

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
34774 MIDWAY 115 34776 TAFT 115 1 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	11	NConv	9	54	55	6	NConv	NA	Install redundant relay
34777 FELLOWSG 115 39070 AEVICTORYJT 115 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	22	NConv	9	55	55	9	NConv	NA	Install redundant relay
34903 PANMUCT1 70.0 34914 KERN PW1 70.0 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	4	3	3	4	NConv	NA	Install redundant relay
34975 OLD_RVR1_TP 70.0 34903 PANMUCT1 70.0 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	4	3	3	4	NConv	NA	Install redundant relay
39070 AEVICTORYJT 115 34779 MIDSUN 115 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	0	NConv	7	36	37	7	NConv	NA	Install redundant relay
Arco-Cholame 70 kV Line	Base Case	P0	Basecase	30	24	101	26	18	21	26	25	103	Generation Redispatch
Arco-Midway 230 kV Line	P5-5C(DC):A15:1:_MIDWAY 500KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	NConv	11	NA	Install redundant battery supply
Arco-Tulare Lake 70 kV Line	Base Case	P0	Basecase	94	94	96	73	102	76	74	93	106	Operating Solution
Arco-Tulare Lake 70 kV Line	Base Case	P0	Basecase	100	101	103	79	108	83	80	100	NA	Operating Solution
BITTERWATRSS-WHLR RJ2 230Line No 2	P2-1:A15:228:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	127	continue to monitor
Blackwell-Q484TP 70 kV line	Base Case	P0	Basecase	33	40	32	15	82	100	15	40	NA	Sensitivity Only
CHARKA-FAMOSO 115 kV	P2-2:A15:44:_MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	223	continue to monitor
CHARKA-FAMOSO 115 kV	P2-4:A15:14:_MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	223	continue to monitor
CHARKA-FAMOSO 115 kV	P2-4:A15:15:_MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	222	continue to monitor
CHARKA-FAMOSO 115 kV	P2-3:A15:64:_MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	146	continue to monitor
CHARKA-FAMOSO 115 kV	P5-2D(NBF):A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	42	43	44	42	27	33	42	136	124	Install redundant battery supply
CHARKA-FAMOSO 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	42	43	44	42	27	33	42	136	124	Install redundant battery supply
CHARKA-FAMOSO 115 kV	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	43	NConv	85	92	89	86	NConv	NConv	Install redundant battery supply
CHSR12SWSTA-CHARKA 115Line No 1	P2-2:A15:44:_MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	164	continue to monitor
CHSR12SWSTA-CHARKA 115Line No 1	P2-4:A15:14:_MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	163	continue to monitor
CHSR12SWSTA-CHARKA 115Line No 1	P2-4:A15:15:_MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	163	continue to monitor
CHSR12SWSTA-CHARKA 115Line No 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
CHSR12SWSTA-CHARKA 115Line No 1	P5-2D(NBF):A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	152	continue to monitor
CHSR12SWSTA-CHARKA 115Line No 1	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	152	continue to monitor
CHSR12SWSTA-WSCOPRSN 115Line No 1	P2-2:A15:44:_MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	162	continue to monitor
CHSR12SWSTA-WSCOPRSN 115Line No 1	P2-4:A15:14:_MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	161	continue to monitor
CHSR12SWSTA-WSCOPRSN 115Line No 1	P2-4:A15:15:_MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	161	continue to monitor
CHSR12SWSTA-WSCOPRSN 115Line No 1	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
CHSR12SWSTA-WSCOPRSN 115Line No 1	P5-2D(NBF):A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	154	continue to monitor
CHSR12SWSTA-WSCOPRSN 115Line No 1	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	154	continue to monitor
Copus-Old River 70 kV Line	P2-4:A15:29:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	225	continue to monitor
Copus-Old River 70 kV Line	P5-2D(NBF):A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	259	<100	257	77	50	58	78	156	191	Install redundant battery supply
Copus-Old River 70 kV Line	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	259	<100	257	77	50	58	78	156	191	Install redundant battery supply
Copus-Old River 70 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	84	29	21	84	NConv	NConv	Install redundant battery supply
Copus-Old River 70 kV Line	P7-1:A15:1:_KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	171	continue to monitor
Fellows-Taft 115 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	24	NConv	12	59	57	12	NConv	NA	Install redundant battery supply
Gates-Arco 230kV	P5-5C(DC):A15:1:_MIDWAY 500KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	NConv	30	NA	Install redundant battery supply
Gates-Midway 230kV	P5-5C(DC):A15:1:_MIDWAY 500KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	NConv	11	NA	Install redundant battery supply
Kern Canyon-Magunden-Weedpatch 70 kV Line	P1-2:A15:107:_BITTERWATRSS-MIDWAY-D 230KV [0]	P1	N-1	<100	25	30	<100	15	<100	<100	115	120	Sensitivity Only
Kern Canyon-Magunden-Weedpatch 70 kV Line	P2-1:A15:228:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	134	continue to monitor
Kern Canyon-Magunden-Weedpatch 70 kV Line	P2-1:A15:229:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	134	continue to monitor
Kern Canyon-Magunden-Weedpatch 70 kV Line	P2-1:A15:223:_BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	121	continue to monitor
Kern Canyon-Magunden-Weedpatch 70 kV Line	P2-3:A15:135:_MIDWAY-D 230KV - MIDDLE BREAKER BAY 4	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	121	continue to monitor
Kern Canyon-Magunden-Weedpatch 70 kV Line	P2-1:A15:224:_BUENAVJ2-BITTERWATRSS 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	120	continue to monitor
Kern Canyon-Magunden-Weedpatch 70 kV Line	P5-2D(NBF):A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	19	25	30	26	19	26	26	101	141	Install redundant battery supply
Kern Canyon-Magunden-Weedpatch 70 kV Line	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	19	25	30	26	19	26	26	101	141	Install redundant battery supply
Kern Canyon-Magunden-Weedpatch 70 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	25	NConv	33	114	112	32	NConv	NConv	Install redundant battery supply
Kern Canyon-Magunden-Weedpatch 70 kV Line	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	<100	<100	<100	166	97	202	167	290	294	Install redundant battery supply
Kern Canyon-Magunden-Weedpatch 70 kV Line	P7-1:A15:17:_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Kern Oil-Witco 115 kV Line	P2-2:A15:44:_MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	107	continue to monitor
Kern Oil-Witco 115 kV Line	P2-4:A15:14:_MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	107	continue to monitor
Kern Oil-Witco 115 kV Line	P2-4:A15:15:_MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	107	continue to monitor

## Study Area:

PG&amp;E Kern

## Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
Kern PP-Seventh Standard 115 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	126	continue to monitor
Kern PP-Seventh Standard 115 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	126	continue to monitor
Kern PP-Seventh Standard 115 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	126	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P1-2:A15:100_ SEMITROPIC-WASCO 70KV [9170]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P1-3:A15:53_ SEMITROPIC_D 115/70KV TB 2	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	105	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P1-2:A15:100_ SEMITROPIC-WASCO 70KV [9170]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P1-3:A15:53_ SEMITROPIC_D 115/70KV TB 2	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	284	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	284	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	283	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	267	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	266	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	266	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	260	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	259	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	259	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	209	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	197	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	196	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	195	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	195	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	191	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	145	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-3:A15:30_ SEMITROPIC_D - 1D 115KV & SEMITROPIC-MIDWAY #2 LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:17_ SEMITROPIC_D 115KV SECTION 1D	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	57	83	93	58	NConv	NConv	Install redundant battery supply
Kern-Kern Oil-Famoso 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	121	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	121	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	111	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	111	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-2D(NBF):A15:1_ SEMITROPIC 115KV CB 122	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-5A(NRDR):A15:2_ SEMITROPIC 115KV BUS (FAILURE OF NON-REDUNDANT RELAY ACTUAL)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-2D(NBF):A15:1_ SEMITROPIC 115KV CB 122	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-5A(NRDR):A15:2_ SEMITROPIC 115KV BUS (FAILURE OF NON-REDUNDANT RELAY ACTUAL)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-5C(DC):A15:12_ SEMITROPIC 115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Kern-Kern Oil-Famoso 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Kern-Lamont 115 kV Line	P1-2:A15:27_ STOCKDLE-LAMONT-KERN PWR-TEVIS 115KV [0]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Kern-Lamont 115 kV Line	P2-1:A15:75_ KERN-STOCKDALE-LAMONT #1 (21KV) 115KV [1990] (KERN PWR-TEVISJ1)	P2	Line Section w/o Fault	<100	94	101	<100	58	<100	<100	95	118	Project: Lamont BESS
Kern-Lamont 115 kV Line	P2-3:A15:44_ STOCKDLE - 1D 115KV & STOCKDLE-LAMONT-KERN PWR-TEVIS LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Kern-Lamont 115 kV Line	P2-3:A15:54_ TEVIS - 1D 115KV & STOCKDLE-LAMONT-KERN PWR-TEVIS LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Kern-Lamont 115 kV Line	P2-3:A15:142_ KERN PWR 115KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Kern-Lamont 115 kV Line	P2-3:A15:56_ LAMONT 115KV - MIDDLE BREAKER BAY 4	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor
Kern-Lamont 115 kV Line	P5-5C(DC):A15:22_ STOCKDALE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Kern-Lamont 115 kV Line	P5-5C(DC):A15:27_ TEVIS 115KV BATT #1(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Kern-Live Oak 115 kV Line	KERN OIL-WITCO 115KV [1920] & 7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	93	113	<100	<100	<100	<100	<100	106	NA	Project: Kern PP 115 kV Area Reinforcement
Kern-Magunden 70 kV Line	P1-2:A15:107_ BITTERWATRSS-MIDWAY-D 230KV [0]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	108	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	123	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:229_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	123	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:223_ BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	109	continue to monitor
Kern-Magunden 70 kV Line	P2-3:A15:135_ MIDWAY-D 230KV - MIDDLE BREAKER BAY 4	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	109	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:224_ BUENAVJ2-BITTERWATRSS 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	108	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:229_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Magunden 70 kV Line	P2-1:A15:229_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	106	continue to monitor
Kern-Magunden 70 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	32	85	75	32	NConv	NConv	Install redundant battery supply

