

Study Area: PG&E Kern
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
30945 KERN PP 230 30942 STCKDLJ1 230 1	P1-2:A15:30:_KERN PP-BKRSFLDB-MIDWAY 230kV & P1-2:A15:88:_STCKDLEB-KERN PP-MIDWAY 230kV	P6	N-1-1	128	<100	<100	NA	NA	NA	75	<100	<100	<100	<100	<100	Project : Midway-Kern PP 230 kV line capacity increase project and Midway-Kern PP #2 230kV Line project ;Phase 1(Tap Removal) In-Service Date : 03/2021; Phase 2: Line reconductor (03/2023) Short term: Action Plan
	P7-1:A15:12:_Midway-Kern No. 3 & Midway-Kern No. 4 230 kV Lines	P7	DCTL	132	NA	NA	NA	NA	NA	75	NA	NA	NA	42	NA	Project : Midway-Kern PP 230 kV line capacity increase project and Midway-Kern PP #2 230kV Line project ;Phase 1(Tap Removal) In-Service Date : 03/2021; Phase 2: Line reconductor (03/2023) Short term: Action Plan
30970 MIDWAY 230 30942 STCKDLJ1 230 1	P1-2:A15:30:_KERN PP-BKRSFLDB-MIDWAY 230kV & P1-2:A15:88:_STCKDLEB-KERN PP-MIDWAY 230kV	P6	N-1-1	115	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	<100	Project : Midway-Kern PP 230 kV line capacity increase project and Midway-Kern PP #2 230kV Line project ;Phase 1(Tap Removal) In-Service Date : 03/2021; Phase 2: Line reconductor (03/2023) Short term: Action Plan
	P7-1:A15:12:_Midway-Kern No. 3 & Midway-Kern No. 4 230 kV Lines	P7	DCTL	118	NA	NA	NA	NA	NA	50	NA	NA	NA	45	NA	Project : Midway-Kern PP 230 kV line capacity increase project and Midway-Kern PP #2 230kV Line project ;Phase 1(Tap Removal) In-Service Date : 03/2021; Phase 2: Line reconductor (03/2023) Short term: Action Plan
	P2-4:A15:20:_MIDWAY 230kV - Section 2F & 2E	P2	P2-4	103	NA	NA	NA	NA	NA	43	NA	NA	NA	39	NA	Project : Midway-Kern PP 230 kV line capacity increase project and Midway-Kern PP #2 230kV Line project ;Phase 1(Tap Removal) In-Service Date : 03/2021; Phase 2: Line reconductor (03/2023) Short term: Action Plan
30970 MIDWAY 230 30943 STCKDLJ2 230 1	P1-2:A15:30:_KERN PP-BKRSFLDB-MIDWAY 230kV & P1-2:A15:87:_STCKDLEA-KERN PP-MIDWAY 230kV	P6	N-1-1	100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	<100	Project : Midway-Kern PP 230 kV line capacity increase project and Midway-Kern PP #2 230kV Line project ;Phase 1(Tap Removal) In-Service Date : 03/2021; Phase 2: Line reconductor (03/2023) Short term: Action Plan
	P2-1:A15:97:_MIDWAY-TEMBLOR 115kV [2630] (TEMBLOR-PSE MCKJ)	P2	P2-1	43	27	26	NA	NA	NA	105	64	27	65	105	26	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Project; In-Service Date:12/2022 Short term: Action Plan
	P2-2:A15:63:_TEMBLOR 115kV Section 1D	P2	P2-2	43	27	26	NA	NA	NA	105	64	27	65	104	26	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Project; In-Service Date:12/2022 Short term: Action Plan

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34225 BELRDG J 115 34774 MIDWAY 115 1	P2-3:A15:124:_TEMBLOR - 1D 115kV & TEMBLOR-SAN LUIS OBISPO line	P2	P2-3	43	27	26	NA	NA	NA	105	64	27	65	104	26	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Project; In-Service Date:12/2022 Short term: Action Plan
