

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions	
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity		2029 SP High CEC Forecast
Arco-Tulare Lake 70kV Line	Base Case	P0	N0	99	102	113	63	41	18	60	63	101	Under Review
	Base Case	P0	N0	71	56	106	27	4	26	25	28	56	Long-term only issue. Continue to monitor.
	P1-1:A15:71: MT POSO 13.80KV GEN UNIT 1	P1-1	N-1	69	56	106	30	6	15	29	31	56	Long-term only issue. Continue to monitor.
	P1-2:A15:45: KERN OIL-WITCO 115KV [1920]	P1-1	N-1	58	72	114	26	7	30	24	27	58	Long-term only issue. Continue to monitor.
	P1-2:A15:47: KERN-MAGUNDEN-WITCO 115KV [1970]	P1-1	N-1	73	58	122	27	3	28	24	28	59	Long-term only issue. Continue to monitor.
	P1-2:A15:49: KERN-LIVE OAK 115KV [1960]	P1-1	N-1	63	50	102	23	6	27	21	23	50	Long-term only issue. Continue to monitor.
	P1-3:A15:61: OGLE TAP 115/13.8KV TB 1	P1-1	N-1	66	54	102	28	4	16	27	29	54	Long-term only issue. Continue to monitor.
Kern PP-Seventh Standard 115 kV Line	P2-1:A15:45: KERN OIL-WITCO 115KV [1920] (KERN OIL-DSCVRYTP)	P2-1	Line Section w/o Fault	72	49	107	26	7	30	25	27	58	Long-term only issue. Continue to monitor.
	P2-4:A15:9: KERN PWR 115KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker	157	N/A	N/A	77	N/A	N/A	28	79	N/A	Project: Midway-Kern PP Nos. 1,3 and 4 230 kV Lines Capacity Increase (Midway 230kV Bus Section D Upgrade Project)
	KERN OIL-WITCO 115KV [1920]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	109	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
	MT POSO 13.80KV GEN UNIT 1+KERN OIL-WITCO 115KV [1920]	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
	P5-5A(NRDR):A15:16: WITCO SS 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant battery supply/Relay	72	48	107	26	7	30	25	27	58	Long-term only issue. Continue to monitor.
Taft-Cuyuma #1 70kV Line	Base Case	P0	N0	18	17	14	15	89	100	115	15	18	Sensitivity only
	Base Case	P0	N0	14	5	22	4	100	100	156	4	7	Sensitivity only
Blackwell-Q484TP 70 kV line	P1-1:A15:14: BLACKWELLSPV 0.36KV GEN UNIT 1	P1-1	N-1	12	3	22	3	74	86	102	3	6	Sensitivity only
	P1-1:A15:54: LOSTHILL 0.36KV GEN UNIT 1	P1-1	N-1	17	4	19	3	86	86	137	3	6	Sensitivity only
	P1-2:A15:81: ARCO-TWISSELMAN 70KV [8470] MOAS OPENED ON TX_LOSHL_JCT_TX_LOSHL	P1-2	N-1	17	4	19	3	86	86	137	3	6	Sensitivity only
	P4-2:A15:2: KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P4	Stuck Breaker	67	48	125	45	64	67	47	47	65	Long-term only issue. Continue to monitor.
	P5-5C(DC):A15:26: KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	67	48	123	45	64	67	47	47	64	Long-term only issue. Continue to monitor.
Kern-Old River #2 70 kV Line	Base Case	P0	N0	36	35	35	24	264	30	37	25	35	Operating solution
	P2-4:A15:30: KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	46	45	46	28	281	26	32	28	45	Operating solution