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	
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE		
Kern-Magunden 70 kV Line	P5-5C(DC)A15:8_ WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	19	19	19	125	75	136	125	202	251	Install redundant battery supply	
Kern-Magunden 70 kV Line	P5-2D(NBF)A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	NA	NA	NA	57	6	43	57	151	183	Install redundant battery supply	
Kern-Magunden 70 kV Line	P5-5C(DC)A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NA	NA	NA	57	6	43	57	151	183	Install redundant battery supply	
Kern-Magunden 70 kV Line	P5-5C(DC)A15:8_ WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NA	NA	NA	139	81	153	140	236	251	Install redundant battery supply	
Kern-Magunden 70 kV Line	P7-1A15:17_ MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor	
Kern-Magunden 70 kV Line	P7-1A15:17_ MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor	
Kern-Magunden 70 kV Line	P7-1A15:17_ MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor	
Kern-Magunden 70kV Line	P1-2A15:107_ BITTERWATRSS-MIDWAY-D 230KV [0]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	108	continue to monitor	
Kern-Magunden 70kV Line	P2-1A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	123	continue to monitor	
Kern-Magunden 70kV Line	P2-1A15:229_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	123	continue to monitor	
Kern-Magunden 70kV Line	P2-1A15:223_ BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	109	continue to monitor	
Kern-Magunden 70kV Line	P2-3A15:135_ MIDWAY-D 230KV - MIDDLE BREAKER BAY 4	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	109	continue to monitor	
Kern-Magunden 70kV Line	P2-1A15:224_ BUENAVJ2-BITTERWATRSS 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	108	continue to monitor	
Kern-Magunden 70kV Line	P5-5C(DC)A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor	
Kern-Magunden 70kV Line	P5-5C(DC)A15:8_ WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	251	continue to monitor	
Kern-Magunden 70kV Line	P5-2D(NBF)A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	183	continue to monitor	
Kern-Magunden 70kV Line	P5-5C(DC)A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	183	continue to monitor	
Kern-Magunden 70kV Line	P7-1A15:17_ MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor	
Kern-Stockdale 115 kV Line	P1-2A15:53_ KERN-STOCKDALE-LAMONT #2 115KV [1940]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor	
Kern-Stockdale 115 kV Line	P2-1A15:76_ KERN-STOCKDALE-LAMONT #2 115KV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o Fault	<100	93	100	<100	50	<100	<100	<100	94	116	Project: Lamont BESS
Kern-Stockdale 115 kV Line	P2-3A15:143_ KERN PWR 115KV - MIDDLE BREAKER BAY 2	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	104	continue to monitor	
Kern-Stockdale 115 kV Line	P2-3A15:55_ TEVIS2 - 1E 115KV & KERN-STOCKDALE-LAMONT #2 LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor	
Kern-Stockdale 115 kV Line	P2-3A15:57_ LAMONT 115KV - MIDDLE BREAKER BAY 3	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor	
Kern-Stockdale 115 kV Line	P5-5C(DC)A15:28_ TEVIS 115KV BATT #2(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-2A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	280	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-4A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	280	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-4A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	279	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-2A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	275	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-4A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	275	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-4A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	274	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-2A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	230	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-4A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	229	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-4A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	228	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-3A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	192	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-3A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	190	continue to monitor	
Lerdo-Famoso 115 kV Line	P2-3A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	147	continue to monitor	
Lerdo-Famoso 115 kV Line	P5-2D(NBF)A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	<100	<100	<100	59	41	32	59	130	116	Install redundant battery supply	
Lerdo-Famoso 115 kV Line	P5-5C(DC)A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	<100	<100	<100	59	41	32	59	130	116	Install redundant battery supply	
Lerdo-Famoso 115 kV Line	P5-5C(DC)A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	102	111	113	102	NConv	NConv	Install redundant battery supply	
Lerdo-Kern Oil-7th Standard 115 kV Line	P1-2A15:116_ CHSR12SWSTA-SEMITROPIC D 115KV [0]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P1-2A15:115_ CHSR12SWSTA-CHARKA #1 115KV [0]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-2A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	304	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-4A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	303	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-4A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	303	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-3A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	216	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-2A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	168	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-4A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	168	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-4A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	167	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-3A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	121	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P2-3A15:30_ SEMITROPIC D - 1D 115KV & SEMITROPIC-MIDWAY #2 LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	111	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P1-1A15:37_ MT POSO 13.80KV GEN UNIT 1 & P1-2A15:37_ 7TH STANDARD-KERN 115KV [1981]	P3	G-1/N-1	111	120	116	<100	<100	<100	<100	116	NA	Line Capacity Increase	
Lerdo-Kern Oil-7th Standard 115 kV Line	P5-5C(DC)A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	80	94	106	80	NConv	NConv	Install redundant battery supply	
Lerdo-Kern Oil-7th Standard 115 kV Line	P5-2D(NBF)A15:1_ SEMITROPIC 115KV CB 122	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	111	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P5-5A(NRDR)A15:2_ SEMITROPIC 115KV BUS (FAILURE OF NON-REDUNDENT RELAY ACTUAL)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	111	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	P5-5C(DC)A15:12_ SEMITROPIC 115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor	
Lerdo-Kern Oil-7th Standard 115 kV Line	OGLE TAP 115/13.8KV TB 1 & 7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	98	108	104	<100	<100	<100	<100	109	NA	Line Capacity Increase	
Live Oak-Kern Oil 115 kV Line	P5-2D(NBF)A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	<100	<100	<100	78	75	97	78	107	102	Install redundant battery supply	
Live Oak-Kern Oil 115 kV Line	P5-5C(DC)A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	<100	<100	<100	78	75	97	78	107	102	Install redundant battery supply	
Live Oak-Kern Oil 115 kV Line	KERN OIL-WITCO 115KV [1920] & 7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	94	107	<100	<100	<100	<100	<100	102	NA	Project: Kern PP 115 kV Area Reinforcement	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
Maricopa-Copus 70 kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	253	continue to monitor
Maricopa-Copus 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	275	21	280	93	43	35	94	175	222	Install redundant battery supply
Maricopa-Copus 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	275	21	280	93	43	35	94	175	222	Install redundant battery supply
Maricopa-Copus 70 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	21	NConv	99	121	112	99	NConv	NConv	Install redundant battery supply
Maricopa-Copus 70 kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	201	continue to monitor
Maricopa-Copus 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	250	continue to monitor
Maricopa-Copus 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	246	continue to monitor
Maricopa-Copus 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	226	continue to monitor
Maricopa-Copus 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Maricopa-Copus 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	218	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	218	continue to monitor
Maricopa-Copus 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	216	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	216	continue to monitor
Maricopa-Copus 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	196	continue to monitor
Maricopa-Copus 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	196	continue to monitor
Maricopa-Copus 70kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	197	continue to monitor
Maricopa-Copus 70kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	194	continue to monitor
Maricopa-Copus 70kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	174	continue to monitor
Midsun-Midway 115 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	20	NConv	13	44	47	14	NConv	NA	Install redundant battery supply
Midway 230/115 kV Transformer #2	P2-4:A15:17_ MIDWAY 115KV - SECTION 1E & 1D	P2	Bus-Tie-Breaker	Mon Branch Invalid	100	93	Mon Branch Invalid	32	Mon Branch Invalid	Mon Branch Invalid	89	NA	continue to monitor
Midway 230/115 kV Transformer #3	P2-3:A15:20_ MIDWAY-DBBSB - 2D 230KV & MIDWAY-DBBSB-MIDWAY-R12 #1 LINE	P2	Non-Bus-Tie Breaker	108	NA	NA	78	NA	102	52	NA	NA	PGE Maintenance Project
Midway 230/115 kV Transformer #3	P2-4:A15:16_ MIDWAY 115KV - SECTION 2D & 1D	P2	Bus-Tie-Breaker	<100	102	109	<100	11	<100	<100	92	105	Line Capacity Increase
Midway-Kern #4 230 kV Line	MIDWAY-KERN #3 230KV [5160] & KERN PP-MIDWAY-F 230KV [0]	P6	N-1-1	113	<100	<100	<100	<100	<100	<100	<100	NA	Project: Midway-Kern PP 230 kV #2 Line Project
Midway-Kern #4 230 kV Line	P7-1:A15:12_ MIDWAY-KERN NO. 3 & MIDWAY-KERN NO. 1 230 KV LINES	P7	DCTL	113	NA	NA	55	NA	33	55	NA	NA	Project: Midway-Kern PP 230 kV #2 Line Project
Midway-Kern 230kV Line No 3	P2-4:A15:21_ MIDWAY-DBBSB SECTION 2D & MIDWAY-E SECTION 2E 230KV	P2	Bus-Tie-Breaker	94	<100	<100	222	<100	17	24	<100	NA	Project: Midway-Kern PP 230 kV #2 Line Project
Midway-Kern 230kV Line No 3	P2-4:A15:22_ MIDWAY-DBBSB SECTION 1D & MIDWAY-E SECTION 1E 230KV	P2	Bus-Tie-Breaker	41	<100	<100	100	<100	14	24	<100	NA	Project: Midway-Kern PP 230 kV #2 Line Project
Midway-Shafter 115 kV Line	P1-2:A15:50_ MIDWAY-RENFRO-TUPMAN 115KV [2590]	P1	N-1	<100	101	103	<100	51	<100	<100	102	113	Line Capacity Increase
Midway-Shafter 115 kV Line	P1-2:A15:55_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]	P1	N-1	134	139	143	55	91	90	55	140	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P1-2:A15:52_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]	P1	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	158	continue to monitor
Midway-Shafter 115 kV Line	P2-1:A15:76_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (TPMNTP2-RENFRICT)	P2	Line Section w/o Fault	159	165	173	71	103	78	71	167	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P2-1:A15:95_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (RENFRICT-RIO BRVO)	P2	Line Section w/o Fault	133	139	143	55	91	90	55	140	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P2-3:A15:51_ TUPMAN - 1E 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2	Non-Bus-Tie Breaker	133	139	142	55	91	90	55	140	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P2-3:A15:66_ RENFRO2 - 1F 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2	Non-Bus-Tie Breaker	134	139	143	55	91	90	55	140	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P2-3:A15:70_ MIDWAY - 1E 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2	Non-Bus-Tie Breaker	134	140	144	55	91	91	55	141	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P2-1:A15:74_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (TPMNTP2-RENFRICT)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	193	continue to monitor
Midway-Shafter 115 kV Line	P2-3:A15:67_ MIDWAY - 1E 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	158	continue to monitor
Midway-Shafter 115 kV Line	P2-3:A15:63_ RENFRO2 - 1F 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	158	continue to monitor
Midway-Shafter 115 kV Line	P2-1:A15:93_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (RENFRICT-RIO BRVO)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	158	continue to monitor
Midway-Shafter 115 kV Line	P2-3:A15:48_ TUPMAN - 1E 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	157	continue to monitor
Midway-Shafter 115 kV Line	P1-1:A15:48_ PSE-BEAR 13.80KV GEN UNIT 1 & P1-2:A15:52_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]	P3	G-1/N-1	134	139	143	<100	<100	<100	<100	140	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P1-1:A15:8_ Q744P5G5 0.60KV GEN UNIT 5 & P1-2:A15:55_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]	P3	G-1/N-1	134	<100	<100	<100	<100	<100	<100	<100	NA	Line Capacity Increase
Midway-Shafter 115 kV Line	P5-5A(NRDR):A15:15_ TUPMAN 115KV BUS 1D (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	133	138	142	55	91	90	55	139	157	Install redundant battery supply
Midway-Shafter 115 kV Line	P5-5A(NRDR):A15:7_ RENFRO 115KV (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	133	138	142	55	91	90	55	139	157	Install redundant battery supply
Midway-Shafter 115 kV Line	P5-5C(DC):A15:25_ TUPMAN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	133	138	142	55	91	90	55	139	157	Install redundant battery supply
Midway-Shafter 115 kV Line	P5-5C(DC):A15:31_ RENFRO 115KV BATT #1(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	99	101	103	44	51	53	44	102	113	Install redundant battery supply
Midway-Shafter 115 kV Line	P5-5C(DC):A15:34_ RENFRO 115KV BATT #2(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	134	139	143	55	91	90	55	140	158	Install redundant battery supply
Midway-Shafter 115 kV Line	P7-1:A15:7_ MIDWAY-TUPMAN-RENFRO & MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115 KV LINES	P7	DCTL	133	138	142	55	91	90	55	139	157	Line Capacity Increase
Midway-Tupman-Renfro 115 kV Line	P2-1:A15:92_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (MIDWAY-RIOBRVTM)	P2	Line Section w/o Fault	<100	100	104	<100	49	<100	<100	101	113	Line Capacity Increase
Midway-Tupman-Renfro 115 kV Line	P2-2:A15:46_ MIDWAY 115KV SECTION 1E	P2	Bus	99	101	105	41	49	63	42	101	113	Line Capacity Increase
Midway-Tupman-Renfro 115 kV Line	P2-4:A15:12_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	194	198	208	80	89	112	80	201	NA	Line Capacity Increase
Midway-Tupman-Renfro 115 kV Line	P2-4:A15:17_ MIDWAY 115KV - SECTION 1E & 1D	P2	Bus-Tie-Breaker	<100	101	106	<100	49	<100	<100	102	113	Line Capacity Increase
Midway-Tupman-Renfro 115 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	232	continue to monitor

