

2014-2015 ISO Reliability Assessment - Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SAC-SP-T-1	31984 BRIGHTN 115 31993 BRKRJCT 115 1	B2_31_West Sacramento - Brighton 115 kV Line & B1_3_WOODLAND 9.11 Unit ID 1	B	L-1/G-1	109.8	<100	<100	Short term: Action Plan
SAC-SP-T-2	31993 BRKRJCT 115 32001 UCD_TP2 115 1	B2_31_West Sacramento - Brighton 115 kV Line & B1_3_WOODLAND 9.11 Unit ID 1	B	L-1/G-1	108.6	<100	<100	Short term: Action Plan
SAC-SP-T-3	32001 UCD_TP2 115 31990 DAVIS 115 1	B2_31_West Sacramento - Brighton 115 kV Line & B1_3_WOODLAND 9.11 Unit ID 1	B	L-1/G-1	108.1	<100	<100	Short term: Action Plan
SAC-SP-T-4	31984 BRIGHTN 115 31993 BRKRJCT 115 1	B2_31_West Sacramento - Brighton 115 kV Line	B	L-1	102.2	<100	<100	Short Term: Sacramento Action Plan
SAC-SP-T-5	31993 BRKRJCT 115 32001 UCD_TP2 115 1	B2_31_West Sacramento - Brighton 115 kV Line	B	L-1	101.0	<100	<100	Short Term: Sacramento Action Plan
SAC-SP-T-6	32001 UCD_TP2 115 31990 DAVIS 115 1	B2_31_West Sacramento - Brighton 115 kV Line	B	L-1	100.6	<100	<100	Short Term: Sacramento Action Plan
SAC-SP-T-7	32088 VACA-DXN 60.0 31998 VACA-DIX 115 5	B3_10_Vaca Dixon 115/60 kV Transformer No. 9	B	T-1	119.2	124.9	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-8	32056 CORTINA 60.0 30451 CRTNA M 230 1	B3_12_Cortina #5 115/60 kV Transformer	B	T-1	<100	<100	102.5	Explore potential mitigation
SAC-SP-T-9	32056 CORTINA 60.0 30451 CRTNA M 230 1	B3_5_Cortina 230/115 kV Transformer No. 4	B	T-1	136.1	135.7	134.7	Explore potential mitigation
SAC-SP-T-10	30544 ROSSTAP2 230 30550 MORAGA 230 2	C1_3_BUS FAULT AT 30460 VACA-DIX 230.00 Sec 1F	C1	Bus	106.3	<100	<100	Short term: Action Plan
SAC-SP-T-11	31960 MOBILCHE 115 31966 WODLNDJ1 115 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	98.7	<100	<100	Short term: Action Plan

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SAC-SP-T-12	31962 WDLND_BM 115 31970 WOODLD 115 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	148.2	128.9	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-13	31962 WDLND_BM 115 31990 DAVIS 115 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	171.1	149.2	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-14	31964 KNIGHT2 115 31968 WODLNDJ2 115 2	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	104.3	<100	<100	Short term: Action Plan
SAC-SP-T-15	31965 KNIGHT1 115 31966 WODLNDJ1 115 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	98.5	<100	<100	Short term: Action Plan
SAC-SP-T-16	32214 RIO OSO 115 30330 RIO OSO 230 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	110.7	<100	<100	Short term: Action Plan
SAC-SP-T-17	32214 RIO OSO 115 30330 RIO OSO 230 2	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	106.8	<100	<100	Short term: Action Plan
SAC-SP-T-18	32214 RIO OSO 115 31964 KNIGHT2 115 2	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	104.3	<100	<100	Short term: Action Plan
SAC-SP-T-19	32214 RIO OSO 115 31965 KNIGHT1 115 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	102.2	<100	<100	Short term: Action Plan
SAC-SP-T-20	32214 RIO OSO 115 31986 W.SCRMNO 115 1	C1-8_BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	144.2	126.7	<100	Investigate: Short Term: Sacramento Action Plan Long term: Rio-Oso Transformer upgrade, Rio Oso 115 kV Bus BAAH Conversion
SAC-SP-T-21	31998 VACA-DIX 115 30460 VACA-DIX 230 4	C2-1_VACA-DIX E 230 kV Bus 1 and Bus 2 - CB 202 Failure	C2	CB	<100	<100	116.5	Future Sacramento Action Plan
SAC-SP-T-22	30544 ROSSTAP2 230 30550 MORAGA 230 2	C2-2_VACA-DIX E 230 kV Bus 1 and VACA- DIX F 230 kV Bus 1 - CB 6	C2	CB	104.6	<100	<100	Short term: Action Plan

