV line Fault-Lathrop Wells-Jackass Flats 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sandy-Amargosa 138kV line Fault-Sandy-Amargosa 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Valley Switch 138kV line Fault-Johnnie-Valley Switch 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sandy-Gamebird 138kV line Fault-Sandy-Gamebird 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch-Lathrop Wells 138kV line Fault-Valley Switch-Lathrop Wells 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch-Valley Sub 138kV line Fault-Valley Switch-Valley Sub 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Sub 138kV isolated Fault-Valley Sub 138kV Bus slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump-Pahrump2 and Pahrump-Gamebird 230kV lines Fault-Pahrump-Innovation 230kV line slg	P6	N-1-1	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Sloan Canyon-Mead and Sloan Canyon-Eldorado 230kV lines Fault-Sloan Canyon 230kV bus slg	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Northwest-Desert View and Pahrump-Gamebird 230kV lines Fault-Northwest-Desert View 230kV line slg	P6	N-1-1	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Innovation and Pahrump-Gamebird 230kV lines Fault-Pahrump-Innovation 230kV line slg	P6	N-1-1	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Northwest-Desert View and Pahrump-Gamebird 230kV lines Fault-Northwest-Desert View 230kV line slg	P6	N-1-1	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Innovation-Desert View 230kV line #1 and Innovation-Desert View 230kV line #2 Fault-Innovation-Desert View 230kV line #1 230kV line slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Trout Canyon-Sloan Canyon5 500kV #1 and Trout Canyon-Sloan Canyon5 500kV #2 lines Fault-Trout Canyon-Sloan Canyon5 500kV line #	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Trout Canyon-Gamebird 230kV #1 and Trout Canyon-Gamebird 230kV #2 lines Fault-Trout Canyon-Gamebird 230kV #1 slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Desert View-Northwest 230kV #1 and Desert View-Northwest 230kV #2 lines Fault-Desert View-Northwest 230kV #1 slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Pahrump2-Gamebird 230kV #1 and Pahrump2-Gamebird 230kV #2 lines Fault-Pahrump2-Gamebird 230kV #1 slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump2-Pahrump 230kV #1 and Pahrump2-Pahrump 230kV #2 lines Fault-Pahrump2-Pahrump 230kV #1 slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Innovation-Desert View 230kV #1 and Innovation-Johnnie 230kV #2 lines Fault-Innovation-Desert View 230kV #1 slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Valley Switch-Johnnie #1 230kV #1 and Valley Switch-Johnnie #2 lines Fault-Valley Switch-Johnnie #1 slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Valley Switch-Lathrop Wells #1 230kV #1 and Valley Switch-Lathrop Wells #2 lines Fault-Valley Switch-Lathrop Wells #1 slg	P7	DCTL	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	
Pahrump-Gamebird 230kV and Sandy-Gamebird 138kV Fault-Pahrump-Gamebird 230kV line slg	P7	DCTL	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Pahrump-Innovation 230kV and Pahrump-Vista 138kV Fault-Pahrump-Innovation 230kV line slg	P7	DCTL	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	
Pahrump-Innovation 230kV and Valley Switch-Johnie-Vista 138kV Fault-Pahrump-Innovation 230kV line slg	P7	DCTL	Stable/WECC criteria met	NA	NA	Stable/WECC criteria met	NA	



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Winter Peak	2026 SP with Forecasted Load Addition	2029 SP with Forecasted Load Addition	2026 OP BESS Charging	

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





Substation	Load Served (MW)										Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2039 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2034 Winter Peak	2026 SP with Forecasted Load Addition	2029 SP with Forecasted Load Addition	2026 OP BESS Charging	

No single source substation with more than 100 MW