	P1-2:A15:97:_TEMBLOR-KERNRIDGE 115kV & P1-2:A15:98:_TEMBLOR-SAN LUIS OBISPO 115kV	P6	N-1-1	<100	<100	<100	NA	NA	NA	100	<100	<100	<100	98	<100	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Project; In-Service Date:12/2022 Short term: Action Plan
	P7-1:A15:16:_Caliente Sw Sta - Midway #1 & #2 230 kV Lines	P7	DCTL	28	27	24	NA	NA	NA	139	81	26	91	124	24	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Project; In-Service Date:12/2022 Short term: Action Plan
34709 7STNDRD 115 34752 KERN PWR 115 1	P2-2:A15:25:_KERN PWR 115kV Section 2E	P2	P2-2	105	NA	NA	NA	NA	NA	29	NA	NA	NA	62	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-4:A15:7:_KERN PWR 115kV - Section 1E & 2E	P2	P2-4	105	NA	NA	NA	NA	NA	29	NA	NA	NA	62	NA	
34716 LRDO JCT 115 34718 KERN OIL 115 1	P2-2:A15:25:_KERN PWR 115kV Section 2E	P2	P2-2	118	NA	NA	NA	NA	NA	6	NA	NA	NA	86	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-4:A15:7:_KERN PWR 115kV - Section 1E & 2E	P2	P2-4	118	NA	NA	NA	NA	NA	6	NA	NA	NA	86	NA	
34741 STCKDLJ 115 34807 ARVINJ2 115 1	P2-1:A15:74:_KERN-TEVIS-STOCKDALE 115kV [1990] (KERN PWR-TEVISJ1)	P2	P2-1	112	NA	NA	NA	NA	NA	76	NA	NA	NA	24	NA	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-2:A15:22:_KERN PWR 115kV Section 1D	P2	P2-2	113	NA	NA	NA	NA	NA	76	NA	NA	NA	24	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-4:A15:6:_KERN PWR 115kV - Section 1E & 1D	P2	P2-4	113	NA	NA	NA	NA	NA	76	NA	NA	NA	23	NA	
34749 TPMNTP1 115 34750 TUPMAN 115 1	P2-4:A15:12:_MIDWAY 115kV - Section 2E & 1E	P2	P2-4	115	126	152	NA	NA	NA	12	13	130	4	72	154	Summer Setup proposed in 2017-2018 TPP
34751 TPMNTP2 115 34750 TUPMAN 115 1	P2-4:A15:12:_MIDWAY 115kV - Section 2E & 1E	P2	P2-4	99	107	126	NA	NA	NA	13	12	109	6	62	126	Summer Setup proposed in 2017-2018 TPP
34752 KERN PWR 115 30945 KERN PP 230 3	P1-3:A15:26:_KERN PP 230/115kV TB 4 & P1-3:A15:27:_KERN PP 230/115kV TB 5	P6	N-1-1	102	70	100	NA	NA	NA	83	<100	73	<100	<100	100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024; Rely on SPS and gen dispatach for overloads in later year Short term: Action Plan and SPS
	P1-3:A15:25:_KERN PP 230/115kV TB 3 & P1-3:A15:27:_KERN PP 230/115kV TB 5	P6	N-1-1	102	71	101	NA	NA	NA	83	<100	74	<100	<100	101	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024; Rely on SPS and gen dispatach for overloads in later year Short term: Action Plan and SPS
	P2-4:A15:9:_KERN PWR 115kV - Section 2E & 2D	P2	P2-4	104	NA	NA	NA	NA	NA	35	NA	NA	NA	30	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan

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				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
	P1-3:A15:25:_KERN PP 230/115kV TB 3 & P1-3:A15:26:_KERN PP 230/115kV TB 4	P6	N-1-1	102	71	101	NA	NA	NA	83	<100	74	<100	<100	101	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34752 KERN PWR 115 34753 TEVISJ1 115 1	P1-2:A15:43:_KERN-TEVIS-STOCKDALE-LAMONT 115kV	P1	N-1	122	74	75	NA	NA	NA	82	6	75	3	35	75	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-1:A15:75:_KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	P2-1	131	72	73	NA	NA	NA	75	6	73	3	27	73	