



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Midway-Kern #1 230 kV Line (Kern PP-Stockdale Jct 1)	KERN PP-BKRSFLDB-MIDWAY 230kV [0] & MIDWAY-KERN #3 230kV [5160]	P6	N-1-1	140.05	NA	NA	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	Midway-Kern PP 230 kV #2 Line Project Phase 1- In service on March 5, 2021 Phase 2: Expected In service on March 31, 2023 ; Short Term : Action Plan
	MIDWAY-KERN #3 230kV [5160] & KERN PP-BKRSFLDB-MIDWAY 230kV [0]	P6	N-1-1	140.09	NA	NA	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	Midway-Kern PP 230 kV #2 Line Project Phase 1- In service on March 5, 2021 Phase 2: Expected In service on March 31, 2023 ; Short Term : Action Plan
	Midway-Kern No. 3 & Midway-Kern No. 4 230 kV Lines	P7	DCTL	140.09	NA	NA	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	Midway-Kern PP 230 kV #2 Line Project Phase 1- In service on March 5, 2021 Phase 2: Expected In service on March 31, 2023 ; Short Term : Action Plan
Midway-Kern PP #4 230 kV Line (Kern PP-Bakersfield Jct 2)	KERN PP-MIDWAY 230kV [0] & MIDWAY-KERN #3 230kV [5160]	P6	N-1-1	132.2	NA	NA	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	Midway-Kern PP 230 kV #2 Line Project Phase 1- In service on March 5, 2021 Phase 2: Expected In service on March 31, 2023 ; Short Term : Action Plan
	MIDWAY-KERN #3 230kV [5160] & KERN PP-MIDWAY 230kV [0]	P6	N-1-1	132.2	NA	NA	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	Midway-Kern PP 230 kV #2 Line Project Phase 1- In service on March 5, 2021 Phase 2: Expected In service on March 31, 2023 ; Short Term : Action Plan
	Midway-Kern No. 3 & Midway-Kern No. 1 230 kV Lines	P7	DCTL	132.2	NA	NA	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Midway-Temblor 115 kV Line (Belridge Jct-Midway)	MIDWAY-TEMBLOR 115kV [2630] (TEMBLOR-PSE MCKJ)	P2-1	Line Section w/o Fault	40.67	26.26	23.92	NA	NA	NA	39.58	61.67	38.66	61.06	101.57	5.2	38.35	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
	TEMBLOR 115kV Section 1D	P2-2	Bus	40.67	26.26	23.92	NA	NA	NA	39.59	61.66	38.66	61.05	101.55	5.14	38.34	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
	TEMBLOR - 1D 115kV & TEMBLOR-SAN LUIS OBISPO line	P2-3	Non-Bus Tie Breaker	40.66	26.26	23.92	NA	NA	NA	39.58	61.66	38.66	61.05	101.55	5.15	38.34	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
	CALIENTE SW STA-MIDWAY #1 230kV [5216] & CALIENTE SW STA-MIDWAY #2 230kV [5226]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	Diverge	<100	<100	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
	TEMBLOR 115/12.47kV TB 1 & Base Case	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	100.82	<100	<100	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
	Caliente Sw Sta - Midway #1 & #2 230 kV Lines	P7	DCTL	33.66	29.1	7.64	NA	NA	NA	54.89	42.54	45.71	50.49	Diverge	66.31	12.46	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
Semitropic-Famoso 115 kV Line (Semitropic-Wasco Prison)	MIDWAY115kVSection2E	P2-2	Bus	NA	NA	NA	NA	NA	NA	36.57	142.29	NA	149.29	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
	MIDWAY115kV-Section2D&2E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	36.76	142.48	NA	149.59	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
	MIDWAY115kV-Section2E&1E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	36.58	142.32	NA	149.32	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Kern PP-Westpark #1 115 kV Line	KERN-MAGUNDEN-WITCO115kV[1970]&KERN-WESTPARK#2115kV[2010]	P6	N-1-1	<100	102.77	103.67	NA	NA	NA	<100	<100	<100	<100	<100	136.56	122.74	Midway-Kern PP 230 kV #2 Line Project Phase 1- In service on March 5, 2021 Phase 2: Expected In service on March 31, 2023 ; Short Term : Action Plan
Kern PP-Westpark #2 115 kV Line	KERN-MAGUNDEN-WITCO115kV[1970]&KERN-WESTPARK#1115kV[2010]	P7	N-2	<100	102.77	103.67	NA	NA	NA	<100	<100	<100	<100	<100	136.56	122.74	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern PP-7th Standard 115 kV Line	KERN-MAGUNDEN-WITCO 115kV [1970] (KERN PWR-KERNWATR)	P2-1	Line Section w/o Fault	67.13	56.94	61.15	NA	NA	NA	18.4	35.88	65.1	41.91	19.12	103.42	61.15	Sensitivity Only
	KERN-MAGUNDEN-WITCO 115kV [1970] (KRN OL J-KERNWATR)	P2-1	Line Section w/o Fault	64.66	55.46	59.72	NA	NA	NA	17.16	36.68	62.63	42.77	16.24	101.68	59.72	Sensitivity Only
	KERN-MAGUNDEN-WITCO 115kV [1970] & KERN-LIVE OAK 115kV [1960]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<99	<100	<100	<100	<100	157.68	<100	Sensitivity Only

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
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Charca-Famoso 115 kV Line	MIDWAY 115kV Section 2E	P2-2	Bus	NA	NA	NA	NA	NA	NA	47.75	135.37	NA	142.81	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	48.19	135.56	NA	143.11	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	47.76	135.39	NA	142.83	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Lerdo-Famoso 115 kV Line (Famoso-Cawelo C)	MIDWAY 115kV Section 2E	P2-2	Bus	NA	NA	NA	NA	NA	NA	52.06	128.76	NA	136.21	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	52.46	128.95	NA	136.5	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	52.07	128.78	NA	136.23	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Lerdo-Famoso 115 kV Line (Lerdo-Ogle Jct)	MIDWAY 115kV Section 2E	P2-2	Bus	26.56	25.95	27.1	NA	NA	NA	28.4	150.2	26.36	157.04	29.27	10.65	27.1	Utilize Summer Setup for summer and non-summer months
Lerdo-Famoso 115 kV Line (Lerdo-Ogle Jct)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	26.51	25.91	27.07	NA	NA	NA	29.67	150.4	26.31	157.24	29.03	10.67	27.07	Utilize Summer Setup for summer and non-summer months
Lerdo-Famoso 115 kV Line (Lerdo-Ogle Jct)	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	26.56	25.95	27.12	NA	NA	NA	28.4	150.24	26.36	157.06	29.21	10.66	27.12	Utilize Summer Setup for summer and non-summer months
7th Standard-Lerdo-Kern Oil 115 kV Line (Lerdo-Lerdo Jct)	MIDWAY 115kV Section 2E	P2-2	Bus	6.23	5.34	8.54	NA	NA	NA	40.95	150.95	5.24	159.4	14.82	48.12	8.54	Utilize Summer Setup for summer and non-summer months
7th Standard-Lerdo-Kern Oil 115 kV Line (Lerdo-Lerdo Jct)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	6.03	5.21	8.55	NA	NA	NA	42.1	151.13	5.03	159.6	14.37	48.21	8.55	Utilize Summer Setup for summer and non-summer months
7th Standard-Lerdo-Kern Oil 115 kV Line (Lerdo-Lerdo Jct)	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	6.23	5.34	8.54	NA	NA	NA	40.95	150.98	5.24	159.42	14.72	48.17	8.54	Utilize Summer Setup for summer and non-summer months
Lerdo-Kern Oil-7th Standard 115 kV Line (Lerdo Jct-7th Standard)	KERN-MAGUNDEN-WITCO115kV[1970]&KERN-LIVEOAK115kV[1960]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	130.69	<100	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Magunden)	KERN-WESTPARK#2115kV[2010]&KERN-WESTPARK#1115kV[2000]	P6	N-1-1	<100	107.92	108.83	NA	NA	NA	<100	<100	<100	<100	<100	154	128.63	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Magunden)	KernPP-WestparkNo.1&2115kVLines	P7	DCTL	43.84	107.92	109.08	NA	NA	NA	35.37	24.18	42.59	30.78	32.93	154.23	128.93	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	7THSTANDARD-KERN115kV[1981]	P1	N-1	75.05	58.13	61.92	NA	NA	NA	20.57	29.19	72.81	33.84	26.08	105.87	73.53	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	WESTPARK-MAGUNDEN115kV[4130](COLUMBUS-BEARTAP)	P2-1	Line Section w/o Fault	51.27	70.8	71.65	NA	NA	NA	33.01	15.92	49.84	18.64	25.59	101.67	85.08	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	WESTPARK115kVSection1D	P2-2	Bus	51.48	60.16	62.53	NA	NA	NA	17.15	30.16	50.12	35.16	25.66	110.18	74.25	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	7STNDRD115kV-RingR1&R4	P2-3	Non-Bus Tie Breaker	75.14	58.19	61.98	NA	NA	NA	20.57	24.88	72.81	29.41	33.04	105.94	73.6	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	WESTPARK115kVBus(failureofnon-redundentrelayactuallysemi)	P5-5	Non-Redundant Relay	51.48	70.97	71.68	NA	NA	NA	32.89	16.57	50.12	19.26	25.66	100.65	85.12	Sensitivity Only