	P5-5C(DC):A15:26: KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	37	35	44	25	235	26	32	25	36	Generation redispatch
Lerdo-Kern Oil-7th Standard 115 kV Line	P1-1:A15:71: MT POSO 13.80KV GEN UNIT 1	P1-1	N-1	67	76	105	44	39	21	48	47	77	Project: North East Kern 115 kV Line Reconductoring
	P1-2:A15:39: 7TH STANDARD-KERN 115KV [1981]	P1-2	N-1	103	78	86	29	4	30	46	31	78	Project: North East Kern 115 kV Line Reconductoring
	P2-2:A15:42: MIDWAY 115KV SECTION 2E	P2-2	Bus section fault	159	169	44	105	49	121	57	124	181	Project: North East Kern 115 kV Line Reconductoring
	P2-4:A15:25: MIDWAY-ODBSB SECTION 1D & MIDWAY-E SECTION 1E 230KV	P2-4	Bus-Tie-Breaker	174	N/A	N/A	43	N/A	N/A	22	122	N/A	Project: Midway-Kern PP Nos. 1,3 and 4 230 kV Lines Capacity Increase (Midway 230kV Bus Section D Upgrade Project)
	7TH STANDARD-KERN 115KV [1981]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	111	100	110	<100	<100	<100	<100	<100	100	Review North East Kern 115 kV Line Reconductoring project
	SEMITROPIC_D-CHARKA-WSCOPRSN 115KV [0]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	123	129	<100	<100	<100	<100	<100	<100	131	Project: North East Kern 115 kV Line Reconductoring
	LERDO-FAMOSO 115KV [2120] MOAS OPENED ON CAWELO C_OGLE JCT (2)+7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	157	125	<100	<100	<100	<100	<100	<100	126	Project: North East Kern 115 kV Line Reconductoring
Kern Oil-Witco 115 kV Line	MT POSO 13.80KV GEN UNIT 1+SEMITROPIC_D-CHARKA-WSCOPRSN 115KV [0]	P3	G-1 / N-1	121	127	103	<100	<100	<100	91	<100	129	Review North East Kern 115 kV Line Reconductoring project
	P5-5C(DC):A15:4: KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	91	155	225	163	90	NConv	Install redundant battery supply
	P1-2:A15:39: 7TH STANDARD-KERN 115KV [1981]	P1-2	N-1	62	51	112	22	10	31	22	23	51	Long-term only issue. Continue to monitor.
	P2-3:A15:142: KERN PWR 115KV - MIDDLE BREAKER BAY 1	P2-3	Non-Bus-Tie Breaker	N/A	<100	110	N/A	10	31	N/A	N/A	51	Long-term only issue. Continue to monitor.
	7TH STANDARD-KERN 115KV [1981]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	110	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
Kern-Magunden-Witco 115 kV Line	MT POSO 13.80KV GEN UNIT 1+7TH STANDARD-KERN 115KV [1981]	P3	N-1	109	109	<100	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
	P1-2:A15:38: WESTPARK-COLUMBUS 115KV [0]	P1-2	N-1	72	72	109	47	13	19	48	73	Long-term only issue. Continue to monitor.	
	P1-2:A15:39: 7TH STANDARD-KERN 115KV [1981]	P1-2	N-1	76	68	139	37	4	32	18	38	69	Long-term only issue. Continue to monitor.
	P2-3:A15:142: KERN PWR 115KV - MIDDLE BREAKER BAY 1	P2-3	Non-Bus-Tie Breaker	N/A	<100	106	N/A	4	32	N/A	N/A	69	Long-term only issue. Continue to monitor.
Midway-Shafter 115 kV Line	WESTPARK-COLUMBUS 115KV [0]+7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	103	100	106	<100	<100	<100	<100	<100	100	Under Review