## Study Area:

PG&amp;E Kern

## Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
Midway-Tupman-Renfro 115 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	120	continue to monitor
Midway-Tupman-Renfro 115 kV Line	P2-1:A15:115_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (RIOBRVTM-FRTLTYLP)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	109	continue to monitor
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P1-2:A15:61_ MIDWAY-SHAFTER 115KV [2610]	P1	N-1	131	136	139	54	91	89	54	137	NA	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P1-2:A15:58_ MIDWAY-SHAFTER 115KV [2610]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	153	continue to monitor
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	131	135	138	54	90	89	54	138	154	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-3:A15:125_ SHAFTER 115KV - RING R4 & R3	P2	Non-Bus-Tie Breaker	106	110	115	44	75	76	44	111	NA	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-3:A15:67_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	131	135	138	54	90	89	54	137	NA	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-4:A15:12_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	133	138	146	62	75	68	63	140	NA	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	136	141	144	54	89	90	55	144	161	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	140	146	151	55	88	92	55	148	170	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	154	continue to monitor
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P2-3:A15:123_ SHAFTER 115KV - RING R4 & R3	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	124	continue to monitor
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P1-1:A15:42_ FRITOLAY 9.11KV GEN UNIT 1 & P1-2:A15:58_ MIDWAY-SHAFTER 115KV [2610]	P3	G-1/N-1	<100	136	139	<100	<100	<100	<100	<100	NA	Line Capacity Increase
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P6 MIDWAY-SHAFTER 115KV [2610] & MIDWAY-RENFRO-TUPMAN 115KV [2590]	P6	N-1-1	98	100	104	<100	<100	<100	<100	101	NA	Line Capacity Increase
Midway-Wheeler Ridge #1 230 kV Line	P1-2:A15:107_ BITTERWATRSS-MIDWAY-D 230KV [0]	P1	N-1	NA	129	118	NA	9	NA	NA	118	116	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P1-2:A15:4_ BITTERWATRSS-MIDWAY-D8AAH 230KV [0]	P1	N-1	129	NA	NA	98	NA	15	99	NA	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-1:A15:1_ BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	127	128	117	97	26	29	97	118	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-1:A15:16_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D8AAH)	P2	Line Section w/o Fault	139	NA	NA	106	NA	10	107	NA	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-1:A15:224_ BUENAVJ2-BITTERWATRSS 230KV [0] NO FAULT	P2	Line Section w/o Fault	129	129	118	98	9	15	99	118	116	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-1:A15:229_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	NA	139	129	NA	17	NA	NA	127	127	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-3:A15:135_ MIDWAY-D 230KV - MIDDLE BREAKER BAY 4	P2	Non-Bus-Tie Breaker	NA	129	118	NA	9	NA	NA	118	116	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-3:A15:21_ MIDWAY-D8AAH 230KV - MIDDLE BREAKER BAY 6	P2	Non-Bus-Tie Breaker	127	NA	NA	98	NA	13	98	NA	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230 kV Line	P2-1:A15:223_ BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	116	continue to monitor
Midway-Wheeler Ridge #1 230 kV Line	P2-1:A15:223_ BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	107	continue to monitor
Midway-Wheeler Ridge #1 230 kV Line	WHEELER 115/70KV TB 2 & BITTERWATRSS-MIDWAY-D 230KV [0]	P6	N-1-1	<100	<100	132	<100	<100	<100	<100	<100	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #1 230kV Line	P1-2:A15:107_ BITTERWATRSS-MIDWAY-D 230KV [0]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	127	continue to monitor
Midway-Wheeler Ridge #1 230kV Line	P2-1:A15:229_ MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	138	continue to monitor
Midway-Wheeler Ridge #1 230kV Line	P2-3:A15:135_ MIDWAY-D 230KV - MIDDLE BREAKER BAY 4	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	127	continue to monitor
Midway-Wheeler Ridge #1 230kV Line	P2-1:A15:224_ BUENAVJ2-BITTERWATRSS 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	127	continue to monitor
Midway-Wheeler Ridge #1 230kV Line	P2-1:A15:223_ BITTERWATRSS-WHLR RJ2 230KV [0] NO FAULT	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	127	continue to monitor
Midway-Wheeler Ridge #2 230 kV Line	P2-1:A15:15_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D8AAH)	P2	Line Section w/o Fault	115	NA	NA	84	NA	18	84	NA	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #2 230 kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	NA	116	106	NA	12	NA	NA	105	114	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #2 230 kV Line	P2-1:A15:15_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D8AAH)	P2	Line Section w/o Fault	139	NA	NA	106	NA	19	107	NA	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #2 230 kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	NA	139	129	NA	17	NA	NA	128	114	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #2 230 kV Line	WHEELER RIDGE-ADOBE SW STA 115KV [1982] & MIDWAY-WHEELER RIDGE #1 230KV [5190]	P6	N-1-1	<100	<100	102	<100	<100	<100	<100	<100	NA	Project: Wheeler Ridge Junction
Midway-Wheeler Ridge #2 230kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	138	continue to monitor
Midway-Wheeler Ridge #2 230kV Line	P2-1:A15:228_ MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-D)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	127	continue to monitor
Midway-Wheeler Ridge #2 230kV Line	P2-3:A15:17_ WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	103	continue to monitor
OLD RIVR-OLD_RVR1_TP 70 kV	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	4	13	16	4	NConv	NA	Install redundant battery supply
SEMITROPIC_D-SEMITROPIC_E 115 kV	P2-1:A15:68_ SMYRNA-SEMITROPIC-MIDWAY 115KV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o Fault	<100	95	100	<100	47	<100	<100	69	NA	Line Capacity Increase
SEMITROPIC_D-SEMITROPIC_E 115 kV	P2-1:A15:69_ SMYRNA-SEMITROPIC-MIDWAY 115KV [3710] (GANSO-MIDWAY)	P2	Line Section w/o Fault	<100	105	111	<100	46	<100	<100	76	NA	Line Capacity Increase
SEMITROPIC_D-SEMITROPIC_E 115 kV	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	52	NConv	53	61	53	NConv	NConv	NA	Install redundant battery supply
Semitropic-Famoso 115 kV Line	P1-2:A15:41_ LERDO-KERN OIL-7TH STANDARD 115KV [1950]	P1	N-1	<100	83	90	<100	31	<100	<100	105	112	Sensitivity Only
Semitropic-Famoso 115 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	164	continue to monitor
Semitropic-Famoso 115 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	163	continue to monitor
Semitropic-Famoso 115 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	163	continue to monitor
Semitropic-Famoso 115 kV Line	P2-1:A15:43_ LERDO-KERN OIL-7TH STANDARD 119KV [1950] (LERDO-LRDO JCT)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	112	continue to monitor
Semitropic-Famoso 115 kV Line	P2-3:A15:35_ KERN OIL - 1D 115KV & LERDO-KERN OIL-7TH STANDARD LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	112	continue to monitor
Semitropic-Famoso 115 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	82	83	90	59	39	60	60	173	170	Install redundant battery supply
Semitropic-Famoso 115 kV Line	P5-2D(NBF):A15:3_ KERN OIL 115KV CB 132 OR 142	P5	Non-Redundent Battery	82	83	90	20	31	67	20	105	112	Install redundant battery supply
Semitropic-Famoso 115 kV Line	P5-5C(DC):A15:14_ 7TH STANDARD 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	82	83	90	20	31	67	20	105	NA	Install redundant battery supply
Semitropic-Famoso 115 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	82	83	90	59	39	60	60	173	170	Install redundant battery supply
Semitropic-Famoso 115 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	83	NConv	102	73	71	103	NConv	NConv	Install redundant battery supply
Semitropic-Famoso 115 kV Line	P5-5A(NRDR):A15:3_ KERN OIL 115KV BUS (FAILURE OF NON-REDUNDENT RELAY ACTUALLY 5)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	112	continue to monitor
Semitropic-Famoso 115 kV Line	P5-5C(DC):A15:18_ KERN OIL 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	112	continue to monitor
Semitropic-Famoso 115 kV Line	P7-1:A15:2_ LIVE OAK-KERN OIL & LERDO-KERN OIL-7TH STANDARD 115 kV LINE	P7	DCTL	82	83	90	20	31	67	20	105	112	Line Capacity Increase
Semitropic-Famoso 115 kV Line	P7-1:A15:3_ LERDO-KERN OIL-7TH STANDARD 115 kV LINE & KERN-LIVE OAK 115 kV LINES	P7	DCTL	82	83	90	20	31	67	20	105	112	Line Capacity Increase
Semitropic-Midway #1 115kV Line	P2-1:A15:70_ SMYRNA-SEMITROPIC-MIDWAY 115KV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o Fault	106	112	118	39	41	29	39	86	NA	Line Capacity Increase
Semitropic-Midway #1 115kV Line	P2-1:A15:71_ SMYRNA-SEMITROPIC-MIDWAY 115KV [3710] (GANSO-MIDWAY)	P2	Line Section w/o Fault	116	122	129	42	38	28	42	92	NA	Line Capacity Increase
Semitropic-Midway #1 115kV Line	P2-1:A15:69_ SMYRNA-SEMITROPIC-MIDWAY 115KV [3710] (GANSO-MIDWAY)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	104	continue to monitor
Semitropic-Midway #1 115kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	67	71	75	46	14	2	47	111	119	Install redundant battery supply