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-2:A15:24:_KERN PWR 115kV Section 2D	P2	P2-2	131	NA	NA	NA	NA	NA	75	NA	NA	NA	27	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-3:A15:126:_TEVIS2 - 1E 115kV & KERN-TEVIS-STOCKDALE-LAMONT line	P2	P2-3	122	74	75	NA	NA	NA	82	6	75	3	35	75	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-3:A15:40:_KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	P2-3	131	NA	NA	NA	NA	NA	75	NA	NA	NA	27	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-3:A15:55:_LAMONT 115kV - Middle Breaker Bay 3	P2	P2-3	122	44	44	NA	NA	NA	44	4	44	2	34	44	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-4:A15:9:_KERN PWR 115kV - Section 2E & 2D	P2	P2-4	131	NA	NA	NA	NA	NA	76	NA	NA	NA	27	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P1-1:A15:32:_PSE-BEAR 13.80kV Gen Unit 1 & P1-2:A15:43:_KERN-TEVIS-STOCKDALE-LAMONT 115kV	P3	G-1/N-1	122	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P1-2:A15:88:_STCKDLEB-KERN PP-MIDWAY 230kV & P1-2:A15:43:_KERN-TEVIS-STOCKDALE-LAMONT 115kV	P6	N-1-1	123	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P1-2:A15:42:_KERN-TEVIS-STOCKDALE 115kV	P1	N-1	132	74	75	NA	NA	NA	73	6	75	3	21	75	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan

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34752 KERN PWR 115 34755 TEVISJ2 115 1	P2-1:A15:74:_KERN-TEVIS-STOCKDALE 115kV [1990] (KERN PWR-TEVISJ1)	P2	P2-1	136	72	73	NA	NA	NA	75	6	73	3	19	73	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-2:A15:22:_KERN PWR 115kV Section 1D	P2	P2-2	136	NA	NA	NA	NA	NA	75	NA	NA	NA	18	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-3:A15:105:_STOCKDLE - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2	P2-3	130	52	58	NA	NA	NA	75	12	53	13	33	58	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-3:A15:125:_TEVIS - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2	P2-3	132	74	75	NA	NA	NA	73	6	75	3	21	75	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-3:A15:38:_KERN PWR - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2	P2-3	133	NA	NA	NA	NA	NA	73	NA	NA	NA	19	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-4:A15:6:_KERN PWR 115kV - Section 1E & 1D	P2	P2-4	137	NA	NA	NA	NA	NA	75	NA	NA	NA	17	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P1-2:A15:26:_GRIMMWAY-MALAGA TAP 115kV & P1-2:A15:42:_KERN-TEVIS-STOCKDALE 115kV	P6	N-1-1	123	<100	<100	NA	NA	NA	80	<100	<100	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34753 TEVISJ1 115 34740 STOCKDLE 115 1	P2-1:A15:75:_KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	P2-1	107	47	43	NA	NA	NA	78	15	47	14	33	43	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-2:A15:24:_KERN PWR 115kV Section 2D	P2	P2-2	107	NA	NA	NA	NA	NA	79	NA	NA	NA	33	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-3:A15:40:_KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	P2-3	107	NA	NA	NA	NA	NA	79	NA	NA	NA	33	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-4:A15:9:_KERN PWR 115kV - Section 2E & 2D	P2	P2-4	107	NA	NA	NA	NA	NA	79	NA	NA	NA	32	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