	P1-2:A15:56: MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]	P1-2	N-1	120	126	52	55	31	5	74	55	128	Project: North East Kern 115 kV Line Reconductoring
	P2-1:A15:74: MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600] (TPMNTP2-RENFRICT)	P2-1	Line Section w/o Fault	145	153	<100	72	23	33	53	72	155	Project: North East Kern 115 kV Line Reconductoring
	P2-3:A15:71: MIDWAY - 1E 115KV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO LINE	P2-3	Non-Bus-Tie Breaker	120	127	<100	56	31	5	74	55	128	Project: North East Kern 115 kV Line Reconductoring
	MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115KV [2600]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: North East Kern 115 kV Line Reconductoring
Midway-Tupman-Rio Bravo-Renfro 115 kV Line	P5-5C(DC):A15:34: RENFRO 115KV BATT #2(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	120	126	52	55	31	5	74	55	128	Install redundant battery supply
	P1-2:A15:62: MIDWAY-SHAFTER 115KV [2610]	P1-2	N-1	120	127	53	55	30	10	74	55	128	Project: North East Kern 115 kV Line Reconductoring
	P2-4:A15:14: MIDWAY 115KV - SECTION 2E & 1E	P2-4	Bus-Tie-Breaker	166	171	197	92	46	7	79	91	184	Under Review
	P2-3:A15:70: MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2-3	Non-Bus-Tie Breaker	119	126	53	55	30	10	73	55	128	Project: North East Kern 115 kV Line Reconductoring
Fellows-Taft 115 kV Line	P2-4:A15:14: MIDWAY 115KV - SECTION 2E & 1E	P2-4	Bus-Tie-Breaker	127	137	58	56	31	10	76	56	140	Project: North East Kern 115 kV Line Reconductoring
	P1-2:A15:65: MIDWAY-TAFT 115KV [2620]	P1-2	N-1	35	33	51	38	100	100	127	38	31	Sensitivity only
	P2-2:A15:41: MIDWAY 115KV SECTION 2D	P2-2	Bus section fault	<100	<100	<100	38	100	99	127	39	32	Sensitivity only
	P2-3:A15:69: MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN LINE	P2-3	Non-Bus-Tie Breaker	<100	<100	<100	38	100	99	127	39	32	Sensitivity only
	P5-5C(DC):A15:4: KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	9	56	62	66	9	NConv	Install redundant battery supply
Fellows-Midsun 115kV Line	P1-2:A15:65: MIDWAY-TAFT 115KV [2620]	P1-2	N-1	33	33	52	36	100	100	128	36	31	Generation redispatch
	P2-3:A15:69: MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN LINE	P2-3	Non-Bus-Tie Breaker	<100	<100	<100	37	100	99	129	37	33	Generation redispatch
	P2-4:A15:12: MIDWAY 115KV - SECTION 2D & 2E	P2-4	Bus-Tie-Breaker	<100	<100	<100	33	102	104	132	33	28	Generation redispatch
Midsun-Midway 115 kV Line	P5-5C(DC):A15:4: KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	17	37	46	45	18	NConv	Install redundant battery supply
	P1-1:A15:16: Q14995PV 34.50KV GEN UNIT 1	P1-1	N-1	34	35	33	52	29	121	128	119	33	Generation redispatch
Wheeler Ridge-Lakeview 70 kV Line	Q14995PV 34.50KV GEN UNIT 1+Q1397BESS 0.52KV GEN UNIT 2	P3	G-1 / N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	Under Review