Study Area:

PG&amp;E Kern

Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
Semitropic-Midway #1 115kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	67	71	75	46	14	2	47	111	119	Install redundant battery supply
Semitropic-Midway #1 115kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	71	NConv	59	54	44	59	NConv	NConv	Install redundant battery supply
Semitropic-Wasco 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	133	continue to monitor
Semitropic-Wasco 70 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	133	continue to monitor
Semitropic-Wasco 70 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	133	continue to monitor
Semitropic-Wasco 70 kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	105	continue to monitor
Semitropic-Wasco 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	27	30	33	89	14	32	90	171	225	Install redundant battery supply
Semitropic-Wasco 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	27	30	33	89	14	32	90	171	225	Install redundant relay
Semitropic-Wasco 70 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	30	33	103	55	41	103	NConv	NConv	Install redundant relay
Shafter-Rio Bravo 115 kV Line	P2-1:A15:74_ MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (TPMINTP2-RENFRJCT)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	<100	<100	134	continue to monitor
Smyrna-Semitropic-Midway 115 kV Line	P1-2:A15:52_ SEMITROPIC-MIDWAY #1 115KV [3630]	P1	N-1	115	121	129	40	43	32	41	87	NA	Line Capacity Increase
Smyrna-Semitropic-Midway 115 kV Line	P2-2:A15:28_ SEMITROPIC_E 115KV SECTION 1E	P2	Bus	98	104	109	36	46	36	37	77	NA	Line Capacity Increase
Smyrna-Semitropic-Midway 115 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	69	NConv	50	57	48	50	NConv	NConv	Install redundant relay
Smyrna-Semitropic-Midway 115 kV Line	SEMITROPIC-MIDWAY #1 115KV [3630] & 230KV [1] [2]	P6	N-1-1	<100	<100	130	<100	<100	<100	<100	<100	NA	Line Capacity Increase
Taft 115/70 kV Transformer #1	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	48	NConv	42	55	56	41	NConv	NA	Install redundant relay
Taft 115/70 kV Transformer #2	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	59	NConv	71	42	41	71	NConv	NA	Install redundant relay
Taft-Elk Hills 70 kV Line	Base Case	P0	Basecase	90	89	104	69	63	62	69	90	112	continue to monitor
Taft-Elk Hills 70 kV Line	P1-3:A15:49_ TAFT 115/70KV TB 1	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	101	continue to monitor
Taft-Elk Hills 70 kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	105	continue to monitor
Taft-Elk Hills 70 kV Line	P2-3:A15:126_ TAFT 115KV - RING R2 & R3	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Taft-Elk Hills 70 kV Line	P2-3:A15:128_ TAFT 115KV - RING R4 & R3	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	101	continue to monitor
Taft-Elk Hills 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Taft-Elk Hills 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Taft-Elk Hills 70 kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	101	continue to monitor
Taft-Maricopa 70 kV Line	P1-2:A15:96_ KERN-OLD RIVER #1 70KV [8890]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	102	continue to monitor
Taft-Maricopa 70 kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	264	continue to monitor
Taft-Maricopa 70 kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	187	continue to monitor
Taft-Maricopa 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	101	continue to monitor
Taft-Maricopa 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	274	44	287	104	24	25	105	185	235	Install redundant relay
Taft-Maricopa 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	274	44	287	104	24	25	105	185	235	Install redundant relay
Taft-Maricopa 70 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	44	NConv	106	97	88	107	NConv	NConv	Install redundant relay
Taft-Maricopa 70 kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	214	continue to monitor
Taft-Maricopa 70 kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	150	continue to monitor
Taft-Maricopa 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	248	continue to monitor
Taft-Maricopa 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	234	continue to monitor
Taft-Maricopa 70kV Line	P2-4:A15:29_ KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	234	continue to monitor
Taft-Maricopa 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Taft-Maricopa 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Taft-Maricopa 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Taft-Maricopa 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	218	continue to monitor
Taft-Maricopa 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	218	continue to monitor
Taft-Maricopa 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	206	continue to monitor
Taft-Maricopa 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	206	continue to monitor
Taft-Maricopa 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	206	continue to monitor
Taft-Maricopa 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	206	continue to monitor
Taft-Maricopa 70kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	197	continue to monitor
Taft-Maricopa 70kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	185	continue to monitor
Taft-Maricopa 70kV Line	P7-1:A15:1_ KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	185	continue to monitor
Tejon-SN Brnd 70 kV Line	P5-5C(DC):A15:8_ WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	<100	<100	<100	55	50	104	55	88	NA	Install redundant relay
Tembor-San Luis Obispo 115 kV Line	P5-5C(DC):A15:1_ MIDWAY 500KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NConv	46	NConv	NConv	NConv	NConv	NConv	48	NA	Install redundant relay
Wasco-Famoso 70 kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	115	continue to monitor
Wasco-Famoso 70 kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	115	continue to monitor
Wasco-Famoso 70 kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	114	continue to monitor
Wasco-Famoso 70 kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	110	continue to monitor
Wasco-Famoso 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	107	continue to monitor
Wasco-Famoso 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	107	continue to monitor
Wasco-Famoso 70kV Line	P2-2:A15:44_ MIDWAY 115KV SECTION 2E	P2	Bus	<100	<100	<100	<100	<100	<100	<100	<100	175	continue to monitor
Wasco-Famoso 70kV Line	P2-4:A15:14_ MIDWAY 115KV - SECTION 2E & 2D	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	175	continue to monitor
Wasco-Famoso 70kV Line	P2-4:A15:15_ MIDWAY 115KV - SECTION 2E & 1E	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	175	continue to monitor
Wasco-Famoso 70kV Line	P2-3:A15:64_ MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	<100	<100	<100	<100	<100	<100	<100	<100	109	continue to monitor
Wasco-Famoso 70kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	NA	NA	NA	71	5	26	72	145	189	Install redundant relay
Wasco-Famoso 70kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NA	NA	NA	71	5	26	72	145	189	Install redundant relay
Wasco-Famoso 70kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	NA	NA	NA	81	73	53	82	NConv	NConv	Install redundant relay
Weedpatch-San Bernard 70 kV Line	P5-2D(NBF):A15:2_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	44	44	45	50	23	18	50	118	159	Install redundant relay
Weedpatch-San Bernard 70 kV Line	P5-5C(DC):A15:26_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	44	44	45	50	23	18	50	118	159	Install redundant relay
Weedpatch-San Bernard 70 kV Line	P5-5C(DC):A15:4_ KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	44	44	45	52	83	81	52	NConv	NConv	Install redundant relay