Study Area: PG&E Kern  
Thermal Overloads



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				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	WESTPARK-MAGUNDEN 115kV [4130] MOAS OPENED on COLUMBUS_BEAR TAP & 7TH STANDARD-KERN 115kV [1981]	P6	N-1-1	<100	<100	100.43	NA	NA	NA	<100	<100	<100	<100	<100	149.84	119.25	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	KernPP-WestparkNo.1&2115kVLines	P7	DCTL	51.48	85.85	89.98	NA	NA	NA	28.15	27.76	50.12	33.42	25.66	147.17	106.84	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern Oil Jct-Kern Water)	Lerdo-KernOil-7thStandard115kVLine&Kern-LiveOak115kVLines	P7	DCTL	74.77	57.08	58.68	NA	NA	NA	17.56	19.12	72.5	21.44	49.91	104.92	69.68	Sensitivity Only
Westpark-Magunden 115 kV Line (Columbus-Magunden Jct)	KernPP-WestparkNo.1&2115kVLines	P7	DCTL	NA	68.99	75.7	NA	NA	NA	14.42	35.9	NA	43.22	NA	130.21	98.16	Sensitivity Only
Westpark-Magunden 115 kV Line (Magunden-Magunden Jct)	KernPP-WestparkNo.1&2115kVLines	P7	DCTL	NA	28.84	30.29	NA	NA	NA	27.37	8.3	NA	10.31	NA	48.37	117.73	Sensitivity Only
Kern-Lamont 115 kV Line	KERN-TEVIS-STOCKDALE115kV[1990](KERNPWR-TEVISJ1)	P2-1	Line Section w/o Fault	88.5	91.44	101.22	NA	NA	NA	47.48	82.24	87.36	86.88	38.22	103.72	101.22	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Semitropic 115 kV Line (Semitropic_E - Midway 115 kV)	SMYRNA-SEMITROPIC-MIDWAY115kV[3710](GANSO-MIDWAY)	P2-1	Line Section w/o Fault	56.79	68.37	78.17	NA	NA	NA	23.12	76.54	56.71	82.16	68.52	78.47	157.47	Sensitivity Only
Midway-Semitropic 115 kV Line (Semitropic_E - Midway 115 kV)	SMYRNA-SEMITROPIC-MIDWAY115kV[3710](SEMITRPJ-GANSO)	P2-1	Line Section w/o Fault	53.53	64.15	71.99	NA	NA	NA	22.11	73.24	53.59	77.85	65.89	72.27	145.03	Sensitivity Only
Midway-Tupman-Renfro 115 kV Line (Tupmant Tap 1-Tupman)	MIDWAY115kV-Section2E&1E	P2-4	Bus-Tie Breaker	88.89	100.27	123.51	NA	NA	NA	40.45	13.92	86.7	23.9	33.64	132.34	123.51	Rely on Summer Setup proposed in 17-18 TP
Midway-Tupman-Rio Bravo-Renfro 115 kV Line (Tupman Tap 2-Tupman)	MIDWAY115kV-Section2E&1E	P2-4	Bus-Tie Breaker	75.23	84.67	101.01	NA	NA	NA	34.8	15.08	73.45	22.25	30.99	103.07	101.01	Rely on Summer Setup proposed in 17-18 TP
Kern PP 230/115 kV Transformer Bank 3	KERNPP230/115kVTB4&KERNPP230/115kVTB5	P6	N-1-1	<100	<100	113.55	NA	NA	NA	<100	<100	<100	<100	<100	203.87	<100	Monitor Overload in the long term
Kern PP 230/115 kV Transformer Bank 4	KERNPP230/115kVTB3&KERNPP230/115kVTB5	P6	N-1-1	<100	<100	113.47	NA	NA	NA	<100	<100	<100	<100	<100	203.16	<100	Monitor Overload in the long term
Kern PP 230/115 kV Transformer Bank 5	KERNPP230/115kVTB3&KERNPP230/115kVTB4	P6	N-1-1	<100	<100	113.52	NA	NA	NA	<100	<100	<100	<100	<100	203.2	<100	Monitor Overload in the long term
Kern-Stockdale 115 kV Line (Kern Power-Tevis J1)	KERN-TEVIS-STOCKDALE-LAMONT115kV[1940]	P1	N-1	98.39	103.09	114.53	NA	NA	NA	47.52	90.2	97.02	97.79	39.19	116.62	114.53	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Stockdale 115 kV Line (Kern Power-Tevis J1)	KERN-TEVIS-STOCKDALE-LAMONT115kV[1940](KERNPWR-TEVISJ2)	P2-1	Line Section w/o Fault	106.99	111.46	124	NA	NA	NA	56.12	84.99	105.62	92.44	30.22	126.82	124	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Stockdale 115 kV Line (Kern Power-Tevis J1)	KERNPWR115kV-MiddleBreakerBay2	P2-3	Non-Bus Tie Breaker	98.34	103.04	114.58	NA	NA	NA	47.54	90.29	96.93	97.82	39.14	116.32	114.58	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Stockdale 115 kV Line (Kern Power-Tevis J1)	LAMONT115kV-MiddleBreakerBay3	P2-3	Non-Bus Tie Breaker	98.79	103.51	115.04	NA	NA	NA	47.67	54.7	96.99	62.58	1.2	117.77	115.04	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan



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Kern-Stockdale 115 kV Line (Kern Power-Tevis J1)	TEVIS2-1E115kV&KERN-TEVIS-STOCKDALE-LAMONTline	P2-3	Non-Bus Tie Breaker	98.39	103.09	114.53	NA	NA	NA	47.52	90.2	97.02	97.79	39.19	116.62	114.53	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Stockdale 115 kV Line (Kern Power-Tevis J1)	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] & GRIMMWAY-MALAGA TAP 115kV [1942]	P6	N-1-1	<100	<100	106.21	NA	NA	NA	<100	<100	<100	104.05	<100	107.77	106.21	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Lamont 115 kV Line (Kern-Tevis Jct 2)	KERN-TEVIS-STOCKDALE 115kV [1990]	P1	N-1	107.09	111.62	123.99	NA	NA	NA	55.81	85.14	105.72	30.55	92.55	126.82	123.99	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Lamont 115 kV Line (Kern-Tevis Jct 2)	KERN-TEVIS-STOCKDALE 115kV [1990] (KERN PWR-TEVISJ1)	P2-1	Line Section w/o Fault	108.21	112.73	126.34	NA	NA	NA	56.22	84.2	106.77	30.2	91.72	129.4	126.34	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Lamont 115 kV Line (Kern-Tevis Jct 2)	KERN PWR 115kV - Middle Breaker Bay 1	P2-3	Non-Bus Tie Breaker	106.96	111.53	123.9	NA	NA	NA	55.81	85.13	105.59	30.57	92.52	127.15	123.9	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Lamont 115 kV Line (Kern-Tevis Jct 2)	STOCKDLE - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2-3	Non-Bus Tie Breaker	106.5	111.14	123.04	NA	NA	NA	56.01	84.05	105.09	31.66	91.55	125.78	123.04	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Lamont 115 kV Line (Kern-Tevis Jct 2)	TEVIS - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2-3	Non-Bus Tie Breaker	107.09	111.62	123.99	NA	NA	NA	55.81	85.14	105.72	30.55	92.55	126.82	123.99	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Lamont 115 kV Line (Kern-Tevis Jct 2)	KERN-TEVIS-STOCKDALE 115kV [1990] & Q744-LAMONT #1 115kV [0]	P6	N-1-1	<100	<100	129.46	NA	NA	NA	<100	<100	<100	<100	<100	132.25	129.46	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	7TH STANDARD-KERN 115kV [1981]	P1	N-1	66.9	61.43	65	NA	NA	NA	20.29	28.17	65.02	26.12	32.45	109.25	65	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	WESTPARK-MAGUNDEN 115kV [4130] (COLUMBUS-BEAR TAP)	P2-1	Line Section w/o Fault	46.99	74.2	74.87	NA	NA	NA	30.83	16.55	45.8	25.64	18.33	105.08	74.87	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	WESTPARK-MAGUNDEN 115kV [4130] (WESTPARK-BEAR TAP)	P2-1	Line Section w/o Fault	47	63.33	65.66	NA	NA	NA	17.21	29.15	45.82	25.58	33.76	114.53	65.66	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	WESTPARK 115kV Section 1D	P2-2	Bus	47.18	63.53	65.68	NA	NA	NA	17.47	29.19	46.05	25.7	33.8	113.58	65.68	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	7STNDRD 115kV - Ring R1 & R4	P2-3	Non-Bus Tie Breaker	66.97	61.49	65.06	NA	NA	NA	20.29	24.1	65.02	31.88	28.14	109.32	65.06	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	KERN PWR 115kV - Middle Breaker Bay 1	P2-3	Non-Bus Tie Breaker	66.91	61.5	65	NA	NA	NA	20.24	28.06	64.91	25.95	32.31	109.47	65	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	WESTPARK - 1D 115kV & WESTPARK-MAGUNDEN line	P2-3	Non-Bus Tie Breaker	47.18	74.36	74.9	NA	NA	NA	30.73	17.2	46.05	25.7	18.98	104.03	74.9	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	WESTPARK 115kV Bus (failure of non-redundent relay actually semi)	P5-5	Non-Redundant Relay	47.18	74.36	74.9	NA	NA	NA	30.73	17.2	46.05	25.7	18.98	104.03	74.9	Sensitivity Only
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	7TH STANDARD-KERN 115kV [1981] & WESTPARK-MAGUNDEN 115kV [4130] MOAS OPENED on COLUMBUS_BEAR TAP	P6	N-1-1	<100	<100	103.61	NA	NA	NA	<100	<100	<100	<100	<100	153.3	103.61	Monitor Overload in the long term
Kern-Magunden-Witco 115 kV Line (Kern-Kern Water)	Kern PP-Westpark No. 1 & 2 115 kV Lines	P7	DCTL	47.18	89.24	93.21	NA	NA	NA	26.7	27	46.05	25.7	32.17	150.71	93.21	Sensitivity Only
Kern-Lamont 115 kV Line(TevisJ2-StockdaleJn)	KERN-TEVIS-STOCKDALE 115kV [1990] (KERN PWR-TEVISJ1)	P2-1	Line Section w/o Fault	88.51	91.44	101.19	NA	NA	NA	47.49	82.1	87.37	38.22	86.75	103.71	101.19	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan





Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Midway 230/115 kV Transformer Bank 2	MIDWAY 115kV - Section 1E & 1D	P2-4	Bus-Tie Breaker	57.49	69.9	72.88	NA	NA	NA	22.85	75.37	60.47	82.09	49.52	121.65	3.37	Sensitivity Only
Midway 230/115 kV Transformer Bank 2	MIDWAY 230kV - Section 1D & 1E	P2-4	Bus-Tie Breaker	60.26	73.01	77.65	NA	NA	NA	26.01	79.2	63.4	87.03	52.18	123.91	3.59	Sensitivity Only
Midway-Taft 115 kV Line	CYMRIC TAP 115kV [2582] (MIDWAY-CYMRIC)	P2-1	Line Section w/o Fault	18.98	22.64	22.55	NA	NA	NA	19.68	67.83	22.25	67.31	39.04	101.98	22.56	Sensitivity Only
Midway-Taft 115 kV Line	MIDWAY 115kV Section 1D	P2-2	Bus	18.43	22.13	22.09	NA	NA	NA	19.77	66.7	21.81	66.17	38.48	101.8	22.09	Sensitivity Only
Midway-Taft 115 kV Line	MIDWAY 115kV - Section 1E & 1D	P2-4	Bus-Tie Breaker	17	20.8	21.21	NA	NA	NA	19.91	63.93	20.67	63.23	37.88	101.74	21.21	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	MIDWAY-TAFT 115kV [2620]	P1	N-1	24.74	29.24	31.06	NA	NA	NA	27.29	79.98	28.83	79.2	51.91	129.46	31.06	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	MIDWAY 115kV Section 2D	P2-2	Bus	24.53	29.19	30.14	NA	NA	NA	27.29	79.34	28.66	78.45	51.99	128.75	30.15	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2-3	Non-Bus Tie Breaker	24.5	29.16	30.12	NA	NA	NA	27.25	79.33	28.63	78.43	51.97	128.77	30.12	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2-3	Non-Bus Tie Breaker	24.54	29.17	30.13	NA	NA	NA	27.28	79.63	28.64	78.76	52.35	128.8	30.13	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	TAFT 115kV - Ring R2 & R1	P2-3	Non-Bus Tie Breaker	23.02	24.13	23.21	NA	NA	NA	31.57	79.12	23.11	77.2	57.28	108.27	23.22	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	TAFT 115kV - Ring R2 & R3	P2-3	Non-Bus Tie Breaker	22.87	27.76	29.52	NA	NA	NA	27.02	79.36	27.72	78.71	49.81	130.63	29.52	Sensitivity Only
Midsun-Midway 115 kV Line (Midway-Cymric)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	24.49	29.28	30.72	NA	NA	NA	26.16	83.75	28.49	82.99	53.1	129.38	30.72	Sensitivity Only
Taft 115/70 kV Transformer Bank 2	TAFT 115/70kV TB 1	P1	N-1	76.08	77.81	80.82	NA	NA	NA	42.91	45.23	76.5	41.06	40.35	108.8	0.55	Sensitivity Only
Taft 115/70 kV Transformer Bank 2	TAFT 115kV - Ring R2 & R3	P2-3	Non-Bus Tie Breaker	75.8	77.41	80.51	NA	NA	NA	47.2	28.66	76.21	24.93	37.72	109.91	0.55	Sensitivity Only
Taft 115/70 kV Transformer Bank 2	TAFT 115kV - Ring R4 & R3	P2-3	Non-Bus Tie Breaker	76.39	77.97	81.15	NA	NA	NA	48.07	38.09	76.69	34.37	41.7	108.85	0.55	Sensitivity Only
Taft 115/70 kV Transformer Bank 2	SLR-TANN 9.11kV Gen Unit 1 & TAFT 115/70kV TB 1	P3	G-1/N-1	<100	<100	101.37	NA	NA	NA	<100	<100	<100	<100	<100	<100	<100	Monitor Overload in the long term
Taft 115/70 kV Transformer Bank 2	MIDWAY-MIDSUN 115kV [0] & TAFT 115/70kV TB 1	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	109.08	<100	Sensitivity Only
Fellows-Taft 115 kV Line (Fellows-Morgan)	MIDWAY-TAFT 115kV [2620]	P1	N-1	14.73	12.26	5.95	NA	NA	NA	37.15	99.44	15.18	98.66	86	107.36	5.95	Sensitivity Only
Fellows-Taft 115 kV Line (Fellows-Morgan)	MIDWAY 115kV Section 2D	P2-2	Bus	14.57	12.21	5.51	NA	NA	NA	37.31	98.83	15	97.98	86.02	106.75	5.51	Sensitivity Only
Fellows-Taft 115 kV Line (Fellows-Morgan)	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2-3	Non-Bus Tie Breaker	14.54	12.18	5.5	NA	NA	NA	37.3	98.82	14.97	97.97	86.02	106.77	5.5	Sensitivity Only
Fellows-Taft 115 kV Line (Fellows-Morgan)	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2-3	Non-Bus Tie Breaker	14.62	12.25	5.56	NA	NA	NA	37.35	99.02	15.03	98.19	86.24	106.8	5.56	Sensitivity Only
Fellows-Taft 115 kV Line (Fellows-Morgan)	TAFT 115kV - Ring R2 & R3	P2-3	Non-Bus Tie Breaker	12.47	10.09	5.35	NA	NA	NA	39.11	98.31	13.66	97.74	84.47	108.47	5.35	Sensitivity Only
Fellows-Taft 115 kV Line (Fellows-Morgan)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	14.39	12.05	5.5	NA	NA	NA	35.51	104.13	14.69	103.59	86.52	107.29	5.5	Generation Redispatch
Fellows-Taft 115 kV Line (Fellows-Morgan)	KERN-OLD RIVER #1 70kV [8890] & MIDWAY-TAFT 115kV [2620]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	106.42	<100	106.59	<100	Sensitivity Only
Lerdo-Famoso 115 kV Line (Cawelo C-Ogle Jct)	MIDWAY 115kV Section 2E	P2-2	Bus	4.14	4.07	4.11	NA	NA	NA	54.42	120.85	4.13	128.04	4.17	4.34	4.11	Utilize Summer Setup for summer and non-summer months