	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	94	85	148	59	95	NConv	Install redundant battery supply
Wheeler Ridge-Tejon 70 kV Line	P1-2:A15:93:_WHEELER RIDGE-SAN BERNARD 70KV [9300]	P1-2	N-1	92	147	100	56	36	9	58	56	148	Review Tejon Area Reinforcement Project
	P1-2:A15:95:_SAN BERNARD-TEJON 70KV [9080]	P1-2	N-1	68	122	87	37	37	24	62	38	123	Review Tejon Area Reinforcement Project
Tejon-SN Bmrd 70 kV Line	WHEELER RIDGE-SAN BERNARD 70KV [9300]+ORION 0.44KV GEN UNIT 1	P3	G-1 / N-1	93	149	102	<100	<100	<100	<100	<100	151	Review Tejon Area Reinforcement Project
	P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P1-2	N-1	68	130	98	37	35	22	61	36	131	Project: Tejon Area Reinforcement Project
Wheeler Ridge-San Bernard 70 kV Line	WHEELER RIDGE-TEJON 70KV [9310]+ORION 0.44KV GEN UNIT 1	P3	G-1 / N-1	<100	131	<100	<100	<100	<100	<100	<100	132	Project: Tejon Area Reinforcement Project
	P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P1-2	N-1	163	109	58	36	7	61	58	165	Review Tejon Area Reinforcement Project	
Kern Canyon-Magunden-Weedpatch 70 kV Line	WHEELER RIDGE-TEJON 70KV [9310]+ORION 0.44KV GEN UNIT 1	P3	G-1 / N-1	<100	168	114	<100	<100	<100	<100	<100	169	Review Tejon Area Reinforcement Project
	P1-2:A15:110:_BITTERWATRSS-MIDWAY-D 230KV [0]	P1-2	N-1	N/A	31	N/A	43	71	N/A	N/A	N/A	105	Sensitivity only
Kern Canyon-Magunden-Weedpatch 70 kV Line	P1-2:A15:5:_BITTERWATRSS-MIDWAY-D 230KV [0]	P1-2	N-1	31	N/A	N/A	101	N/A	N/A	96	97	N/A	Operating solution
	P2-1:A15:11:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-D BAAH)	P2-1	Line Section w/o Fault	83	N/A	N/A	110	N/A	N/A	104	105	N/A	Operating solution
Kern Canyon-Magunden-Weedpatch 70 kV Line	P2-1:A15:239:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-D)	P2-1	Line Section w/o Fault	N/A	133	55	N/A	51	79	N/A	N/A	115	Use summer setup.
	BITTERWATRSS-MIDWAY-D 230KV [0]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	<100	119	<100	<100	<100	<100	<100	<100	110	Use summer setup.
Kern Canyon-Magunden-Weedpatch 70 kV Line	P4-2:A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P4	Stuck Breaker	34	15	107	31	105	84	72	31	27	Long-term only issue. Continue to monitor.
	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	35	15	105	31	105	84	72	31	25	Long-term only issue. Continue to monitor.
Wheeler Ridge-Weedpatch 70 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	27	148	226	166	33	NConv	Install redundant battery supply
	P5-5C(DC):A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	<100	NConv	NConv	<100	NConv	NConv	<100	<100	NConv	Install redundant battery supply
Midway-Wheeler Ridge #1 230 kV Line	P1-2:A15:110:_BITTERWATRSS-MIDWAY-D 230KV [0]	P1-2	N-1	<100	138	73	<100	21	49	<100	<100	119	Project: Wheeler Ridge Junction
	P1-2:A15:5:_BITTERWATRSS-MIDWAY-D BAAH 230KV [0]	P1-2	N-1	90	<100	<100	107	<100	81	100	<100	<100	Operating solution
Midway-Wheeler Ridge #1 230 kV Line	P1-2:A15:28:_MIDWAY-WHEELER RIDGE #1 230KV [5190]	P1-2	N-1	<100	104	62	<100	17	26	<100	<100	90	Project: Wheeler Ridge Junction
	BITTERWATRSS-MIDWAY-D 230KV [0]+KERN CNYN 11.00KV GEN UNIT 1	P3	G-1 / N-1	<100	127	<100	<100	<100	<100	<100	<100	119	Project: Wheeler Ridge Junction
Buena Vista - Midway #1 230kV line	BITTERWATRSS-MIDWAY-D 230KV [0]+WHEELER-CASALOMA #1 230KV [0]	P6	N-1-1	<100	135	<100	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	54	8	9	23	46	NConv	Install redundant battery supply
Buena Vista - Midway #1 230kV line	P2-1:A15:239:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-D)	P2-1	Line Section w/o Fault	<100	136	75	<100	29	58	<100	<100	129	Project: Wheeler Ridge Junction
Buena Vista - Midway #1 230kV line	P2-1:A15:10:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVI1-MIDWAY-D BAAH)	P2-1	Line Section w/o Fault	95	<100	<100	118	<100	<100	92	110	<100	Generation redispatch
Buena Vista - Wheeler Ridge #2 230kV line	P2-1:A15:238:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVI1-MIDWAY-D)	P2-1	Line Section w/o Fault	N/A	124	63	N/A	19	26	N/A	N/A	120	Project: Wheeler Ridge Junction
Midway-Kern #1 230 kV Line	P2-4:A15:26:_MIDWAY-DDBS8 SECTION 2D & MIDWAY-E SECTION 2E 230KV	P2-4	Bus-Tie-Breaker	148	<100	<100	29	<100	<100	50	125	<100	Project: Midway-Kern PP Nos. 1,3 and 4 230 kV Lines Capacity Increase (Midway 230KV Bus Section D Upgrade Project)