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					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SAC-SP-T-23	31998 VACA-DIX 115 30460 VACA-DIX 230 3	C2-3_VACA-DIX E 230 kV Bus 2 and VACA-DIX F 230 kV Bus 2 - CB 6	C2	CB	<100	<100	117.4	Future Sacramento Action Plan
SAC-SP-T-24	30544 ROSSTAP2 230 30550 MORAGA 230 2	C2-4_VACA-DIX F 230 kV Bus 1 and Bus 2 - No CB between Bus 1F a	C2	CB	105.6	<100	<100	Short term: Action Plan
SAC-SP-T-25	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	B2_1_Delevan-Cortina 230 kV Line & B2_9_Cortina - Vaca 230 kV Line	C3	N-1-1	104.3	<100	<100	Short term: Action Plan
SAC-SP-T-26	31980 DPWTR_TP 115 31986 W.SCRMNO 115 1	B2_28_Woodland - Davis 115 kV Line & B2_32_Brighton - Davis 115 kV Line	C3	N-1-1	111.9	113.8	<100	Explore potential mitigation
SAC-SP-T-27	31980 DPWTR_TP 115 31990 DAVIS 115 1	B2_28_Woodland - Davis 115 kV Line & B2_32_Brighton - Davis 115 kV Line	C3	N-1-1	110.1	112.0	<100	Explore potential mitigation
SAC-SP-T-28	31984 BRIGHTN 115 31993 BRKRJCT 115 1	B2_31_West Sacramento - Brighton 115 kV Line & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1	157.7	150.7	<100	Explore potential mitigation
SAC-SP-T-29	31993 BRKRJCT 115 32001 UCD_TP2 115 1	B2_31_West Sacramento - Brighton 115 kV Line & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1	156.4	149.4	<100	Explore potential mitigation
SAC-SP-T-30	32001 UCD_TP2 115 31990 DAVIS 115 1	B2_31_West Sacramento - Brighton 115 kV Line & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1	155.8	148.8	<100	Explore potential mitigation
SAC-SP-T-31	31110 BRDGVILLE 60.0 31120 FRUTLDJT 60.0 1	B2_9_Cortina - Vaca 230 kV Line & B2_1_Delevan-Cortina 230 kV Line	C3	N-1-1	103.2	98.2	<100	Explore potential mitigation
SAC-SP-T-32	31120 FRUTLDJT 60.0 31122 FTSWRDJT 60.0 1	B2_9_Cortina - Vaca 230 kV Line & B2_1_Delevan-Cortina 230 kV Line	C3	N-1-1	103.8	97.9	<100	Explore potential mitigation
SAC-SP-T-33	31122 FTSWRDJT 60.0 31116 GRBRVLE 60.0 1	B2_9_Cortina - Vaca 230 kV Line & B2_1_Delevan-Cortina 230 kV Line	C3	N-1-1	101.8	95.9	<100	Explore potential mitigation
SAC-SP-T-34	31998 VACA-DIX 115 30460 VACA-DIX 230 4	B3_13_Vaca Dixon 230/115 kV Transformer No. 2 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1	<100	<100	119.1	Explore potential mitigation

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SAC-SP-T-35	31998 VACA-DIX 115 30460 VACA-DIX 230 3	B3_13_Vaca Dixon 230/115 kV Transformer No. 2 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	<100	<100	119.0	Explore potential mitigation
SAC-SP-T-36	31984 BRIGHTN 115 30348 BRIGHTON 230 9	B3_3_Brighton 230/115 kV Transformer No. 10 & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1	103.0	99.9	<100	Explore potential mitigation
SAC-SP-T-37	31960 MOBILCHE 115 31966 WODLNDJ1 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	114.8	96.3	<100	Explore potential mitigation
SAC-SP-T-38	31960 MOBILCHE 115 31970 WOODLD 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	114.7	96.3	<100	Explore potential mitigation
SAC-SP-T-39	31962 WDLND_BM 115 31970 WOODLD 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	182.1	151.6	<100	Explore potential mitigation
SAC-SP-T-40	31962 WDLND_BM 115 31990 DAVIS 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	206.9	172.2	<100	Explore potential mitigation
SAC-SP-T-41	31964 KNIGHT2 115 31968 WODLNDJ2 115 2	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	120.6	101.4	<100	Explore potential mitigation
SAC-SP-T-42	31965 KNIGHT1 115 31966 WODLNDJ1 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	114.5	96.1	<100	Explore potential mitigation
SAC-SP-T-43	31968 WODLNDJ2 115 31970 WOODLD 115 2	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	111.1	<100	<100	Short term: Action Plan