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
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
Weedpatch-San Bernard 70 kV Line	P5-5C(DC):A15:8;_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	<100	<100	<100	135	126	248	136	215	213	Install redundant relay
Weedpatch-San Bernard 70 kV Line	P5-5C(DC):A15:8;_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NA	NA	NA	153	98	212	154	262	213	Install redundant relay
Weedpatch-San Bernard 70 kV Line	P7-1:A15:17;_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:4;_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:4;_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:4;_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:8;_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	259	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:8;_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	214	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:8;_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	212	continue to monitor
weedpatch-san bernard 70kV Line	P5-2D(NBF):A15:2;_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	161	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:26;_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	161	continue to monitor
weedpatch-san bernard 70kV Line	P5-2D(NBF):A15:2;_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	160	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:26;_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	160	continue to monitor
weedpatch-san bernard 70kV Line	P5-2D(NBF):A15:2;_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non Redundant Relay	<100	<100	<100	<100	<100	<100	<100	<100	116	continue to monitor
weedpatch-san bernard 70kV Line	P5-5C(DC):A15:26;_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	<100	<100	<100	<100	<100	<100	<100	<100	116	continue to monitor
weedpatch-san bernard 70kV Line	P7-1:A15:17;_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
weedpatch-san bernard 70kV Line	P7-1:A15:17;_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
weedpatch-san bernard 70kV Line	P7-1:A15:17;_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor
Wheeler Ridge 115/70 kV Transformer #2	Base Case	P0	Basecase	0	0	100	0	31	33	0	0	NA	Generation Redispatch
Wheeler ridge-Lakeview 70kV Line	P2-4:A15:29;_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2	Bus-Tie-Breaker	<100	<100	<100	<100	<100	<100	<100	<100	222	continue to monitor
Wheeler ridge-Lakeview 70kV Line	P5-2D(NBF):A15:2;_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	255	<100	253	77	50	58	78	156	191	Install redundant relay
Wheeler ridge-Lakeview 70kV Line	P5-5C(DC):A15:26;_KERN 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	255	<100	253	77	50	58	78	156	191	Install redundant relay
Wheeler ridge-Lakeview 70kV Line	P5-5C(DC):A15:4;_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Relay	NConv	<100	NConv	84	29	21	84	NConv	NConv	Install redundant relay
Wheeler ridge-Lakeview 70kV Line	P7-1:A15:1;_KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	171	continue to monitor
Wheeler Ridge-San Bernard 70 kV Line	P1-2:A15:90;_WHEELER RIDGE-TEJON 70KV [9310]	P1	N-1	109	112	122	44	38	59	44	89	NA	Operating Solution
Wheeler Ridge-San Bernard 70 kV Line	P1-2:A15:87;_WHEELER RIDGE-TEJON 70KV [9310]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	110	continue to monitor
Wheeler Ridge-San Bernard 70 kV Line	P1-1:A15:30;_KERN CNYN 11.00KV GEN UNIT 1 & P1-2:A15:87;_WHEELER RIDGE-TEJON 70KV [9310]	P3	G-1/N-1	<100	112	122	<100	<100	<100	<100	93	NA	Operating Solution
Wheeler Ridge-Tejon 70 kV Line	P1-2:A15:91;_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P1	N-1	102	104	113	44	41	59	44	86	NA	Operating Solution
Wheeler Ridge-Tejon 70 kV Line	P1-2:A15:88;_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	104	continue to monitor
Wheeler Ridge-Tejon 70 kV Line	P1-2:A15:88;_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P1	N-1	<100	<100	<100	<100	<100	<100	<100	<100	101	continue to monitor
Wheeler Ridge-Tejon 70 kV Line	P1-1:A15:11;_RIO BRAVO 6.90KV GEN UNIT 2 & P1-2:A15:91;_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P3	G-1/N-1	102	<100	<100	<100	<100	<100	<100	<100	NA	Operating Solution
Wheeler Ridge-Tejon 70 kV Line	P1-1:A15:30;_KERN CNYN 11.00KV GEN UNIT 1 & P1-2:A15:88;_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P3	G-1/N-1	<100	<100	110	<100	<100	<100	<100	<100	NA	Operating Solution
Wheeler Ridge-Weedpatch 70 kV Line	P7-1:A15:17;_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	NConv	continue to monitor


Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
LOSTHL T 70 kV	Base Case	P0	Base Case	High Voltage	1.04	1.04	1.04	1.05	1.03	1.04	1.04	1.05	N/A	System adjustments or voltage support if needed
TWSL J1 70 kV	Base Case	P0	Base Case	High Voltage	1.04	1.04	1.04	1.05	1.03	1.04	1.04	1.05	N/A	System adjustments or voltage support if needed
ARCO 70 kV	Base Case	P0	Base Case	High Voltage	1.04	1.04	1.05	1.06	1.04	1.04	1.04	1.05	N/A	System adjustments or voltage support if needed
DEVLS DN 70 kV	Base Case	P0	Base Case	High Voltage	1.04	1.04	1.04	1.05	1.04	1.04	1.04	1.05	N/A	System adjustments or voltage support if needed
TPMNTP1 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.02	1.02	1.05	1.05	1.04	1.04	1.02	N/A	System adjustments or voltage support if needed
TUPMAN 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.04	1.05	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
TPMNTP2 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.05	1.06	1.04	1.04	1.02	N/A	System adjustments or voltage support if needed
KERN PWR 115 kV	Base Case	P0	Base Case	High Voltage	1.03	1.03	1.01	1.05	1.04	1.02	1.05	1.03	N/A	System adjustments or voltage support if needed
RIO BRVO 115 kV	Base Case	P0	Base Case	High Voltage	1.01	1.01	1.01	1.05	1.06	1.03	1.04	1.01	N/A	System adjustments or voltage support if needed
RNFROTP1 115 kV	Base Case	P0	Base Case	High Voltage	1.01	1.01	1.02	1.04	1.05	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
RENFRO 115 kV	Base Case	P0	Base Case	High Voltage	1.01	1.01	1.02	1.04	1.05	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
RNFROTP2 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.05	1.06	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
SHAFTER 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.05	1.06	1.04	1.04	1.02	N/A	System adjustments or voltage support if needed
RENFRO2 115 kV	Base Case	P0	Base Case	High Voltage	1.01	1.01	1.02	1.05	1.06	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
MIDWAY 115 kV	Base Case	P0	Base Case	High Voltage	1.04	1.04	1.05	1.05	1.04	1.06	1.04	1.04	N/A	System adjustments or voltage support if needed
RENFRICT 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.05	1.06	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
NORCO_TA 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.04	1.05	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
NORCO 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.01	1.02	1.04	1.05	1.04	1.04	1.01	N/A	System adjustments or voltage support if needed
INERGY 115 kV	Base Case	P0	Base Case	High Voltage	1.01	1.01	1.02	1.04	1.05	1.03	1.03	1.01	N/A	System adjustments or voltage support if needed
ARVIN_ED 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.03	1.00	1.05	1.03	1.02	1.04	1.03	N/A	System adjustments or voltage support if needed
ARVINJ2 115 kV	Base Case	P0	Base Case	High Voltage	1.02	1.03	1.00	1.05	1.04	1.02	1.04	1.03	N/A	System adjustments or voltage support if needed
ROSEDAL 115 kV	Base Case	P0	Base Case	High Voltage	1.03	1.03	1.01	1.05	1.05	1.02	1.05	1.03	N/A	System adjustments or voltage support if needed
TX_ROSDL 115 kV	Base Case	P0	Base Case	High Voltage	1.03	1.03	1.01	1.05	1.05	1.02	1.05	1.03	N/A	System adjustments or voltage support if needed
RIOBRVTM 115 kV	Base Case	P0	Base Case	High Voltage	1.04	1.03	1.04	1.05	1.04	1.05	1.04	1.04	N/A	System adjustments or voltage support if needed
FRTLYTP 115 kV	Base Case	P0	Base Case	High Voltage	1.03	1.02	1.03	1.05	1.05	1.04	1.04	1.02	N/A	System adjustments or voltage support if needed
FRITO LY 115 kV	Base Case	P0	Base Case	High Voltage	1.03	1.02	1.03	1.05	1.05	1.04	1.04	1.02	N/A	System adjustments or voltage support if needed
WESTPLAT 115 kV	Base Case	P0	Base Case	High Voltage	1.03	1.02	1.03	1.05	1.05	1.04	1.04	1.02	N/A	System adjustments or voltage support if needed
SW85 J1 70 kV	Base Case	P0	Base Case	High Voltage	1.03	1.03	1.02	1.05	1.04	1.03	1.04	1.04	N/A	System adjustments or voltage support if needed
UNIONJCT 70 kV	Base Case	P0	Base Case	High Voltage	1.02	1.02	1.02	1.03	1.06	1.03	1.03	1.02	N/A	System adjustments or voltage support if needed
PANAMA 70 kV	Base Case	P0	Base Case	High Voltage	1.02	1.02	1.02	1.03	1.06	1.03	1.03	1.02	N/A	System adjustments or voltage support if needed
PANMJCT2 70 kV	Base Case	P0	Base Case	High Voltage	1.03	1.03	1.03	1.04	1.05	1.03	1.03	1.03	N/A	System adjustments or voltage support if needed
MC FRLND 70 kV	Base Case	P0	Base Case	High Voltage	0.96	0.96	0.95	1.02	1.00	0.98	1.02	0.95	N/A	System adjustments or voltage support if needed
CHLME JT 70 kV	Base Case	P0	Base Case	High Voltage	1.03	1.03	1.02	1.05	1.04	1.04	1.04	1.04	N/A	System adjustments or voltage support if needed
Q1493 70 kV	Base Case	P0	Base Case	High Voltage	1.04	1.04	1.05	1.06	1.04	1.04	1.04	1.05	N/A	System adjustments or voltage support if needed