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Lerdo-Famoso 115 kV Line (Cawelo C-Ogle Jct)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	4.14	4.07	4.11	NA	NA	NA	54.78	121.03	4.13	128.32	4.16	4.34	4.11	Utilize Summer Setup for summer and non-summer months
Lerdo-Famoso 115 kV Line (Cawelo C-Ogle Jct)	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	4.14	4.07	4.11	NA	NA	NA	54.42	120.87	4.13	128.06	4.17	4.34	4.11	Utilize Summer Setup for summer and non-summer months
Temblor-Kernridge 115 kV Line	KERNRDGELH 69/4.16kV TB 1 & MIDWAY-TEMBLOR 115kV [2630]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	104.6	<100	Sensitivity Only
Taft A -TAFT_SW_TAFM 70 kV Line	MIDWAY 115kV - Section 2D & 1D	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	61.33	152.2	NA	147.6	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Taft A -TAFT_SW_TAFM 70 kV Line	Midway-Taft & Fellows-Taft 115 kV Lines	P7	DCTL	NA	NA	NA	NA	NA	NA	102.9	160.93	NA	154.84	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Taft-Maricopa 70 kV Line (Taft Jct-Moco Jct, Multiple Sections of Line)	MIDWAY 115kV - Section 2D & 1D	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	85.14	177.74	NA	173.15	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Taft-Maricopa 70 kV Line (Taft Jct-Moco Jct, Multiple Sections of Line)	Midway-Taft & Fellows-Taft 115 kV Lines	P7	DCTL	NA	NA	NA	NA	NA	NA	126.88	186.44	NA	180.19	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	MIDWAY 230kV Section 1D	P2-2	Bus	38.57	38.51	40.67	NA	NA	NA	91.82	106.99	38.19	110.88	38.61	29.44	40.66	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	MIDWAY 230kV Section 2D	P2-2	Bus	38.92	38.65	39.17	NA	NA	NA	92.59	107.86	38.4	111.13	38.51	29.49	39.16	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	38.87	38.73	39.28	NA	NA	NA	96.12	108.55	38.37	113.71	38.28	29.52	39.27	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	38.6	38.52	41.63	NA	NA	NA	91.56	107.53	38.2	110.85	38.35	29.51	41.63	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	MIDWAY 230kV - Section 1D & 1E	P2-4	Bus-Tie Breaker	38.56	38.48	40.77	NA	NA	NA	91.26	108.74	38.22	114.36	38.56	29.47	40.77	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	MIDWAY 230kV - Section 2E & 2D	P2-4	Bus-Tie Breaker	<100	37.71	39.91	NA	NA	NA		113.14	38.83	117.53		29.5	39.8	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	WHEELER 230/70kV TB 4 & WHEELER 230/70kV TB 5	P6	N-1-1	<100	<100	<100	NA	NA	NA	146.46	<100	<100	<100	<100	<100	<100	Utilize Summer Setup for summer and non-summer months
WeedPatch-Weedpatch Shoofly 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	NA	NA	NA	NA	NA	NA	160.56	42.12	NA	43.94	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	MIDWAY 230kV Section 1D	P2-2	Bus	38.57	38.51	40.67	NA	NA	NA	91.82	106.99	38.19	110.88	38.61	29.44	40.66	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	MIDWAY 230kV Section 2D	P2-2	Bus	38.92	38.65	39.17	NA	NA	NA	92.59	107.86	38.4	111.13	38.51	29.49	39.16	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	38.87	38.73	39.28	NA	NA	NA	96.12	108.55	38.37	113.71	38.28	29.52	39.27	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	38.6	38.52	41.63	NA	NA	NA	91.56	107.53	38.2	110.85	38.35	29.51	41.63	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	MIDWAY 230kV - Section 1D & 1E	P2-4	Bus-Tie Breaker	38.56	38.48	40.77	NA	NA	NA	91.26	108.74	38.22	114.36	38.56	29.47	40.77	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	MIDWAY 230kV - Section 2E & 2D	P2-4	Bus-Tie Breaker	<100	37.71	39.91	NA	NA	NA		113.14	38.83	117.53		29.5	39.8	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	WHEELER 70kV - Section ME & MD	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	105.9	16.59	NA	14.46	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Magunden Jn-Weedpatch Shoofly 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	NA	NA	NA	NA	NA	NA	160.56	42.12	NA	43.94	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Kern-Magunden 70 kV Line (Multiple Sections)	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	14.8	14.97	13.41	NA	NA	NA	107.84	56.73	14.86	58.15	14.96	13.36	13.41	Utilize Summer Setup for summer and non-summer months

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
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Kern-Kern Oil-Famoso 70 kV Line (Kern-Kern Oil Jct)	MIDWAY 115kV Section 2E	P2-2	Bus	37.97	39.04	41.99	NA	NA	NA	49.18	112.4	37.21	119.88	28.03	41.92	41.99	Utilize Summer Setup for summer and non-summer months
Kern-Kern Oil-Famoso 70 kV Line (Kern-Kern Oil Jct)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	37.95	39.02	41.98	NA	NA	NA	48.99	112.27	37.2	119.11	28.01	42	41.98	Utilize Summer Setup for summer and non-summer months
Kern-Kern Oil-Famoso 70 kV Line (Kern-Kern Oil Jct)	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	37.97	39.04	41.99	NA	NA	NA	49.17	112.36	37.21	119.82	28.03	41.96	41.99	Utilize Summer Setup for summer and non-summer months
Wasco-Famoso 70 kV Line (Famoso-McFarland Tap)	MIDWAY 115kV Section 2E	P2-2	Bus	34.74	35.9	36.39	NA	NA	NA	44.88	114.82	33.98	122.32	26.06	36.33	36.39	Utilize Summer Setup for summer and non-summer months
Wasco-Famoso 70 kV Line (Famoso-McFarland Tap)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	34.73	35.88	36.38	NA	NA	NA	44.31	114.63	33.96	121.57	26.03	36.4	36.38	Utilize Summer Setup for summer and non-summer months
Wasco-Famoso 70 kV Line (Famoso-McFarland Tap)	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	34.74	35.9	36.39	NA	NA	NA	44.87	114.78	33.98	122.26	26.05	36.37	36.39	Utilize Summer Setup for summer and non-summer months
Wasco-Famoso 70 kV Line (Famoso-Cawelo B Tap)	MIDWAY 115kV Section 2E	P2-2	Bus	38.39	39.65	39.71	NA	NA	NA	49.01	125.4	37.55	133.61	29.04	39.65	39.71	Utilize Summer Setup for summer and non-summer months
Wasco-Famoso 70 kV Line (Famoso-Cawelo B Tap)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	38.37	39.63	39.71	NA	NA	NA	48.4	125.2	37.53	132.8	29.02	39.73	39.71	Utilize Summer Setup for summer and non-summer months
Wasco-Famoso 70 kV Line (Famoso-Cawelo B Tap)	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	38.39	39.65	39.72	NA	NA	NA	49	125.36	37.55	133.55	29.04	39.69	39.72	Utilize Summer Setup for summer and non-summer months
Semitropic-Wasco 70 kV Line	MIDWAY 115kV Section 2E	P2-2	Bus	NA	NA	NA	NA	NA	NA	24.35	118.8	NA	122.41	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Semitropic-Wasco 70 kV Line	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	22.89	118.7	NA	121.63	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Semitropic-Wasco 70 kV Line	MIDWAY 115kV - Section 2E & 1E	P2-4	Bus-Tie Breaker	NA	NA	NA	NA	NA	NA	24.35	118.77	NA	122.36	NA	NA	NA	Utilize Summer Setup for summer and non-summer months
Temblor-San Luis Obispo 115 kV Line (Carrizo-San Luis Obispo)	MIDWAY-TEMBLOR 115kV [2630] & TEMBLOR SVD=v	P6	N-1-1	NA	NA	NA	NA	NA	NA	<100	<100	<100	<100	<100	127.17	<100	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project. In Service Date : 12/2022. Short term: Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Midway)	MIDWAY-WHEELER RIDGE #2 230kV [5200] (BUENAVJ2-MIDWAY)	P2-1	Line Section w/o Fault	103.09	107.21	111.79	NA	NA	NA	86.58	72.45	102.87	68.21	87.29	115.03	111.79	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Midway)	MIDWAY 230kV Section 2D	P2-2	Bus	103.13	107.28	111.96	NA	NA	NA	86.82	72.01	102.92	67.98	87.76	115.62	111.96	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Midway)	MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	103.04	107.26	112.1	NA	NA	NA	83.37	72.1	102.88	71.57	88.18	116.1	112.1	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Midway)	MIDWAY 230kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	103.65			NA	NA	NA	87.02				87.79			WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Midway)	MIDWAY 230kV - Section 2E & 2D	P2-4	Bus-Tie Breaker		108	113.16	NA	NA	NA		71.48	103.56	67.52		118.36	113.08	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Wheeler Ridge PP Jct 1)	MIDWAY-WHEELER RIDGE #2 230kV [5200] (BUENAVJ2-MIDWAY)	P2-1	Line Section w/o Fault	93.67	97.71	100.87	NA	NA	NA	77.44	63.24	93.44	58.21	77.68	103.93	100.87	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Wheeler Ridge PP Jct 1)	MIDWAY 230kV Section 2D	P2-2	Bus	93.69	97.77	101.02	NA	NA	NA	77.71	62.74	93.48	57.93	78.09	104.5	101.01	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan