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SAC-SP-T-44	32214 RIO OSO 115 30330 RIO OSO 230 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	123.3	<100	<100	Short term: Action Plan
SAC-SP-T-45	32214 RIO OSO 115 30330 RIO OSO 230 2	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	119.4	<100	<100	Short term: Action Plan
SAC-SP-T-46	32214 RIO OSO 115 31964 KNIGHT2 115 2	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	120.6	101.4	<100	Explore potential mitigation
SAC-SP-T-47	32214 RIO OSO 115 31965 KNIGHT1 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	118.4	99.5	<100	Explore potential mitigation
SAC-SP-T-48	32214 RIO OSO 115 31986 W.SCRMNO 115 1	B3_3_Brighton 230/115 kV Transformer No. 10 & B3_4_Brighton 230/115 kV Transformer No. 9	C3	N-1-1	171.5	143.6	<100	Explore potential mitigation
SAC-SP-T-49	31960 MOBILCHE 115 31966 WODLNDJ1 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	114.8	96.3	<100	Explore potential mitigation
SAC-SP-T-50	31960 MOBILCHE 115 31970 WOODLD 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	114.7	96.3	<100	Explore potential mitigation
SAC-SP-T-51	31962 WDLND_BM 115 31970 WOODLD 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	182.1	151.6	<100	Explore potential mitigation
SAC-SP-T-52	31962 WDLND_BM 115 31990 DAVIS 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	206.9	172.2	<100	Explore potential mitigation

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SAC-SP-T-53	31964 KNIGHT2 115 31968 WODLNDJ2 115 2	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	120.6	101.4	<100	Explore potential mitigation
SAC-SP-T-54	31965 KNIGHT1 115 31966 WODLNDJ1 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	114.5	96.1	<100	Explore potential mitigation
SAC-SP-T-55	31968 WODLNDJ2 115 31970 WOODLD 115 2	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	111.1	<100	<100	Short term: Action Plan
SAC-SP-T-56	32214 RIO OSO 115 30330 RIO OSO 230 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	123.3	<100	<100	Short term: Action Plan
SAC-SP-T-57	32214 RIO OSO 115 30330 RIO OSO 230 2	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	119.4	<100	<100	Short term: Action Plan
SAC-SP-T-58	32214 RIO OSO 115 31964 KNIGHT2 115 2	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	120.6	101.4	<100	Explore potential mitigation
SAC-SP-T-59	32214 RIO OSO 115 31965 KNIGHT1 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	118.4	99.5	<100	Explore potential mitigation
SAC-SP-T-60	32214 RIO OSO 115 31986 W.SCRMNO 115 1	B3_4_Brighton 230/115 kV Transformer No. 9 & B3_3_Brighton 230/115 kV Transformer No. 10	C3	N-1-1	171.5	143.6	<100	Explore potential mitigation
SAC-SP-T-61	32056 CORTINA 60.0 30451 CRTNA M 230 1	B3_5_Cortina 230/115 kV Transformer No. 4 & B1_2_WADHAM 9.11 Unit ID 1	C3	N-1-1	159.2	158.3	158.0	Explore potential mitigation

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					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SAC-SP-T-62	31998 VACA-DIX 115 30460 VACA-DIX 230 4	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_13_Vaca Dixon 230/115 kV Transformer No. 2	C3	N-1-1	<100	<100	119.1	Explore potential mitigation
SAC-SP-T-63	31998 VACA-DIX 115 30460 VACA-DIX 230 2	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	<100	<100	115.4	Explore potential mitigation
SAC-SP-T-64	31999 VACA-CB 115 30460 VACA-DIX 230 2	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	140.2	145.7	<100	Explore potential mitigation
SAC-SP-T-65	31999 VACA-CB 115 30460 VACA-DIX 230 2A	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	164.2	170.7	<100	Explore potential mitigation
SAC-SP-T-66	31999 VACA-CB 115 31998 VACA-DIX 115 1	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	165.3	171.4	<100	Explore potential mitigation
SAC-SP-T-67	31998 VACA-DIX 115 30460 VACA-DIX 230 3	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_13_Vaca Dixon 230/115 kV Transformer No. 2	C3	N-1-1	<100	<100	119.0	Explore potential mitigation
SAC-SP-T-68	31998 VACA-DIX 115 30460 VACA-DIX 230 2	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1	<100	<100	115.4	Explore potential mitigation
SAC-SP-T-69	31999 VACA-CB 115 30460 VACA-DIX 230 2	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1	140.2	145.7	<100	Explore potential mitigation
SAC-SP-T-70	31999 VACA-CB 115 30460 VACA-DIX 230 2A	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1	164.2	170.7	<100	Explore potential mitigation