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
MC FRLND 70 kV	Base Case	P0	Base Case	Low Voltage	0.96	0.96	0.95	1.02	1.00	0.98	1.02	0.95	N/A	Continue to Monitor
WHEELER 230 kV	P2-3:A15:17: WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.93	0.89	>0.9	1.03	>0.9	>0.9	0.93	0.86	Review Project: Wheeler Ridge Junction
Q1398 230 kV	P2-3:A15:17: WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.93	0.89	>0.9	1.03	>0.9	>0.9	0.93	0.86	Review Project: Wheeler Ridge Junction
WHLR RJ2 230 kV	P2-3:A15:17: WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.94	0.90	>0.9	1.02	>0.9	>0.9	0.94	0.86	Review Project: Wheeler Ridge Junction
WHLR RT2 230 kV	P2-3:A15:17: WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.94	0.90	>0.9	1.02	>0.9	>0.9	0.94	0.86	Review Project: Wheeler Ridge Junction
WND GPJ2 230 kV	P2-3:A15:17: WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.94	0.89	>0.9	1.02	>0.9	>0.9	0.94	0.86	Review Project: Wheeler Ridge Junction
WND GPT2 230 kV	P2-3:A15:17: WHEELER 230KV - MIDDLE BREAKER BAY 1	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.93	0.89	>0.9	1.02	>0.9	>0.9	0.94	0.86	Review Project: Wheeler Ridge Junction
ELKHIL_G 230 kV	P2-3:A15:25: MIDWAY-F - 1F 230KV & MIDWAY-F-MIDWAY-R13 #1 LINE	P2	Non-Bus-Tie Breaker	Low Voltage	0.98	>0.9	>0.9	0.99	>0.9	0.87	0.99	>0.9	N/A	Sensitivity Only
MIDWAY-F 230 kV	P2-3:A15:25: MIDWAY-F - 1F 230KV & MIDWAY-F-MIDWAY-R13 #1 LINE	P2	Non-Bus-Tie Breaker	Low Voltage	0.98	>0.9	>0.9	0.99	>0.9	0.90	0.99	>0.9	N/A	Sensitivity Only
MC FRLD T 70 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.98	0.98	>0.9	1.01	>0.9	>0.9	0.84	0.74	Sensitivity Only
SEMI_TAP 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.82	0.71	Sensitivity Only
GOSE LKE 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.80	0.69	Sensitivity Only
SMTRPCWS 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.82	0.71	Sensitivity Only
SEMITROPIC_D 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.83	0.71	Sensitivity Only
WSCOPRSN 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.83	0.72	Sensitivity Only
CHARKA 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.84	0.74	Sensitivity Only
FAMOSO 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.03	>0.9	>0.9	0.87	0.77	Sensitivity Only
SEMITROPIC_E 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.83	0.71	Sensitivity Only
WILDWOOD2 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.81	0.70	Sensitivity Only
FAMOSO 70 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.99	0.99	>0.9	1.02	>0.9	>0.9	0.87	0.79	Sensitivity Only
MC FRLND 70 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	0.96	0.95	>0.9	1.00	>0.9	>0.9	0.81	0.70	Sensitivity Only
WASCO 70 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.01	>0.9	>0.9	0.82	0.72	Sensitivity Only
SEMITRPC 70 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.00	>0.9	>0.9	0.80	0.69	Sensitivity Only
WILDWOOD1TP 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.81	0.69	Sensitivity Only
WILDWOOD1 115 kV	P2-3:A15:64: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2	Non-Bus-Tie Breaker	Low Voltage	>0.9	NCONV	NCONV	>0.9	1.04	>0.9	>0.9	0.81	0.69	Sensitivity Only
SHAFTER 115 kV	P2-4:A15:15: MIDWAY 115KV - SECTION 2E & 1E	P2	Line Section w/o Fault	Low Voltage	>0.9	0.92	0.90	>0.9	1.11	>0.9	>0.9	0.91	0.86	Continue to Monitor
CARRIZO 115 kV	P1-1:A15:19: KERNRDG332G3 13.80KV GEN UNIT 3 & P1-2:A15:34: MIDWAY-TEMBLOR 115KV [2630]	P3	G-1/N-1	Low Voltage	>0.9	>0.9	>0.9	0.89	>0.9	>0.9	0.89	>0.9	N/A	Generation Redispatch
KERNRDGE 115 kV	P1-1:A15:19: KERNRDG332G3 13.80KV GEN UNIT 3 & P1-2:A15:34: MIDWAY-TEMBLOR 115KV [2630]	P3	G-1/N-1	Low Voltage	>0.9	>0.9	>0.9	0.82	>0.9	>0.9	0.82	>0.9	N/A	Generation Redispatch
TEMBLOR 115 kV	P1-1:A15:19: KERNRDG332G3 13.80KV GEN UNIT 3 & P1-2:A15:34: MIDWAY-TEMBLOR 115KV [2630]	P3	G-1/N-1	Low Voltage	>0.9	>0.9	>0.9	0.83	>0.9	>0.9	0.83	>0.9	N/A	Generation Redispatch
MC FRLD T 70 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.24	NCONV	0.22	0.98	1.00	0.96	0.98	0.83	0.76	Install redundant battery supply
CAWLOB T 70 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.27	NCONV	0.24	0.94	1.02	0.96	0.94	0.76	0.66	Install redundant battery supply
CARNAT T 70 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.28	NCONV	0.26	0.92	1.03	0.96	0.92	0.71	0.59	Install redundant battery supply
BSCSCH T 70 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant battery supply
7STNDRD 115 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.82	Install redundant battery supply
FAMOSO 115 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	1.00	1.00	0.99	1.03	1.02	1.00	1.03	0.90	0.88	Install redundant battery supply
OGLE TAP 115 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.88	0.86	Install redundant battery supply
LERDO 115 kV	P5-2D(NBF):A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	0.99	1.01	0.85	0.83	Install redundant battery supply

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
OGLE JCT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.88	0.86	Install redundant battery supply
LRDO JCT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.83	Install redundant battery supply
DEXZEL 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant battery supply
KERN OIL 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant battery supply
POSOMTJT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.83	Install redundant battery supply
DSCVRYTP 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant battery supply
RASMSNTP 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.86	0.84	Install redundant battery supply
RASMUSEN 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.86	0.84	Install redundant battery supply
DISCOVER 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.86	0.84	Install redundant battery supply
PTRL JCT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.01	1.00	1.01	0.86	0.84	Install redundant battery supply
LIVE OAK 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.01	1.02	0.86	0.84	Install redundant battery supply
GODN_BER 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant battery supply
KRNFRNTT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.83	Install redundant battery supply
CAWELC O 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.88	0.86	Install redundant battery supply
KERNFRNT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	0.99	1.01	0.84	0.82	Install redundant battery supply
POSO MT 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.00	1.00	0.98	1.00	0.83	0.82	Install redundant battery supply
VEDDER 115 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	NCONV	NCONV	NCONV	1.00	1.00	0.98	1.00	0.83	0.82	Install redundant battery supply
MARICOPA 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.88	1.03	0.86	1.03	1.03	1.03	1.02	0.97	N/A	Install redundant battery supply
MOCO_JCT 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.89	1.03	0.87	1.03	1.03	1.03	1.03	0.97	N/A	Install redundant battery supply
GARDNER 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.81	1.03	0.79	1.01	1.03	1.03	1.01	0.93	0.87	Install redundant battery supply
BSCL_PLD 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant battery supply
GARDNR T 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.81	1.03	0.79	1.01	1.03	1.03	1.01	0.93	0.87	Install redundant battery supply
COPUS_D 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant battery supply
COPUS_E 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant battery supply
MRCPAWSTJCT 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.79	1.03	0.77	1.01	1.03	1.03	1.00	0.92	0.86	Install redundant battery supply
MRCPAWST 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.79	1.03	0.77	1.01	1.03	1.03	1.00	0.92	0.86	Install redundant battery supply
SAN EMDO 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.49	NCONV	0.47	0.95	1.03	1.00	0.95	0.78	0.67	Install redundant battery supply
S_KERN 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.64	NCONV	0.62	0.98	1.04	1.02	0.98	0.85	0.76	Install redundant battery supply
MAGNDN J 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	1.02	1.02	1.03	0.99	1.03	1.02	0.98	0.89	0.81	Install redundant battery supply
S_KERN_TP 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.64	NCONV	0.62	0.98	1.04	1.02	0.98	0.85	0.76	Install redundant battery supply
KRN CNYN 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	1.03	1.03	1.03	0.99	1.03	1.02	0.99	0.90	0.82	Install redundant battery supply
RIORVQF 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	1.02	1.02	1.03	0.99	1.03	1.02	0.99	0.90	0.82	Install redundant battery supply
FRUITTAP 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.28	NCONV	0.25	0.94	1.03	0.98	0.94	0.77	0.66	Install redundant battery supply
BAKRSFLD 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundent Battery	Low Voltage	0.28	NCONV	0.25	0.94	1.03	0.98	0.94	0.79	0.68	Install redundant battery supply