Midway-Temblor 115 kV Line	P2-3:A15:79:_TEMBLOR -1D 115KV & TEMBLOR-SAN LUIS OBISPO LINE	P2-3	Non-Bus-Tie Breaker	44	42	5	45	89	104	105	45	42	Generation redispatch
Semitropic-Famoso 115 kV Line	P2-4:A15:7:_KERN PWR 115KV - SECTION 2D & 2E	P2-4	Bus-Tie-Breaker	128	N/A	N/A	56	N/A	N/A	43	53	N/A	Project: North East Kern 115 kV Line Reconductoring
	P2-2:A15:42:_MIDWAY 115KV SECTION 2E	P2-2	Bus section fault	82	105	<100	74	68	106	98	102	102	Project: North East Kern 115 kV Line Reconductoring
Semitropic-Famoso 70kV Line	LERDO-KERN OIL-7TH STANDARD 115KV [1950]+MT POSO 13.80KV GEN UNIT 1	P3	G-1 / N-1	130	143	<100	<100	<100	<100	<100	<100	146	Project: North East Kern 115 kV Line Reconductoring
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	N/A	87	107	174	98	85	NConv	Under Review
Taft-Maricopa 70 kV Line	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	161	152	184	152	226	176	149	153	169	Under Review
	P4-2:A15:2:_KERN PP 115KV CB 102 112 132 142 152 212 222 232 262 272 OR 312	P4	Stuck Breaker	89	81	169	81	115	111	84	80	99	Long-term only issue. Continue to monitor.
Maricopa-Copus 70 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	95	150	227	163	96	NConv	Install redundant battery supply
	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	195	198	176	184	265	175	137	184	202	Under Review
Copus-Old River 70 kV Line	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	112	119	159	95	81	64	25	94	121	Install redundant battery supply
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	109	120	199	111	110	NConv	Install redundant battery supply
Copus-Old River 70 kV Line	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	192	194	180	190	274	78	46	190	197	Under Review
	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	99	105	147	88	96	73	33	88	107	Install redundant battery supply
Copus-Old River 70 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	97	137	212	123	98	NConv	Install redundant battery supply
	P5-5C(DC):A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	<100	NConv	NConv	<100	NConv	NConv	<100	<100	NConv	Install redundant battery supply
34887 SKERNJCT 70.0 34882 SAN EMDO 70.0 1	P2-4:A15:13:_MIDWAY 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker	51	186	NConv	49	215	223	306	49	45	Under Review
	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	192	194	180	189	273	78	46	190	196	Under Review
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:42:_MIDWAY 115KV SECTION 2E	P2-2	Bus section fault	121	131	30	92	48	110	74	109	138	Project: North East Kern 115 kV Line Reconductoring
	P2-3:A15:70:_MIDWAY - 2E 115KV & SMYRNA-SEMITROPIC-MIDWAY LINE	P2-3	Non-Bus-Tie Breaker	95	100	30	60	23	19	20	60	110	Project: North East Kern 115 kV Line Reconductoring
Live Oak-Kern Oil 115 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	18	14	47	29	18	NConv	Install redundant battery supply
	7TH STANDARD-KERN 115KV [1981]+KERN OIL-WITCO 115KV [1920]	P6	N-1-1	98	<100	155	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
Temblor-San Luis Obispo 115 kV Line	MIDWAY-TEMBLOR-PUMPIACK 115KV [0]+KERN PW1 70/115KV TB 1	P6	N-1-1	<100	<100	123	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
	P5-5C(DC):A15:1:_MIDWAY 500KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	20	113	106	187	99	111	NConv	Install redundant battery supply
Temblor-Kernridge 115 kV Line	MIDWAY-TEMBLOR-PUMPIACK 115KV [0]+KERN PW1 70/115KV TB 1	P6	N-1-1	<100	<100	110	<100	<100	<100	<100	<100	<100	Long-term only issue. Continue to monitor.
Gates-Arco 230kV Line	P5-5C(DC):A15:1:_MIDWAY 500KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	20	16	56	NConv	196	104	NConv	NConv	14	Generation redispatch
Gates-Midway 230kV Line	P5-5C(DC):A15:1:_MIDWAY 500KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	37	43	NConv	228	107	NConv	NConv	38	Install redundant battery supply
Copus-Lakeview 70kV Line	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	99	105	147	88	96	73	33	88	107	Install redundant battery supply
	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	97	137	212	123	98	NConv	Install redundant battery supply
	P5-5C(DC):A15:26:_KERN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply/Relay	80	70	159	71	87	52	57	72	76	Long-term only issue. Continue to monitor.