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SAC-SP-T-71	31999 VACA-CB 115 31998 VACA-DIX 115 1	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1	165.3	171.4	<100	Explore potential mitigation
SAC-SP-T-72	31962 WDLND_BM 115 31990 DAVIS 115 1	C5_10_Rio Oso-Brighton 230 kV Line & Rio Oso-Lockeford 230 kV L	C5	DCTL	101.0	106.5	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-73	31962 WDLND_BM 115 31970 WOODLD 115 1	C5_16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115	C5	DCTL	103.5	105.7	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-74	31984 BRIGHTN 115 31993 BRKRJCT 115 1	C5_16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115	C5	DCTL	108.9	109.7	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-75	31993 BRKRJCT 115 32001 UCD_TP2 115 1	C5_16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115	C5	DCTL	107.6	108.3	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-76	32001 UCD_TP2 115 31990 DAVIS 115 1	C5_16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115	C5	DCTL	107.1	107.8	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-77	31962 WDLND_BM 115 31970 WOODLD 115 1	C5_17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Bri	C5	DCTL	97.7	107.6	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-78	31962 WDLND_BM 115 31990 DAVIS 115 1	C5_17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Bri	C5	DCTL	118.1	127.3	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-79	31984 BRIGHTN 115 31993 BRKRJCT 115 1	C5_17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Bri	C5	DCTL	137.1	124.0	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion

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SAC-SP-T-80	31993 BRKRJCT 115 32001 UCD_TP2 115 1	C5_17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Bri	C5	DCTL	135.8	122.7	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion
SAC-SP-T-81	32001 UCD_TP2 115 31990 DAVIS 115 1	C5_17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Bri	C5	DCTL	135.3	122.2	<100	Short Term: Sacramento Action Plan, Long Term: Vaca-Davis Voltage Conversion

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
SAC-SpP-T-1	30525 C.COSTA 230 30479 BDLSWSTA 230 1	B2_20_Birds Landing - Contra Costa Sub 230 kV Line	B	L-1		105.3		Explore potential mitigation
SAC-SpP-T-2	30479 BDLSWSTA 230 30523 CC SUB 230 1	B2_21_Birds Landing - Contra Costa PP 230 kV Line	B	L-1		102.9		Explore potential mitigation
SAC-SpP-T-3	30525 C.COSTA 230 30479 BDLSWSTA 230 1	B2_20_Birds Landing - Contra Costa Sub 230 kV Line & B1_7_HIGHWND3 34.50 Unit ID 1	B	L-1/G-1		103.6		Explore potential mitigation
SAC-SpP-T-4	30479 BDLSWSTA 230 30523 CC SUB 230 1	B2_21_Birds Landing - Contra Costa PP 230 kV Line & B1_7_HIGHWND3 34.50 Unit ID 1	B	L-1/G-1		101.2		Explore potential mitigation
SAC-SpP-T-5	30114 DELEVN 230 30450 CORTINA 230 1	C2-1_VACA-DIX E 230 kV Bus 1 and Bus 2 - CB 202 Failure	C2	CB		102.1		Explore potential mitigation
SAC-SpP-T-6	30114 DELEVN 230 30450 CORTINA 230 1	C2-3_VACA-DIX E 230 kV Bus 2 and VACA-DIX F 230 kV Bus 2 - CB 6	C2	CB		102.8		Explore potential mitigation
SAC-SpP-T-7	30525 C.COSTA 230 30479 BDLSWSTA 230 1	B2_11_Vaca - Parkway 230 kV Line & B2_20_Birds Landing - Contra Costa Sub 230 kV Line	C3	N-1-1		113.4		Explore potential mitigation
SAC-SpP-T-8	30479 BDLSWSTA 230 30523 CC SUB 230 1	B2_11_Vaca - Parkway 230 kV Line & B2_21_Birds Landing - Contra Costa PP 230 kV Line	C3	N-1-1		110.9		Explore potential mitigation
SAC-SpP-T-9	30114 DELEVN 230 30450 CORTINA 230 1	B2_2_Delevan-Vaca Dixon No.2 230 kV Line & B2_3_Delevan-Vaca Dixon No.3 230 kV Line	C3	N-1-1		103.1		Explore potential mitigation
SAC-SpP-T-10	30525 C.COSTA 230 30479 BDLSWSTA 230 1	B2_20_Birds Landing - Contra Costa Sub 230 kV Line & B2_11_Vaca - Parkway 230 kV Line	C3	N-1-1		113.4		Explore potential mitigation