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
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Wheeler Ridge PP Jct 1)	MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	93.61	97.75	101.14	NA	NA	NA	73.74	62.75	93.45	62.09	78.45	104.93	101.14	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #1 230 kV Line (Buena Vista PP Jct 1-Wheeler Ridge PP Jct 1)	MIDWAY 230kV - Section 2E & 2D	P2-4	Bus-Tie Breaker		98.44	102.08	NA	NA	NA		62.19	94.03	57.42		106.96	102.01	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Midway)	MIDWAY-WHEELER RIDGE #1 230kV [5190] (BUENAVJ1-MIDWAY)	P2-1	Line Section w/o Fault	103.11	107.38	111.76	NA	NA	NA	83.24	72.63	102.94	68.22	88.41	114.95	111.76	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Midway)	MIDWAY 230kV Section 1D	P2-2	Bus	103.65	107.82	112.73	NA	NA	NA	87.28	72.21	103.5	68.11	87.83	117.2	112.72	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Midway)	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	103.61	107.86	112.92	NA	NA	NA	87.21	72.3	103.52	68.48	88.25	118.52	112.91	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Midway)	MIDWAY 230kV - Section 1D & 1E	P2-4	Bus-Tie Breaker	103.68	107.81	112.8	NA	NA	NA	87.39	72.04	103.54	68.24	87.9	117.85	112.8	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Wheeler Ridge PP Jct 2)	MIDWAY-WHEELER RIDGE #1 230kV [5190] (BUENAVJ1-MIDWAY)	P2-1	Line Section w/o Fault	93.24	97.45	101.59	NA	NA	NA	73.1	63.01	93.07	57.7	78.48	104.63	101.59	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Wheeler Ridge PP Jct 2)	MIDWAY 230kV Section 1D	P2-2	Bus	93.71	97.78	102.47	NA	NA	NA	77.67	62.52	93.53	57.53	77.71	106.69	102.47	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Wheeler Ridge PP Jct 2)	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2-3	Non-Bus Tie Breaker	93.67	97.81	102.65	NA	NA	NA	77.61	62.52	93.55	57.84	78.07	107.89	102.65	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Midway-Wheeler Ridge #2 230 kV Line (Buena Vista PP Jct 2-Wheeler Ridge PP Jct 2)	MIDWAY 230kV - Section 1D & 1E	P2-4	Bus-Tie Breaker	93.73	97.77	102.55	NA	NA	NA	77.77	62.33	93.57	57.62	77.77	107.28	102.54	WheelerRidge Junction Project On Hold (TPP 19-20) Short Term : Action Plan
Fellows-Midsun 115 kV Line (Aera Victory Jct-Midsun)	MIDWAY-TAFT 115kV [2620]	P1	N-1	15.64	15.54	16.99	NA	NA	NA	16.55	79.75	14.83	79.43	57.7	117.67	0.19	Sensitivity Only
Fellows-Midsun 115 kV Line (Aera Victory Jct-Midsun)	MIDWAY 115kV Section 2D	P2-2	Bus	15.52	15.5	16.7	NA	NA	NA	16.66	79.17	14.73	78.77	57.73	117.01	0.19	Sensitivity Only
Fellows-Midsun 115 kV Line (Aera Victory Jct-Midsun)	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2-3	Non-Bus Tie Breaker	15.5	15.49	16.69	NA	NA	NA	16.65	79.16	14.71	78.76	57.72	117.03	0.19	Sensitivity Only
Fellows-Midsun 115 kV Line (Aera Victory Jct-Midsun)	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2-3	Non-Bus Tie Breaker	15.51	15.48	16.66	NA	NA	NA	16.69	79.4	14.71	79.01	57.96	117.06	0.19	Sensitivity Only
Fellows-Midsun 115 kV Line (Aera Victory Jct-Midsun)	TAFT 115kV - Ring R2 & R3	P2-3	Non-Bus Tie Breaker	14.12	14.31	16.43	NA	NA	NA	17.76	79.26	13.68	79.08	56.06	118.84	0.18	Sensitivity Only
Fellows-Midsun 115 kV Line (Aera Victory Jct-Midsun)	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	15.55	15.62	16.99	NA	NA	NA	15.1	83.74	14.65	83.55	58.33	117.6	0.19	Sensitivity Only

Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates	
BSCL_PLD 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
GARDNR T 70kV		P1	N-1	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only
COPUS_D 70kV		P1	N-1	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
COPUS_E 70kV		P1	N-1	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
TEMBLOR 70kV		P1	N-1	1.02	1.02	1.01	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.91	1.01	Sensitivity Only
Q620TP 70kV		P1	N-1	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
Q620 70kV		P1	N-1	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
MOCO 70kV		P1	N-1	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
CADET 70kV		P1	N-1	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
TX_BV_HL 70kV		P1	N-1	1.01	1.01	0.99	NA	NA	NA	1.02	1.03	1.01	1.00	1.03	0.89	0.99	Sensitivity Only
ELK HLLS 70kV		P1	N-1	1.00	1.00	0.98	NA	NA	NA	1.02	1.04	1.00	1.00	1.04	0.88	0.98	Sensitivity Only
CUYAMA2 70kV		P1	N-1	1.00	1.01	1.00	NA	NA	NA	1.03	1.03	1.00	0.99	1.03	0.89	1.00	Sensitivity Only
KNG_ELIS 70kV		P1	N-1	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.01	0.99	1.02	0.90	1.00	Sensitivity Only
CELERON 70kV		P1	N-1	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.01	0.99	1.02	0.90	1.00	Sensitivity Only
SLR_TANH 70kV		P1	N-1	1.02	1.02	1.01	NA	NA	NA	1.04	1.03	1.02	1.01	1.03	0.91	1.01	Sensitivity Only
KERNRDGE 115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	1.04	1.03	1.04	NA	NA	NA	1.04	1.04	1.03	1.03	1.04	0.83	1.04	Sensitivity Only
KERNRDGELH 69kV		P1	N-1	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.80	0.99	Sensitivity Only
TEMBLOR 115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.04	1.03	1.03	1.03	1.04	0.84	1.03	Sensitivity Only
CARRIZO 115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.04	1.04	1.03	1.03	1.04	0.89	1.03	Sensitivity Only
KERNRDGE_G32115kV		P1	N-1	1.04	1.04	1.04	NA	NA	NA	1.04	1.04	1.04	1.04	1.04	0.83	1.04	Sensitivity Only
KERNRDGE_L11115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L34115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_S17115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_S20115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L18115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L32115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.04	0.83	1.03	Sensitivity Only
KERNRDGE_L06115kV		P1	N-1	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L0669kV		P1	N-1	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.79	0.99	Sensitivity Only
KERNRDGE_L0469kV		P1	N-1	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.79	0.99	Sensitivity Only
KERNRDGE_L1969kV		P1	N-1	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.80	0.99	Sensitivity Only
BSCSCH T 70kV	MIDWAY 115kV Section 2D	P2-2	Bus	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
GARDNER 70kV		P2-2	Bus	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only
BSCL_PLD 70kV		P2-2	Bus	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
GARDNR T 70kV		P2-2	Bus	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only
COPUS_D 70kV		P2-2	Bus	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
COPUS_E 70kV		P2-2	Bus	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
Q620TP 70kV		P2-2	Bus	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
Q620 70kV		P2-2	Bus	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
TX_BV_HL 70kV		P2-2	Bus	1.01	1.01	0.99	NA	NA	NA	1.02	1.03	1.01	1.00	1.03	0.90	0.99	Sensitivity Only
ELK HLLS 70kV		P2-2	Bus	1.00	1.00	0.98	NA	NA	NA	1.02	1.04	1.00	1.00	1.04	0.88	0.98	Sensitivity Only
CUYAMA2 70kV		P2-2	Bus	1.00	1.01	0.99	NA	NA	NA	1.03	1.03	1.00	0.99	1.03	0.90	0.99	Sensitivity Only
BSCSCH T 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
GARDNER 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only
BSCL_PLD 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
GARDNR T 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only

Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates	
COPUS_D 70kV	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
COPUS_E 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
Q620TP 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
Q620 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
MOCO 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
TX_BV_HL 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	0.99	NA	NA	NA	1.02	1.03	1.01	1.00	1.03	0.90	0.99	Sensitivity Only
ELK HLLS 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.98	NA	NA	NA	1.02	1.04	1.00	1.00	1.04	0.88	0.98	Sensitivity Only
CUYAMA2 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.01	0.99	NA	NA	NA	1.03	1.03	1.00	0.99	1.03	0.90	0.99	Sensitivity Only
KERNRDGE 115kV	PUMPJACK - 1D 115kV & line	P2-3	Non-Bus Tie Breaker	1.04	1.03	1.04	NA	NA	NA	1.04	1.04	1.03	1.03	1.04	0.83	1.04	Sensitivity Only
KERNRDGELH 69kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.80	0.99	Sensitivity Only
TEMBLOR 115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.04	1.03	1.03	1.03	1.04	0.84	1.03	Sensitivity Only
CARRIZO 115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.04	1.04	1.03	1.03	1.04	0.89	1.03	Sensitivity Only
KERNRDGE_G32115kV		P2-3	Non-Bus Tie Breaker	1.04	1.04	1.04	NA	NA	NA	1.04	1.04	1.04	1.04	1.04	0.83	1.04	Sensitivity Only
KERNRDGE_L11115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L34115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_S17115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_S20115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L18115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_L32115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.04	0.83	1.03	Sensitivity Only
KERNRDGE_LO6115kV		P2-3	Non-Bus Tie Breaker	1.03	1.03	1.03	NA	NA	NA	1.03	1.03	1.03	1.03	1.03	0.83	1.03	Sensitivity Only
KERNRDGE_LO669kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.79	0.99	Sensitivity Only
KERNRDGE_LO469kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.79	0.99	Sensitivity Only
KERNRDGE_L1969kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.99	NA	NA	NA	0.99	0.99	0.99	0.99	0.99	0.80	0.99	Sensitivity Only
BSCSCH T 70kV	TAFT 115kV - Ring R2 & R3	P2-3	Non-Bus Tie Breaker	0.98	0.98	0.97	NA	NA	NA	1.02	1.04	0.97	0.98	1.04	0.85	0.97	Sensitivity Only
TAFT_SW_TAFC70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.00	0.99	1.02	0.89	1.00	Sensitivity Only
MCKTTRCK 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.88	0.99	Sensitivity Only
NORTHMWY 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.88	0.99	Sensitivity Only
MDWY_P_S 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.88	0.99	Sensitivity Only
TAFT A 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.00	0.99	1.02	0.89	1.00	Sensitivity Only
TAFT A_J 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.00	0.99	1.02	0.88	1.00	Sensitivity Only
MARICOPA 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.87	0.99	Sensitivity Only
MOCO_JCT 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.87	0.99	Sensitivity Only
GARDNER 70kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.98	NA	NA	NA	1.02	1.03	0.98	0.98	1.03	0.86	0.98	Sensitivity Only
BRY_PTLM 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.00	0.99	1.02	0.88	1.00	Sensitivity Only
BSCL_PLD 70kV		P2-3	Non-Bus Tie Breaker	0.98	0.98	0.97	NA	NA	NA	1.02	1.04	0.97	0.98	1.04	0.85	0.97	Sensitivity Only
GARDNR T 70kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.98	NA	NA	NA	1.02	1.03	0.98	0.98	1.03	0.86	0.98	Sensitivity Only
COPUS_D 70kV		P2-3	Non-Bus Tie Breaker	0.98	0.98	0.97	NA	NA	NA	1.02	1.04	0.97	0.98	1.04	0.85	0.97	Sensitivity Only
COPUS_E 70kV		P2-3	Non-Bus Tie Breaker	0.98	0.98	0.97	NA	NA	NA	1.02	1.04	0.97	0.98	1.04	0.85	0.97	Sensitivity Only
TEMBLOR 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.01	1.01	0.99	0.98	1.01	0.88	0.99	Sensitivity Only
Q620TP 70kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.98	NA	NA	NA	1.02	1.03	0.98	0.98	1.03	0.86	0.98	Sensitivity Only
Q620 70kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.98	NA	NA	NA	1.02	1.03	0.98	0.98	1.03	0.86	0.98	Sensitivity Only
TAFT_SW_TAFM70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.00	0.99	1.02	0.89	1.00	Sensitivity Only
MOCO 70kV		P2-3	Non-Bus Tie Breaker	0.99	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.86	0.99	Sensitivity Only
CADET 70kV		P2-3	Non-Bus Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.02	1.02	0.99	0.98	1.02	0.87	0.99	Sensitivity Only
TX_BV_HL 70kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.97	NA	NA	NA	1.00	1.01	0.98	0.98	1.02	0.86	0.97	Sensitivity Only

Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates	
ELK HLLS 70kV		P2-3	Non-Bus Tie Breaker	0.98	0.98	0.96	NA	NA	NA	1.00	1.02	0.98	0.98	1.02	0.85	0.96	Sensitivity Only
CUYAMA2 70kV		P2-3	Non-Bus Tie Breaker	0.99	0.99	0.98	NA	NA	NA	1.01	1.02	0.98	0.97	1.02	0.86	0.98	Sensitivity Only
KNG_ELIS 70kV		P2-3	Non-Bus Tie Breaker	0.99	1.00	0.99	NA	NA	NA	1.01	1.01	0.98	0.97	1.01	0.87	0.99	Sensitivity Only
CELERON 70kV		P2-3	Non-Bus Tie Breaker	0.99	1.00	0.99	NA	NA	NA	1.01	1.01	0.98	0.97	1.01	0.87	0.99	Sensitivity Only
SLR_TANH 70kV		P2-3	Non-Bus Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.02	1.02	1.00	0.99	1.02	0.88	1.00	Sensitivity Only
BSCSCH T 70kV	MIDWAY 115kV - Section 2D & 2E	P2-4	Bus-Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	1.00	1.04	0.88	0.99	Sensitivity Only
MARICOPA 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
MOCO_JCT 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
GARDNER 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only
BSCL_PLD 70kV		P2-4	Bus-Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
GARDNR T 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	1.00	Sensitivity Only
COPUS_D 70kV		P2-4	Bus-Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
COPUS_E 70kV		P2-4	Bus-Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	0.99	0.99	1.04	0.88	0.99	Sensitivity Only
Q620TP 70kV		P2-4	Bus-Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
Q620 70kV		P2-4	Bus-Tie Breaker	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.00	1.00	1.04	0.89	0.99	Sensitivity Only
MOCO 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
CADET 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	1.00	NA	NA	NA	1.03	1.03	1.01	1.00	1.03	0.90	1.00	Sensitivity Only
TX_BV_HL 70kV		P2-4	Bus-Tie Breaker	1.01	1.01	0.99	NA	NA	NA	1.02	1.03	1.01	1.00	1.03	0.89	0.99	Sensitivity Only
ELK HLLS 70kV		P2-4	Bus-Tie Breaker	1.00	1.00	0.98	NA	NA	NA	1.02	1.03	1.00	1.00	1.04	0.88	0.98	Sensitivity Only
CUYAMA2 70kV		P2-4	Bus-Tie Breaker	1.00	1.01	1.00	NA	NA	NA	1.03	1.03	1.00	0.99	1.03	0.89	1.00	Sensitivity Only
STCKDLEA 230kV	MIDWAY 230kV - Section 2E & 2D	P2-4	Bus-Tie Breaker	>0.9	0.98	0.96	NA	NA	NA	>0.9	1.00	0.99	NA	0.99	0.89	0.96	Sensitivity Only
STCKDLEB 230kV		P2-4	Bus-Tie Breaker	>0.9	0.98	0.96	NA	NA	NA	>0.9	1.00	0.99	NA	0.99	0.89	0.96	Sensitivity Only
KERN PP 230kV		P2-4	Bus-Tie Breaker	>0.9	0.98	0.96	NA	NA	NA	>0.9	0.99	0.99	NA	0.98	0.89	0.96	Sensitivity Only
OGLE TAP 115kV		P2-4	Bus-Tie Breaker	>0.9	1.03	1.02	NA	NA	NA	>0.9	1.04	1.03	NA	1.04	0.88	1.02	Sensitivity Only
LERDO 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.03	NA	1.04	0.88	1.01	Sensitivity Only
OGLE JCT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.03	1.01	NA	NA	NA	>0.9	1.04	1.03	NA	1.04	0.88	1.01	Sensitivity Only
LRDO JCT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.90	1.00	Sensitivity Only
DEXZEL 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
KERN OIL 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
POSOMTJT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
DSCVRYTP 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
RASMSNTP 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.01	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.01	Sensitivity Only
RASMUSEN 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.01	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.01	Sensitivity Only
DISCOVER 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.01	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.01	Sensitivity Only
KRN OL J 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.03	0.90	1.00	Sensitivity Only
PTRL JCT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.90	1.00	Sensitivity Only
CALWATER 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
CALWTRTP 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
COLUMBUS 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.03	0.89	1.00	Sensitivity Only
BEAR MTN 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.89	1.00	Sensitivity Only
BEAR TAP 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.90	1.00	Sensitivity Only
MAGUDN J 115kV		P2-4	Bus-Tie Breaker	>0.9	0.99	0.99	NA	NA	NA	>0.9	1.03	1.01	NA	1.03	0.88	0.99	Sensitivity Only
MAGUNDEN 115kV		P2-4	Bus-Tie Breaker	>0.9	0.99	0.99	NA	NA	NA	>0.9	1.03	1.00	NA	1.03	0.88	0.99	Sensitivity Only
BOLTHSE 115kV		P2-4	Bus-Tie Breaker	>0.9	0.99	0.98	NA	NA	NA	>0.9	1.03	1.01	NA	1.03	0.88	0.98	Sensitivity Only
GODN_BER 115kV		P2-4	Bus-Tie Breaker	>0.9	1.02	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.04	0.90	1.00	Sensitivity Only



Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates	
KRNFRNTT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	1.00	NA	NA	NA	>0.9	1.04	1.02	NA	1.03	0.89	1.00	Sensitivity Only
CAWELC 115kV		P2-4	Bus-Tie Breaker	>0.9	1.03	1.01	NA	NA	NA	>0.9	1.04	1.03	NA	1.04	0.88	1.01	Sensitivity Only
KERNFRNT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.01	0.99	NA	NA	NA	>0.9	1.04	1.01	NA	1.03	0.88	0.99	Sensitivity Only
POSO MT 115kV		P2-4	Bus-Tie Breaker	>0.9	1.00	0.99	NA	NA	NA	>0.9	1.03	1.00	NA	1.03	0.88	0.99	Sensitivity Only
VEDDER 115kV		P2-4	Bus-Tie Breaker	>0.9	1.00	0.99	NA	NA	NA	>0.9	1.03	1.00	NA	1.03	0.88	0.99	Sensitivity Only
7STNDRD 115kV	7TH STANDARD-KERN 115kV [1981] & KERN-MAGUNDEN-WITCO115kV[1970]	P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	>0.9	Sensitivity Only
OGLE TAP 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	>0.9	Sensitivity Only
LERDO 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	>0.9	Sensitivity Only
OGLE JCT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	>0.9	Sensitivity Only
LRDO JCT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	>0.9	Sensitivity Only
DEXZEL 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
KERN OIL 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
POSOMTJT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	Sensitivity Only
DSCVRYTP 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
RASMSNTP 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
RASMUSEN 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
DISCOVER 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
PTRLJCT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	>0.9	Sensitivity Only
LIVE OAK 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	>0.9	Sensitivity Only
GODN_BER 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
KRNFRNTT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	Sensitivity Only
CAWELC 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	>0.9	Sensitivity Only
KERNFRNT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
POSO MT 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
VEDDER 115kV		P6	N-1-1	>0.9	>0.9	>0.9	NA	NA	NA	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	Sensitivity Only
STCKDLEA 230kV		P7	DCTL	0.96	0.97	0.95	NA	NA	NA	1.02	1.00	0.98	0.95	1.00	0.86	0.95	Sensitivity Only
STCKDLEB 230kV		P7	DCTL	0.96	0.97	0.95	NA	NA	NA	1.02	1.00	0.98	0.95	1.00	0.86	0.95	Sensitivity Only
KERN PP 230kV		P7	DCTL	0.96	0.97	0.95	NA	NA	NA	1.02	1.00	0.99	0.96	1.00	0.86	0.95	Sensitivity Only
BKRSFLDA 230kV		P7	DCTL	0.96	0.98	0.96	NA	NA	NA	1.02	1.00	0.98	0.95	0.99	0.88	0.96	Sensitivity Only
BKRSFLDB 230kV		P7	DCTL	0.96	0.98	0.96	NA	NA	NA	1.02	1.00	0.99	0.95	0.99	0.88	0.96	Sensitivity Only
DOUBLECJ 115kV		P7	DCTL	1.03	1.03	1.02	NA	NA	NA	1.04	1.05	1.04	1.02	1.05	0.88	1.02	Sensitivity Only
BDGRCKRJ 115kV		P7	DCTL	1.03	1.03	1.02	NA	NA	NA	1.04	1.05	1.04	1.02	1.05	0.88	1.02	Sensitivity Only
HIGHSRA 115kV		P7	DCTL	1.03	1.03	1.02	NA	NA	NA	1.04	1.05	1.04	1.03	1.05	0.88	1.02	Sensitivity Only
BDGRCKRP 115kV		P7	DCTL	1.03	1.03	1.02	NA	NA	NA	1.04	1.05	1.04	1.02	1.05	0.88	1.02	Sensitivity Only
WESTPARK 115kV		P7	DCTL	1.01	1.01	0.99	NA	NA	NA	1.03	1.05	1.03	1.00	1.04	0.88	0.99	Sensitivity Only
7STNDRD 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.05	1.02	1.00	1.05	0.87	0.99	Sensitivity Only
OGLE TAP 115kV		P7	DCTL	1.02	1.03	1.01	NA	NA	NA	1.04	1.04	1.03	1.02	1.04	0.85	1.01	Sensitivity Only
LERDO 115kV		P7	DCTL	1.01	1.02	1.00	NA	NA	NA	1.03	1.04	1.02	1.01	1.04	0.85	1.00	Sensitivity Only
OGLE JCT 115kV		P7	DCTL	1.02	1.03	1.01	NA	NA	NA	1.04	1.04	1.03	1.02	1.04	0.85	1.01	Sensitivity Only
LRDO JCT 115kV		P7	DCTL	1.00	1.01	1.00	NA	NA	NA	1.03	1.05	1.02	1.00	1.04	0.86	1.00	Sensitivity Only
DEXZEL 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	0.99	Sensitivity Only
KERN OIL 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	0.99	Sensitivity Only
POSOMTJT 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	0.99	Sensitivity Only
DSCVRYTP 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	0.99	Sensitivity Only
RASMSNTP 115kV		P7	DCTL	1.00	1.01	1.00	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	1.00	Sensitivity Only



Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates	
RASMUSEN 115kV	Midway-Kern No. 3 & Midway-Kern No. 4 230 kV Lines	P7	DCTL	1.00	1.01	1.00	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	1.00	Sensitivity Only
DISCOVER 115kV		P7	DCTL	1.00	1.01	1.00	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	1.00	Sensitivity Only
KRN OL J 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.87	0.99	Sensitivity Only
PTRLJCT 115kV		P7	DCTL	1.00	1.01	1.00	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	1.00	Sensitivity Only
LIVE OAK 115kV		P7	DCTL	1.01	1.01	1.00	NA	NA	NA	1.03	1.05	1.02	1.00	1.04	0.87	1.00	Sensitivity Only
CALWATER 115kV		P7	DCTL	1.00	1.00	0.99	NA	NA	NA	1.02	1.04	1.02	0.99	1.04	0.86	0.99	Sensitivity Only
PSE-3 115kV		P7	DCTL	1.03	1.03	1.02	NA	NA	NA	1.04	1.05	1.04	1.02	1.05	0.88	1.02	Sensitivity Only
CALWTRTP 115kV		P7	DCTL	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.02	0.99	1.04	0.86	0.99	Sensitivity Only
COLUMBUS 115kV		P7	DCTL	1.00	1.00	0.99	NA	NA	NA	1.02	1.04	1.02	0.99	1.04	0.86	0.99	Sensitivity Only
BEAR MTN 115kV		P7	DCTL	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.02	0.99	1.04	0.86	0.99	Sensitivity Only
BEAR TAP 115kV		P7	DCTL	1.00	1.00	0.99	NA	NA	NA	1.03	1.04	1.02	0.99	1.04	0.86	0.99	Sensitivity Only
MAGUDNJ 115kV		P7	DCTL	0.99	0.99	0.98	NA	NA	NA	1.02	1.04	1.01	0.98	1.03	0.85	0.98	Sensitivity Only
MAGUNDEN 115kV		P7	DCTL	0.98	0.99	0.98	NA	NA	NA	1.02	1.04	1.00	0.97	1.04	0.85	0.98	Sensitivity Only
BOLTHSE 115kV		P7	DCTL	0.98	0.98	0.98	NA	NA	NA	1.01	1.03	1.00	0.98	1.03	0.85	0.98	Sensitivity Only
GRIMWAY 115kV		P7	DCTL	1.03	1.02	0.99	NA	NA	NA	1.03	1.04	1.04	1.03	1.04	0.90	0.99	Sensitivity Only
STOCKDLE 115kV		P7	DCTL	1.01	1.02	0.99	NA	NA	NA	1.03	1.05	1.03	1.01	1.04	0.88	0.99	Sensitivity Only
STCKDLJ 115kV		P7	DCTL	1.01	1.02	1.00	NA	NA	NA	1.03	1.05	1.03	1.01	1.04	0.89	1.00	Sensitivity Only
GODN_BER 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.86	0.99	Sensitivity Only
KERN PWR 115kV		P7	DCTL	1.01	1.02	1.00	NA	NA	NA	1.03	1.05	1.03	1.00	1.04	0.89	1.00	Sensitivity Only
TEVISJ1 115kV		P7	DCTL	1.01	1.02	0.99	NA	NA	NA	1.03	1.05	1.03	1.01	1.04	0.88	0.99	Sensitivity Only
TEVIS 115kV		P7	DCTL	1.01	1.02	0.99	NA	NA	NA	1.03	1.04	1.03	1.01	1.04	0.88	0.99	Sensitivity Only
TEVISJ2 115kV		P7	DCTL	1.01	1.02	1.00	NA	NA	NA	1.03	1.05	1.03	1.01	1.04	0.89	1.00	Sensitivity Only
TEVIS2 115kV		P7	DCTL	1.01	1.02	0.99	NA	NA	NA	1.03	1.05	1.03	1.01	1.05	0.88	0.99	Sensitivity Only
LAMONT 115kV		P7	DCTL	1.03	1.03	1.00	NA	NA	NA	1.03	1.04	1.03	1.03	1.04	0.90	1.00	Sensitivity Only
REGULUS 115kV		P7	DCTL	1.03	1.03	1.00	NA	NA	NA	1.03	1.04	1.03	1.03	1.04	0.90	1.00	Sensitivity Only
KRNFRNTT 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.02	1.04	1.01	0.99	1.04	0.86	0.99	Sensitivity Only
CAWELO C 115kV		P7	DCTL	1.02	1.03	1.01	NA	NA	NA	1.04	1.04	1.03	1.02	1.04	0.85	1.01	Sensitivity Only
KERNFRNT 115kV		P7	DCTL	0.99	1.00	0.98	NA	NA	NA	1.02	1.04	1.01	0.99	1.04	0.85	0.98	Sensitivity Only
EANDBJT 115kV		P7	DCTL	1.02	1.03	1.02	NA	NA	NA	1.03	1.05	1.03	1.02	1.05	0.88	1.02	Sensitivity Only
EANDB 115kV		P7	DCTL	1.02	1.03	1.02	NA	NA	NA	1.03	1.05	1.03	1.02	1.05	0.88	1.02	Sensitivity Only
KERNWATR 115kV		P7	DCTL	1.00	1.01	0.99	NA	NA	NA	1.03	1.04	1.02	1.00	1.04	0.87	0.99	Sensitivity Only
KTL_SF_J1 115kV		P7	DCTL	1.02	1.02	0.99	NA	NA	NA	1.03	1.04	1.03	1.02	1.04	0.89	0.99	Sensitivity Only
ARVINJ1 115kV		P7	DCTL	1.02	1.02	1.00	NA	NA	NA	1.03	1.04	1.03	1.02	1.04	0.89	1.00	Sensitivity Only
ARVIN_ED 115kV		P7	DCTL	1.02	1.02	0.99	NA	NA	NA	1.03	1.04	1.03	1.02	1.04	0.89	0.99	Sensitivity Only
ARVINJ2 115kV		P7	DCTL	1.02	1.02	1.00	NA	NA	NA	1.03	1.04	1.03	1.02	1.04	0.89	1.00	Sensitivity Only
ROSEDAL 115kV		P7	DCTL	1.01	1.02	1.00	NA	NA	NA	1.03	1.05	1.03	1.00	1.05	0.89	1.00	Sensitivity Only
TX_ROSDL 115kV		P7	DCTL	1.01	1.02	1.00	NA	NA	NA	1.03	1.05	1.03	1.00	1.05	0.89	1.00	Sensitivity Only
POSO MT 115kV		P7	DCTL	0.98	0.99	0.98	NA	NA	NA	1.02	1.04	1.00	0.98	1.03	0.85	0.98	Sensitivity Only
VEDDER 115kV		P7	DCTL	0.98	0.99	0.98	NA	NA	NA	1.01	1.04	1.00	0.98	1.03	0.85	0.98	Sensitivity Only
SDA15199 115kV		P7	DCTL	1.02	1.02	0.99	NA	NA	NA	1.03	1.04	1.03	1.02	1.04	0.89	0.99	Sensitivity Only
MC FRLND 70kV		P7	DCTL	1.04	1.04	0.98	NA	NA	NA	1.01	1.01	1.04	1.06	1.01	0.89	0.98	Sensitivity Only
WHEELER 230kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.74	1.08	>0.9	>0.9	1.11	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months
TECUYA T 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months

Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)						Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates		
GRMMWY T 70kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.82	1.03	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
WHEELER 115kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.78	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
ADOBESWSTA 115kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.78	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
LAKEVIEW 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
WHEELER 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
TEJON 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
ORIONTP 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.80	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
ORION 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.80	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
SN BRNRD 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
ARVIN 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.80	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
WEEDPTCH 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.82	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
WEEDPATCH_SF70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.82	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
GRMWY_SM 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.82	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
WELLFILD 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.82	1.03	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
3EMIDIO 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.78	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
VALPREDO 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.78	1.03	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
ROSE 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.78	1.03	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
PACI_PIP 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.77	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
TECUYA 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
GRAPEVNE 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.77	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months	
STALLION 70kV	P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.80	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months		
STALIONJ 70kV	P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.80	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months		
LEBEC 70kV	P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.76	1.02	>0.9	>0.9	1.02	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months		
EMDO JCT 70kV	P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.79	1.04	>0.9	>0.9	1.04	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months		

Study Area: PG&E Kern

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	2030 Summer Peak w/o Facility Rerates	
CASTAC 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.76	1.02	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months
KELLEY 70kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.77	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months
Q622B 115kV		P7	DCTL	>0.9	>0.9	>0.9	NA	NA	NA	0.78	1.03	>0.9	>0.9	1.03	>0.9	>0.9	Utilize Summer Setup for summer and non-summer months
WESTPARK 115kV	Kern PP-Westpark No. 1 & 2 115 kV Lines	P7	DCTL	>0.9	0.93	0.94	NA	NA	NA	1.02	1.04	>0.9	>0.9	1.04	0.83	0.94	Sensitivity Only
CALWATER 115kV		P7	DCTL	>0.9	0.94	0.95	NA	NA	NA	1.02	1.04	>0.9	>0.9	1.04	0.83	0.95	Sensitivity Only
CALWTRTP 115kV		P7	DCTL	>0.9	0.94	0.95	NA	NA	NA	1.02	1.04	>0.9	>0.9	1.04	0.83	0.95	Sensitivity Only
COLUMBUS 115kV		P7	DCTL	>0.9	0.94	0.95	NA	NA	NA	1.02	1.04	>0.9	>0.9	1.04	0.84	0.95	Sensitivity Only
BEAR MTN 115kV		P7	DCTL	>0.9	0.94	0.95	NA	NA	NA	1.02	1.04	>0.9	>0.9	1.04	0.83	0.95	Sensitivity Only
BEAR TAP 115kV		P7	DCTL	>0.9	0.94	0.95	NA	NA	NA	1.02	1.04	>0.9	>0.9	1.04	0.84	0.95	Sensitivity Only
MAGUDN J 115kV		P7	DCTL	>0.9	0.95	0.96	NA	NA	NA	1.01	1.03	>0.9	>0.9	1.03	0.87	0.96	Sensitivity Only
MAGUNDEN 115kV		P7	DCTL	1.01	0.95	0.96	NA	NA	NA	1.01	1.03	1.01	0.99	1.03	0.87	0.96	Sensitivity Only
BOLTHSE 115kV		P7	DCTL	>0.9	0.95	0.96	NA	NA	NA	1.01	1.03	>0.9	>0.9	1.03	0.87	0.96	Sensitivity Only

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
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generation	
BSCSCH T 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
TAFT 115kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	1	0	1	1	0	8	Sensitivity Only
UNIVRSTY 115kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	0	0	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
MCKTTRCK 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
NORTHMWY 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
MDWY_P_S 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
TAFT A_J 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
MARICOPA 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
MOCO_JCT 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
GARDNER 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
BRY_PTLM 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
BSCL_PLD 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
GARDNR T 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
COPUS_D 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
COPUS_E 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
TEMBLOR 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
Q620TP 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
Q620 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
MOCO 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
CADET 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
TX_BV_HL 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	1	0	1	1	0	8	Sensitivity Only
ELK HLLS 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	1	0	1	1	0	8	Sensitivity Only
CUYAMA2 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
KNG_ELIS 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	1	0	1	1	0	8	Sensitivity Only
CELERON 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	1	0	1	1	0	8	Sensitivity Only
SLR_TANH 70kV	MIDWAY-TAFT 115kV [2620]	P1	N-1	1	1	1	NA	NA	NA	0	0	1	1	0	8	Sensitivity Only
KERNRDGE 115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGELH 69kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
TEMBLOR 115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	1	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
CARRIZO 115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	14	Sensitivity Only
KERNRDGE_G32115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L11115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L34115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_S17115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_S20115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L18115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L32115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L06115kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L0669kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L0469kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only
KERNRDGE_L1969kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	0	0	0	NA	NA	NA	0	0	0	0	0	19	Sensitivity Only

Study Area: PG&E Kern

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2025 Summer Peak	2030 Summer Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SP Heavy Renewable & Min Gas Gen	
Midway-Caliente Sw. Station 230 kV line	P1-2	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kern PP 230/115 kV #13 Transformer 3Ø fault with normal clearing.	P1-3	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Midway 230/115 Bank Transformer 3Ø fault with normal clearing.	P1-3	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Wheeler 230 kV Cap Bank 3Ø fault with normal clearing.	P1-4	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Midway 230 kV bus SLG fault with normal clearing.	P2-2	Bus Section Fault	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Midway 115 kV bus-tie breaker SLG fault with normal clearing.	P2-4	Internal Breaker Fault(Bus Tie Fault)	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Under Review
Kern Power to 7 Standard 115 kV line fault with normal clearing with Mt. Poso Offline in the case	P3-2	G-1/N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Tx Sunset SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-1	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kern Power to 7 Standard 115 kv line expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-2	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
La Paloma SLG Fault with delayed clearing	P5-1	Non Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Midway-Wheeler Ridge #1 & #2 230 kV Lines SLG fault with successful high speed reclose.	P7	DCTL	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Under Review



Study Area: PG&E Kern



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

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
	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

No single source substation with more than 100 MW