Magunden-Magunden Jct 70kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	58	125	203	142	63	NConv	Install redundant battery supply
	P5-5C(DC):A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	<100	NConv	NConv	<100	NConv	NConv	<100	<100	NConv	Install redundant battery supply
Kern-Magunden 70 kV Line	P5-5C(DC):A15:4:_KERN 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	NConv	NConv	NConv	58	125	203	142	63	NConv	Install redundant battery supply
	P5-5C(DC):A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant battery supply/Relay	<100	NConv	NConv	<100	NConv	NConv	<100	<100	NConv	Install redundant battery supply

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
TEJON 70kV	P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P1-2	Line Section w/o Fault	1.00	0.93	0.87	1.03	1.03	1.04	1.00	1.03	0.93	Review Tejon Area Reinforcement project
SHAFTER 115kV	P2-4:A15:14:_MIDWAY 115KV - SECTION 2E & 1E	P2-4	Bus-Tie-Breaker	0.93	0.89	0.89	1.04	1.03	1.06	0.98	1.03	0.88	Review North East Kern 115 kV Line Reconductoring project
COPUS_D 70kV	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	0.85	0.86	0.85	0.81	0.83	1.02	1.01	0.83	0.85	Summer Setup
COPUS_E 70kV	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	0.85	0.86	0.85	0.81	0.83	1.02	1.01	0.83	0.85	Summer Setup
OLD RIVR 70kV	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	0.59	0.61	0.61	0.61	0.52	1.06	1.02	0.52	0.60	Under Review
PANAMA 70kV	P2-4:A15:30:_KERN PW2 SECTION 2D & KERN PW1 SECTION 1D 70KV	P2-4	Bus-Tie-Breaker	0.52	0.54	0.55	0.48	0.47	1.05	0.99	0.47	0.53	Under Review
TEJON 70kV	P1-1:A15:3:_Q1398SPV 34.50KV GEN UNIT 1+P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P3	G-1 / N-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Tejon Area Reinforcement Project
TEJON 70kV	P1-1:A15:5:_Q1397SPV 34.50KV GEN UNIT 1+P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P3	G-1 / N-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Tejon Area Reinforcement Project
TEJON 70kV	P1-1:A15:55:_ORION 0.44KV GEN UNIT 1+P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P3	G-1 / N-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Tejon Area Reinforcement Project
7STNDRD 115kV	P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]+P1-2:A15:45:_KERN OIL-WITCO 115KV [1920]	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Long-term only issue. Continue to monitor.
7STNDRD 115kV	P1-2:A15:45:_KERN OIL-WITCO 115KV [1920]+P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Long-term only issue. Continue to monitor.
COPUS_D 70kV	P1-3:A15:53:_KERN PW1 70/115KV TB 1+P1-3:A15:54:_KERN PW2 70/115KV TB 1	P6	N-1-1	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Under Review
COPUS_E 70kV	P1-3:A15:53:_KERN PW1 70/115KV TB 1+P1-3:A15:54:_KERN PW2 70/115KV TB 1	P6	N-1-1	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Under Review
KERN OIL 115kV	P1-2:A15:45:_KERN OIL-WITCO 115KV [1920]+P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Long-term only issue. Continue to monitor.
LERDO 115kV	P1-2:A15:43:_LERDO-KERN OIL-7TH STANDARD 115KV [1950]+P1-1:A15:71:_MT POSO 13.80KV GEN UNIT 1	P6	N-1-1	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: North East Kern 115 kV Line Reconductoring
LERDO 115kV	P1-2:A15:45:_KERN OIL-WITCO 115KV [1920]+P1-2:A15:39:_7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Long-term only issue. Continue to monitor.
OLD RIVR 70kV	P1-3:A15:54:_KERN PW2 70/115KV TB 1+P1-3:A15:53:_KERN PW1 70/115KV TB 1	P6	N-1-1	0.72	0.72	0.73	0.85	>0.9	0.86	>0.9	>0.9	>0.9	Under Review
PANAMA 70kV	P1-3:A15:54:_KERN PW2 70/115KV TB 1+P1-3:A15:53:_KERN PW1 70/115KV TB 1	P6	N-1-1	0.69	0.69	0.70	0.85	>0.9	0.85	>0.9	>0.9	>0.9	Under Review
TEMBLOR 115kV	P1-3:A15:54:_KERN PW2 70/115KV TB 1+P1-2:A15:32:_MIDWAY-TEMBLOR-PUMPJACK 115KV [0]	P6	N-1-1	>0.9	>0.9	0.63	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Long-term only issue. Continue to monitor.