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
SAC-SpP-T-11	30479 BDLSWSTA 230 30523 CC SUB 230 1	B2_21_Birds Landing - Contra Costa PP 230 kV Line & B2_11_Vaca - Parkway 230 kV Line	C3	N-1-1		110.9		Explore potential mitigation
SAC-SpP-T-12	31984 BRIGHTN 115 31993 BRKRJCT 115 1	B2_28_Woodland - Davis 115 kV Line & B2_30_West Sacramento - Davis 115 kV Line	C3	N-1-1		104.9		Explore potential mitigation
SAC-SpP-T-13	31993 BRKRJCT 115 32001 UCD_TP2 115 1	B2_28_Woodland - Davis 115 kV Line & B2_30_West Sacramento - Davis 115 kV Line	C3	N-1-1		103.9		Explore potential mitigation
SAC-SpP-T-14	32001 UCD_TP2 115 31990 DAVIS 115 1	B2_28_Woodland - Davis 115 kV Line & B2_30_West Sacramento - Davis 115 kV Line	C3	N-1-1		103.5		Explore potential mitigation
SAC-SpP-T-15	30114 DELEVN 230 30450 CORTINA 230 1	B2_3_Delevan-Vaca Dixon No.3 230 kV Line & B2_2_Delevan-Vaca Dixon No.2 230 kV Line	C3	N-1-1		103.1		Explore potential mitigation
SAC-SpP-T-16	30114 DELEVN 230 30450 CORTINA 230 1	B2_3_Delevan-Vaca Dixon No.3 230 kV Line & B2_4_Delevan-Vaca Dixon No.4 230 kV Line	C3	N-1-1		103.1		Explore potential mitigation
SAC-SpP-T-17	31984 BRIGHTN 115 31993 BRKRJCT 115 1	B2_30_West Sacramento - Davis 115 kV Line & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1		104.9		Explore potential mitigation
SAC-SpP-T-18	31993 BRKRJCT 115 32001 UCD_TP2 115 1	B2_30_West Sacramento - Davis 115 kV Line & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1		103.9		Explore potential mitigation
SAC-SpP-T-19	32001 UCD_TP2 115 31990 DAVIS 115 1	B2_30_West Sacramento - Davis 115 kV Line & B2_28_Woodland - Davis 115 kV Line	C3	N-1-1		103.5		Explore potential mitigation

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
SAC-SpP-T-20	30114 DELEVN 230 30450 CORTINA 230 1	B2_4_Delevan-Vaca Dixon No.4 230 kV Line & B2_3_Delevan-Vaca Dixon No.3 230 kV Line	C3	N-1-1		103.1		Explore potential mitigation
SAC-SpP-T-21	31962 WDLND_BM 115 31990 DAVIS 115 1	B2_52_Rio Oso - West Sacramento 115 kV Line & B2_5_Rio Oso - Brighton 230 kV Line	C3	N-1-1		111.4		Explore potential mitigation
SAC-SpP-T-22	32056 CORTINA 60.0 30451 CRTNA M 230 1	B3_5_Cortina 230/115 kV Transformer No. 4 & B1_2_WADHAM 9.11 Unit ID 1	C3	N-1-1		108.9		Explore potential mitigation
SAC-SpP-T-23	31999 VACA-CB 115 30460 VACA-DIX 230 2	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1		107.6		Explore potential mitigation
SAC-SpP-T-24	31999 VACA-CB 115 30460 VACA-DIX 230 2A	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1		125.4		Explore potential mitigation
SAC-SpP-T-25	31999 VACA-CB 115 31998 VACA-DIX 115 1	B3_7_Vaca Dixon 230/115 kV Transformer No. 3 & B3_8_Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1		128.4		Explore potential mitigation
SAC-SpP-T-26	31999 VACA-CB 115 30460 VACA-DIX 230 2	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1		107.6		Explore potential mitigation
SAC-SpP-T-27	31999 VACA-CB 115 30460 VACA-DIX 230 2A	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1		125.4		Explore potential mitigation
SAC-SpP-T-28	31999 VACA-CB 115 31998 VACA-DIX 115 1	B3_8_Vaca Dixon 230/115 kV Transformer No. 4 & B3_7_Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1		128.4		Explore potential mitigation