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
EISENTP 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.27	NCONV	0.25	0.94	1.02	0.97	0.94	0.78	0.67	Install redundant battery supply
EISEN 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.27	NCONV	0.24	0.93	1.01	0.97	0.93	0.77	0.66	Install redundant battery supply
MAGUNDEN 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.28	NCONV	0.25	0.98	1.03	1.01	0.97	0.86	0.78	Install redundant battery supply
PANMUCT1 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.30	NCONV	0.28	0.92	1.03	0.97	0.92	0.72	0.60	Install redundant battery supply
OLD RIVR 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.33	NCONV	0.31	0.92	1.03	0.97	0.92	0.71	0.58	Install redundant battery supply
UNIONJCT 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.29	NCONV	0.27	0.92	1.04	0.96	0.91	0.70	0.57	Install redundant battery supply
PANAMA 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.29	NCONV	0.26	0.92	1.04	0.96	0.91	0.70	0.57	Install redundant battery supply
CARNATIO 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.28	NCONV	0.26	0.92	1.03	0.96	0.92	0.71	0.59	Install redundant battery supply
FRUITVLE 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.28	NCONV	0.26	0.93	1.03	0.97	0.92	0.73	0.61	Install redundant battery supply
PANMUCT2 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.29	NCONV	0.26	0.92	1.04	0.96	0.92	0.71	0.58	Install redundant battery supply
KERN PW1 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.28	NCONV	0.26	0.93	1.03	0.97	0.92	0.73	0.61	Install redundant battery supply
MOCO 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.89	1.03	0.87	1.03	1.03	1.03	1.02	0.97	N/A	Install redundant battery supply
CADET 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.89	1.03	0.87	1.03	1.03	1.03	1.03	0.97	N/A	Install redundant battery supply
KERN PW2 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.28	NCONV	0.26	0.93	1.03	0.97	0.92	0.73	0.61	Install redundant battery supply
KRN OLJ 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.27	NCONV	0.25	0.94	1.02	0.96	0.93	0.75	0.64	Install redundant battery supply
FAMOSO 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.25	NCONV	0.23	0.97	1.01	0.96	0.96	0.81	0.73	Install redundant battery supply
CAWELO B 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.27	NCONV	0.24	0.94	1.02	0.96	0.94	0.76	0.66	Install redundant battery supply
MC FRLND 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.23	NCONV	0.21	0.98	0.99	0.95	0.98	0.80	0.73	Install redundant battery supply
WASCO 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.98	0.97	0.97	0.98	1.01	0.97	0.98	0.86	0.80	Install redundant battery supply
OLD_RVR1_TP 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.33	NCONV	0.30	0.92	1.03	0.97	0.92	0.71	0.58	Install redundant battery supply
OLD_RVR1 70 kV	P5-2D(NBF):A15:2;_ KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P5	Non-Redundant Battery	Low Voltage	0.33	NCONV	0.30	0.92	1.03	0.97	0.92	0.71	0.58	Install redundant battery supply
MCFRLD T 70 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.24	NCONV	0.22	0.98	1.00	0.96	0.98	0.83	0.76	Install redundant relay
CAWLOB T 70 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.27	NCONV	0.24	0.94	1.02	0.96	0.94	0.76	0.66	Install redundant relay
CARNAT T 70 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.26	0.92	1.03	0.96	0.92	0.71	0.59	Install redundant relay
BSCSCH T 70 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant relay
7STNDRD 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.82	Install redundant relay
FAMOSO 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	1.00	1.00	0.99	1.03	1.02	1.00	1.03	0.90	0.88	Install redundant relay
OGLE TAP 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.88	0.86	Install redundant relay
LERDO 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	0.99	1.01	0.85	0.83	Install redundant relay
OGLE JCT 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.88	0.86	Install redundant relay
LRDO JCT 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.83	Install redundant relay
DEXZEL 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant relay
KERN OIL 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant relay
POSOMTJT 115 kV	P5-5C(DC):A15:26;_ KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.83	Install redundant relay

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
DSCVRYTP 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant relay
RASMSNTP 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.86	0.84	Install redundant relay
RASMUSEN 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.86	0.84	Install redundant relay
DISCOVER 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.86	0.84	Install redundant relay
PTRL JCT 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.01	1.00	1.01	0.86	0.84	Install redundant relay
LIVE OAK 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.01	1.02	0.86	0.84	Install redundant relay
GODN_BER 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.86	0.83	Install redundant relay
KRNFRNTT 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	1.00	1.01	0.85	0.83	Install redundant relay
CAWELC 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.02	1.01	1.00	1.02	0.88	0.86	Install redundant relay
KERNFRNT 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.01	1.00	0.99	1.01	0.84	0.82	Install redundant relay
POSO MT 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.00	1.00	0.98	1.00	0.83	0.82	Install redundant relay
VEDDER 115 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	1.00	1.00	0.98	1.00	0.83	0.82	Install redundant relay
MARICOPA 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.88	1.03	0.86	1.03	1.03	1.03	1.02	0.97	N/A	Install redundant relay
MOCO_JCT 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.89	1.03	0.87	1.03	1.03	1.03	1.03	0.97	N/A	Install redundant relay
GARDNER 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.81	1.03	0.79	1.01	1.03	1.03	1.01	0.93	0.87	Install redundant relay
BSCL_PLD 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant relay
GARDNR T 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.81	1.03	0.79	1.01	1.03	1.03	1.01	0.93	0.87	Install redundant relay
COPUS_D 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant relay
COPUS_E 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.72	1.03	0.70	0.99	1.04	1.03	0.99	0.89	0.81	Install redundant relay
MRCPAWSTJCT 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.79	1.03	0.77	1.01	1.03	1.03	1.00	0.92	0.86	Install redundant relay
MRCPAWST 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.79	1.03	0.77	1.01	1.03	1.03	1.00	0.92	0.86	Install redundant relay
SAN EMDO 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.49	NCONV	0.47	0.95	1.03	1.00	0.95	0.78	0.67	Install redundant relay
S_KERN 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.64	NCONV	0.62	0.98	1.04	1.02	0.98	0.85	0.76	Install redundant relay
MAGNDN J 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	1.02	1.02	1.03	0.99	1.03	1.02	0.98	0.89	0.81	Install redundant relay
S_KERN_TP 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.64	NCONV	0.62	0.98	1.04	1.02	0.98	0.85	0.76	Install redundant relay
KRN CNYN 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	1.03	1.03	1.03	0.99	1.03	1.02	0.99	0.90	0.82	Install redundant relay
RIOBVRQF 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	1.02	1.02	1.03	0.99	1.03	1.02	0.99	0.90	0.82	Install redundant relay
FRUITTAP 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.25	0.94	1.03	0.98	0.94	0.77	0.66	Install redundant relay
BAKRSFLD 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.25	0.94	1.03	0.98	0.94	0.79	0.68	Install redundant relay
EISENTP 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.27	NCONV	0.25	0.94	1.02	0.97	0.94	0.78	0.67	Install redundant relay
EISEN 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.27	NCONV	0.24	0.93	1.01	0.97	0.93	0.77	0.66	Install redundant relay
MAGUNDEN 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.25	0.98	1.03	1.01	0.97	0.86	0.78	Install redundant relay
PANMUCT1 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.30	NCONV	0.28	0.92	1.03	0.97	0.92	0.72	0.60	Install redundant relay
OLD RIVR 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.33	NCONV	0.31	0.92	1.03	0.97	0.92	0.71	0.58	Install redundant relay

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
UNIONJCT 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.29	NCONV	0.27	0.92	1.04	0.96	0.91	0.70	0.57	Install redundant relay
PANAMA 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.29	NCONV	0.26	0.92	1.04	0.96	0.91	0.70	0.57	Install redundant relay
CARNATIO 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.26	0.92	1.03	0.96	0.92	0.71	0.59	Install redundant relay
FRUITVLE 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.26	0.93	1.03	0.97	0.92	0.73	0.61	Install redundant relay
PANMUCT2 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.29	NCONV	0.26	0.92	1.04	0.96	0.92	0.71	0.58	Install redundant relay
KERN PW1 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.26	0.93	1.03	0.97	0.92	0.73	0.61	Install redundant relay
MOCO 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.89	1.03	0.87	1.03	1.03	1.03	1.02	0.97	N/A	Install redundant relay
CADET 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.89	1.03	0.87	1.03	1.03	1.03	1.03	0.97	N/A	Install redundant relay
KERN PW2 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.28	NCONV	0.26	0.93	1.03	0.97	0.92	0.73	0.61	Install redundant relay
KRN OL J 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.27	NCONV	0.25	0.94	1.02	0.96	0.93	0.75	0.64	Install redundant relay
FAMOSO 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.25	NCONV	0.23	0.97	1.01	0.96	0.96	0.81	0.73	Install redundant relay
CAWEL0 B 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.27	NCONV	0.24	0.94	1.02	0.96	0.94	0.76	0.66	Install redundant relay
MC FRIND 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.23	NCONV	0.21	0.98	0.99	0.95	0.98	0.80	0.73	Install redundant relay
WASCO 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.98	0.97	0.97	0.98	1.01	0.97	0.98	0.86	0.80	Install redundant relay
OLD_RVR1_TP 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.33	NCONV	0.30	0.92	1.03	0.97	0.92	0.71	0.58	Install redundant relay
OLD_RVR1 70 kV	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	0.33	NCONV	0.30	0.92	1.03	0.97	0.92	0.71	0.58	Install redundant relay
GRMMWY T 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.82	0.99	0.72	0.82	0.57	0.51	Install redundant relay
TEJON 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.73	0.95	0.57	0.73	0.42	0.35	Install redundant relay
ORIONTP 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.78	0.98	0.66	0.77	0.49	0.43	Install redundant relay
ORION 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.78	0.98	0.66	0.77	0.49	0.43	Install redundant relay
SN BRNRD 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.75	0.96	0.60	0.74	0.45	0.38	Install redundant relay
MAGNDN J 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.92	1.02	0.86	0.91	0.76	0.71	Install redundant relay
ARVIN 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.78	0.98	0.66	0.78	0.50	0.43	Install redundant relay
WEEDPTCH 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.83	0.99	0.73	0.82	0.58	0.52	Install redundant relay
KRN CNYN 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.92	1.02	0.87	0.92	0.77	0.72	Install redundant relay
RIOBVRQF 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.92	1.02	0.87	0.92	0.76	0.72	Install redundant relay
MAGUNDEN 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	1.04	1.04	1.04	0.93	1.02	0.89	0.93	0.80	0.75	Install redundant relay
GRMWY_SM 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.82	0.99	0.72	0.82	0.57	0.50	Install redundant relay
WELLFIELD 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.82	0.99	0.72	0.82	0.57	0.50	Install redundant relay
ROSE 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.72	0.95	0.56	0.72	0.41	0.34	Install redundant relay
PACI_PIP 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.71	0.94	0.55	0.70	0.40	0.33	Install redundant relay
GRAPEVNE 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.70	0.94	0.55	0.70	0.40	0.33	Install redundant relay
STALLION 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.76	0.97	0.63	0.76	0.47	0.40	Install redundant relay
STALIONJ 70 kV	P5-5C(DC):A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.76	0.97	0.63	0.76	0.47	0.40	Install redundant relay