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
TEJON 70kV	P1-2:A15:92:_WHEELER RIDGE-TEJON 70KV [9310]	P1	N-1	3	8	13	2	1	0	3	2	8	Under Review

Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
2420 "P4-2 - Stuck Breaker Gates CB 4512 protecting Line GATES F to MIDWAY 230 kV ckt 1" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
2430 "P4-3 - Stuck Breaker 552 protecting Tran MIDWAY 500/230 kV bk 12" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
2450 "P4-5 - Stuck non-Bus-tie Breaker 242 protecting Substation Bus MIDWAY 230 kV Section F" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
2530 "P5-3d - Failure of Kern 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Tran KERN PWR 115 / KERN PP 230 kV bk #4 (ALL 115 kV clears remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
2550 "P5-5a - Failure of non-redundant relay protecting Substation Bus Westpark 115 kV (ALL 115kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
2552 "P5-5c - Failure of non-redundant DC battery supplying Kern Oil Sub 115kV Buses for SLG fault at Kern Oil Sub 115kV Bus Sec D (All 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
2710 "P7-1 - Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 and Line Midway*-Wheeler Ridge 230 kV ckt 2" 1.00 "P7" "" "" 0	P7	DCTL	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5240 "P2-4 - Internal fault at Bus-tie Breaker 392 at MIDWAY 115 kV Bus E" 1.00 "P2" "" "" 0	P3	N-1/G-1	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5430 "P4-3 - Stuck Breaker 552 protecting Tran MIDWAY 500/230 kV bk 12" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5450 "P4-5 - Stuck non-Bus-tie Breaker 242 protecting Substation Bus MIDWAY 230 kV Section F" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5530 "P5-3d - Failure of Kern 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Tran KERN PWR 115 / KERN PP 230 kV bk #4 (ALL 115 kV clears remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
5550 "P5-5a - Failure of non-redundant relay protecting Substation Bus Westpark 115 kV (ALL 115kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5552 "P5-5c - Failure of non-redundant DC battery supplying Kern Oil Sub 115kV Buses for SLG fault at Kern Oil Sub 115kV Bus Sec D (All 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
5710 "P7-1 - Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 and Line Midway*-Wheeler Ridge 230 kV ckt 2" 1.00 "P7" "" "" 0	P7	DCTL	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3110 "P1-1 - Gen SUNRISEPR 18 kV (3 units)" 1.00 "P1" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3240 "P2-4 - Internal fault at Bus-tie Breaker 392 at MIDWAY 115 kV Bus E" 1.00 "P2" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3310 "P3-1 - Gen SUNRISEPR 18 kV (3 units) and HELMS 1 18 kV unit 1" 1.00 "P3" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3320 "P3-2 - Gen SUNRISEPR 18 kV (3 units) and Line GREGG to HERNDON 230 kV ckt 1 with RAS" 1.00 "P3" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
3340 "P3-4 - Gen SUNRISEPR 18 kV (3 units) and SVD GATES 230 kV id v" 1.00 "P3" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3420 "P4-2 - Stuck Breaker Gates CB 4512 protecting Line GATES F to MIDWAY 230 kV ckt 1" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3430 "P4-3 - Stuck Breaker 552 protecting Tran MIDWAY 500/230 kV bk 12" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3450 "P4-5 - Stuck non-Bus-tie Breaker 242 protecting Substation Bus MIDWAY 230 kV Section F" 1.00 "P4" "" "" 0	P4	Stuck Breaker	No Issue	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
3530 "P5-3d - Failure of Kern 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Tran KERN PWR 115 / KERN PP 230 kV bk #4 (ALL 115 kV clears remotely)" 1.00 "" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3550 "P5-5a - Failure of non-redundant relay protecting Substation Bus Westpark 115 kV (ALL 115kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	Potential WECC/NERC criteria violation	No Issue	No Issue	Under review with PTO for fault clearing time and fault impedances.
3552 "P5-5c - Failure of non-redundant DC battery supplying Kern Oil Sub 115kV Buses for SLG fault at Kern Oil Sub 115kV Bus Sec D (All 115 kV elements clear remotely)" 1.00 "P5" "" "" 0	P5	Non-Redundent battery supply/Relay	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue
3710 "P7-1 - Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 and Line Midway*-Wheeler Ridge 230 kV ckt 2" 1.00 "P7" "" "" 0	P7	DCTL	No Issue	No Issue	No Issue	No Issue	No Issue	No Issue

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

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

2024-2025 ISO Reliability Assessment - Preliminary Study Results

Study Area: PG&E Kern

Single Source Substation with more than 100 MW Load



Substation										Potential Mitigation Solutions
	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer-Off Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 OP Sensitivity	2029 SP High CEC Forecast	
None										

No single source substation with more than 100 MW