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
SAC-SpP-T-29	30114 DELEVN 230 30450 CORTINA 230 1	C5_8_Delevan-Vaca Dixon No.2 230 kV Line & Delevan-Vaca Dixon N	C5	DCTL		103.1		Explore potential mitigation

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
SAC-NP-T-1	32394 PLACER 60.0 32228 PLACER 115 1	Base Case & B1_19_RIO OSO 230.00 Unit ID 1	B	G-1	<100	146.5		Explore potential mitigation
SAC-NP-T-2	30523 CC SUB 230 30525 C.COSTA 230 1	B2_18_Lambie - Birds Landing 230 kV Line & B2_21_Birds Landing - Contra Costa PP 230 kV Line	C3	N-1-1	106.9	<100		Short term: Action Plan
SAC-NP-T-3	30523 CC SUB 230 30525 C.COSTA 230 1	B2_21_Birds Landing - Contra Costa PP 230 kV Line & B2_18_Lambie - Birds Landing 230 kV Line	C3	N-1-1	106.9	<100		Short term: Action Plan

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Study Area: **PG&E Central Valley Sacramento - Summer Peak**

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SAC-SP-VD-1	CRTNA M 230kV	B2_12_Delevan-Cortina 230 kV Line	B	L-1	4.812	5.353	6.028	Explore potential mitigation

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
SAC-SpP-VD-1	RICE 60kV	B2_95_Glenn No.2 60 kV Line	B	L-1		-5.493		Explore potential mitigation
SAC-SpP-VD-2	RICE 60kV	B2_95_Glenn No.2 60 kV Line & B1_79_COLUSGT1 18.00 Unit ID 1	B	L-1/G-1		-5.518		Explore potential mitigation



Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No voltage deviation concerns identified.

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Study Area: **PG&E Central Valley Sacramento - Summer Peak**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
SAC-SP-V-1	COLUSA 60kV	B2_12_Delevan-Cortina 230 kV Line & B3_63_Cortina #5 115/60 kV Transformer	C3	N-1-1	>0.9	>0.9	0.8871	Explore potential mitigation
SAC-SP-V-2	CLSA CRS 60kV	B2_12_Delevan-Cortina 230 kV Line & B3_63_Cortina #5 115/60 kV Transformer	C3	N-1-1	>0.9	>0.9	0.8916	Explore potential mitigation
SAC-SP-V-3	PLAINFLD 60kV	B2_13_Delevan-Vaca Dixon No.2 230 kV Line & B2_12_Delevan-Cortina 230 kV Line	C3	N-1-1	0.8952	0.8652	>0.9	Explore potential mitigation
SAC-SP-V-4	PLFLDJCT 60kV	B2_13_Delevan-Vaca Dixon No.2 230 kV Line & B2_12_Delevan-Cortina 230 kV Line	C3	N-1-1	>0.9	0.8786	>0.9	Explore potential mitigation
SAC-SP-V-5	WILSONAV 60kV	B2_12_Delevan-Cortina 230 kV Line & B3_63_Cortina #5 115/60 kV Transformer	C3	N-1-1	>0.9	>0.9	0.8872	Explore potential mitigation



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	

No high/low voltage concerns identified.



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No high/low voltage concerns identified.



ID	Contingency	Category	Category Description	Transient Stability Performance			Potential Mitigation Solutions
				2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No transient stability concerns identified.



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

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

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				N/A	2019 Spring Peak	N/A	

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

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Study Area: **PG&E Central Valley Sacramento - Summer Off-Peak & Summer Light Load**



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2016 Summer Off-Peak	2019 Summer Light Load	N/A	

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

Study Area: **PG&E Central Valley Sacramento - Summer Peak**

Single Source Substation with more than 100 MW Load



ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No single source substation with more than 100 MW Load

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Study Area: **PG&E Central Valley Sacramento - Spring Peak**

Single Source Substation with more than 100 MW Load



ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		N/A	2019 Spring Peak	N/A	

No single source substation with more than 100 MW Load

2014-2015 ISO Reliability Assessment - Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Off-Peak & Summer Light Load**

Single Source Substation with more than 100 MW Load



ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No single source substation with more than 100 MW Load