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
LEBEC 70 kV	P5-5C(DC):A15:8: WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.70	0.93	0.54	0.69	0.39	0.33	Install redundant relay
CASATC 70 kV	P5-5C(DC):A15:8: WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Relay	Low Voltage	NCONV	NCONV	NCONV	0.70	0.94	0.54	0.69	0.40	0.33	Install redundant relay
Q1398 230 kV	P1-2:A15:104: BITTERWATRSS-WHEELER 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	>.9	>.9	0.90	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHEELER 230 kV	P1-2:A15:104: BITTERWATRSS-WHEELER 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	>.9	>.9	0.90	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
BITTERWATRSS 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
Q1398 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
Q946 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHEELER 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHLR RJ1 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.87	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHLR RJ2 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHLR RT1 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.87	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHLR RT2 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WND GPJ1 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.87	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WND GPJ2 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WND GPT1 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.87	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WND GPT2 230 kV	P1-2:A15:107: BITTERWATRSS-MIDWAY-D 230KV [0] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	NA	NA	0.86	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHEELER 230 kV	P1-2:A15:23: MIDWAY-WHEELER RIDGE #1 230KV [5190] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	>.9	>.9	0.89	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHLR RJ2 230 kV	P1-2:A15:23: MIDWAY-WHEELER RIDGE #1 230KV [5190] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	>.9	>.9	0.90	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WHLR RT2 230 kV	P1-2:A15:23: MIDWAY-WHEELER RIDGE #1 230KV [5190] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	>.9	>.9	0.90	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
WND GPJ2 230 kV	P1-2:A15:23: MIDWAY-WHEELER RIDGE #1 230KV [5190] & P1-4:A15:5: WHEELER SVD=V	P6	N-1-1	Low Voltage	>.9	>.9	0.89	>.9	>.9	>.9	>.9	>.9	N/A	Review Project: Wheeler Ridge Junction
ADOBESLR 115 kV	P1-2:A15:27: MIDWAY-WHEELER RIDGE #1 230KV [5190] & P1-2:A15:3: BITTERWATRSS-WHEELER 230KV [0]	P6	N-1-1	Low Voltage	>.9	>.9	>.9	0.55	>.9	>.9	0.56	>.9	N/A	Review Project: Wheeler Ridge Junction
ADOBESWSTA 115 kV	P1-2:A15:27: MIDWAY-WHEELER RIDGE #1 230KV [5190] & P1-2:A15:3: BITTERWATRSS-WHEELER 230KV [0]	P6	N-1-1	Low Voltage	>.9	>.9	>.9	0.55	>.9	>.9	0.56	>.9	N/A	Review Project: Wheeler Ridge Junction
CARRIZO 115 kV	P1-2:A15:34: MIDWAY-TEMBLOR 115KV [2630] & P1-3:A15:82: KERNRDGE32G1 13.8/115KV TB 1	P6	N-1-1	Low Voltage	>.9	>.9	>.9	0.89	>.9	>.9	0.89	>.9	N/A	Continue to Monitor
KERNRDGE 115 kV	P1-2:A15:34: MIDWAY-TEMBLOR 115KV [2630] & P1-3:A15:82: KERNRDGE32G1 13.8/115KV TB 1	P6	N-1-1	Low Voltage	>.9	>.9	>.9	0.82	>.9	>.9	0.82	>.9	N/A	Continue to Monitor
TEMBLOR 115 kV	P1-2:A15:34: MIDWAY-TEMBLOR 115KV [2630] & P1-3:A15:82: KERNRDGE32G1 13.8/115KV TB 1	P6	N-1-1	Low Voltage	>.9	>.9	>.9	0.83	>.9	>.9	0.83	>.9	N/A	Continue to Monitor
BITTERWATRSS 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.88	0.88	NA	>.9	>.9	>.9	>.9	0.89	N/A	Review Project: Wheeler Ridge Junction
Q1398 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.87	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
Q946 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.88	0.88	NA	>.9	>.9	>.9	>.9	0.89	N/A	Review Project: Wheeler Ridge Junction
WHEELER 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.87	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
WHLR RJ1 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.88	0.88	NA	>.9	>.9	>.9	>.9	0.89	N/A	Review Project: Wheeler Ridge Junction
WHLR RJ2 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.87	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
WHLR RT1 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.88	0.88	NA	>.9	>.9	>.9	>.9	0.89	N/A	Review Project: Wheeler Ridge Junction
WHLR RT2 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.87	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
WND GPJ1 230 kV	P1-2:A15:4: BITTERWATRSS-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7: WHEELER SVD=V	P6	N-1-1	Low Voltage	0.88	0.88	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
WND GPJ2 230 kV	P1-2:A15:4; BITTERWATR55-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7; WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.87	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
WND GPT1 230 kV	P1-2:A15:4; BITTERWATR55-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7; WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.88	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
WND GPT2 230 kV	P1-2:A15:4; BITTERWATR55-MIDWAY-DBAAH 230KV [0] & P1-4:A15:7; WHEELER SVD=V	P6	N-1-1	Low Voltage	0.87	0.87	NA	>.9	>.9	>.9	>.9	0.88	N/A	Review Project: Wheeler Ridge Junction
WASCO 70 kV	P1-2:A15:46; OLIVE SW STA-SMYRNA 115KV [1923] & P1-2:A15:49; SEMITROPIC-MIDWAY #1 115KV [3630]	P6	N-1-1	Low Voltage	>.9	>.9	0.89	>.9	>.9	>.9	>.9	>.9	N/A	Continue to Monitor
WASCO 70 kV	P1-2:A15:49; SEMITROPIC-MIDWAY #1 115KV [3630] & P1-2:A15:46; OLIVE SW STA-SMYRNA 115KV [1923]	P6	N-1-1	Low Voltage	>.9	>.9	0.89	>.9	>.9	>.9	>.9	>.9	N/A	Continue to Monitor
WHEELER 230 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.54	1.03	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
TECUYA T 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.40	1.02	1.02	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
GRMMWY T 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.28	0.91	0.89	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
WHEELER 115 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.40	1.03	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
ADOBESWSTA 115 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.40	1.03	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
LAKEVIEW 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.41	1.04	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
WHEELER 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.41	1.04	1.04	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
TEION 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.39	1.02	1.02	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
ORIONTP 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.33	0.98	0.97	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
ORION 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.33	0.98	0.97	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
SN BRNRD 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.37	1.02	1.01	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
MAGNDN J 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.16	0.83	0.82	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
ARVIN 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.33	0.98	0.96	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
WEEDPTCH 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.29	0.91	0.90	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
KRN CNYN 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.16	0.84	0.83	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
RIORVQF 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.16	0.84	0.82	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
FRUITTAP 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	1.04	1.04	1.04	1.06	0.92	0.90	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
BAKRSFLD 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	1.04	1.04	1.04	1.08	0.89	0.87	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
EISENTP 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	1.03	1.03	1.03	1.07	0.88	0.86	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
EISEN 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	1.02	1.03	1.03	1.06	0.88	0.86	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
MAGUNDEN 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	1.04	1.04	1.04	1.14	0.83	0.81	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
GRMWY SM 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.28	0.91	0.89	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
WELLFILD 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.28	0.91	0.89	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
3EMIDIO 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.41	1.03	1.02	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
VALPREDO 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.41	1.03	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
ROSE 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.39	1.02	1.01	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
PACI_PIP 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.38	1.01	1.00	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
TECUYA 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.40	1.02	1.02	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
GRAPEVNE 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.38	1.01	1.00	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
STALLION 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.35	1.00	0.99	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
STALIONJ 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.35	1.00	0.99	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
LEBEC 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.38	1.00	1.00	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
EMDO JCT 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.41	1.04	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
CASTAC 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.38	1.01	1.00	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
KELLEY 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.40	1.02	1.02	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
ADOBESLR 115 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.40	1.03	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
Q1397 70 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.42	1.03	1.04	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction
Q1398 230 kV	P7-1:A15:17; MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DTCL	Low Voltage	NConv	NConv	NConv	1.54	1.03	1.03	NConv	NConv	N/A	Review Project: Wheeler Ridge Junction

Study Area: PG&E Kern

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
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
None												

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2024 Spring Off-Peak	2027 Summer Peak	2032 Summer Peak	2032 Spring Off-Peak	2027 SP High CEC Forecast	2024 OP Sensitivity	
Internal fault at Bus-tie Breaker 302 at MIDWAY 115 kV Bus 1D	P2-4	Bus-Tie-Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue	None
Stuck Breaker Gates CB 4512 protecting Line GATES F to MIDWAY 230 kV ckt 1	P4-2	Stuck Breaker	No Issue	No Issue	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	No Issue	Under Review with PTO
Stuck Breaker 552 protecting Tran MIDWAY 500/230 kV bk 12	P4-3	Stuck Breaker	WECC Criteria Violation	No Issue	No Issue	No Issue	No Issue	WECC Criteria Violation	Under Review with PTO
Stuck non-Bus-tie Breaker 242 protecting Substation Bus MIDWAY 230 kV Section F	P4-5	Stuck Breaker	WECC Criteria Violation	No Issue	No Issue	No Issue	No Issue	WECC Criteria Violation	Under Review with PTO
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 clears remotely)	P5-3	Non-redundant DC CB control circuit	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	Under Review with PTO
Failure of non-redundant relay protecting Substation Bus Westpark 115 kV (ALL 115kV elements clear remotely)	P5-5	Non-Redundant Relay	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	Under Review with PTO
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)	P5-5	Non-Redundant Battery	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	WECC Criteria Violation	Under Review with PTO
Fault on Line HELMS-GREGG 230 kV ckt 1 with Loss of Line MustangSS-Henrietta-Gregg 230 kV ckt with RAS	P6-1	N-1-1	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue	None
Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 with Loss of Line Midway-Wheeler Ridge 230 kV ckt 2	P7-2	DCTL	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue	None

Study Area: PG&E Kern



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)												Potential Mitigation Solutions	
			2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2032 Spring Off-Peak	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity		2032 SP with Additional Transportation Electrification

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

Study Area: PG&E Kern



Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)													Potential Mitigation Solutions
	2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2032 Spring Off-Peak	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2032 SP with Additional Transportation Electrification	

No single source substation with more than 100 MW