34755 TEVISJ2 115 34741 STCKDLJ 115 1	P2-2:A15:22:_KERN PWR 115kV Section 1D	P2	P2-2	112	NA	NA	NA	NA	NA	76	NA	NA	NA	24	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	P2-4:A15:6:_KERN PWR 115kV - Section 1E & 1D	P2	P2-4	113	NA	NA	NA	NA	NA	75	NA	NA	NA	23	NA	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
34758 LAMONT 115 34805 ARVINJ1 115 1	P1-2:A15:26:_GRIMMWAY-MALAGA TAP 115kV & P1-2:A15:47:_LAMONT-WHEELR_J 115kV	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	99	<100	103	<100	<100	Sensitivity Only
	P1-2:A15:71:_MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115kV	P1	N-1	82	88	100	NA	NA	NA	9	13	91	10	56	100	Short term: Not an issue; Long Term : Monitor Overload

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34766 SHAFTER 115 34774 MIDWAY 115 1	P2-1:A15:100:_MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115kV [2600] (RENF RJCT-RIO BRVO)	P2	P2-1	82	89	100	NA	NA	NA	9	13	91	10	56	100	Short term: Not an issue; Long Term : Monitor Overload
	P2-3:A15:75:_MIDWAY - 1E 115kV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO line	P2	P2-3	82	89	101	NA	NA	NA	9	13	91	10	56	101	Short term: Not an issue; Long Term : Monitor Overload
	P2-3:A15:93:_RENFRO2 - 1F 115kV & MIDWAY-TUPMAN-RIO BRAVO-RENFRO line	P2	P2-3	82	88	100	NA	NA	NA	9	13	91	10	56	100	Short term: Not an issue; Long Term : Monitor Overload
	P1-1:A15:10:_ELKHIL1G 18.00kV Gen Unit 1 & P1-2:A15:71:_MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115kV	P3	G-1/N-1	<100	<100	101	NA	NA	NA	<100	<100	<100	<100	<100	101	Short term: Not an issue; Long Term : Monitor Overload
	P1-4:A15:16:_WHEELER SVD=v & P1-2:A15:71:_MIDWAY-TUPMAN-RIO BRAVO-RENFRO 115kV	P6	N-1-1	<100	<100	101	NA	NA	NA	<100	<100	<100	<100	<100	101	Short term: Not an issue; Long Term : Monitor Overload
34774 MIDWAY 115 30970 MIDWAY 230 2	P2-4:A15:10:_MIDWAY 115kV - Section 1E & 1D	P2	P2-4	78	88	101	NA	NA	NA	66	61	90	72	27	101	Short term: Not an issue; Long Term : Monitor Overload
	P2-4:A15:15:_MIDWAY 230kV - Section 1E & 1D	P2	P2-4	82	93	107	NA	NA	NA	68	64	95	76	28	107	Short term: Not an issue; Long Term : Monitor Overload
34775 RENFRJCT 115 34760 RIO BRVO 115 1	P2-4:A15:12:_MIDWAY 115kV - Section 2E & 1E	P2	P2-4	83	90	106	NA	NA	NA	9	13	92	9	57	106	Short term: Not an issue; Long Term : Monitor Overload
	P2-4:A15:13:_MIDWAY 115kV - Section 2E & 2D	P2	P2-4	81	88	102	NA	NA	NA	9	12	91	9	56	102	Short term: Not an issue; Long Term : Monitor Overload
34776 TAFT 115 34860 TAFT A 70.0 2	P1-3:A15:76:_TAFT 115/70kV TB 1	P1	N-1	89	89	111	NA	NA	NA	52	42	92	66	37	111	Potential Mitigation Required (System Upgrade/ Preferred Resources)
	P2-3:A15:113:_TAFT 115kV - Ring R2 & R3	P2	P2-3	88	89	112	NA	NA	NA	48	41	92	65	33	112	Short term: Not an issue; Long Term : Monitor Overload
	P2-3:A15:114:_TAFT 115kV - Ring R4 & R3	P2	P2-3	89	89	111	NA	NA	NA	51	42	92	67	38	111	Short term: Not an issue; Long Term : Monitor Overload
	P1-1:A15:54:_SLR-TANN 9.11kV Gen Unit 1 & P1-3:A15:76:_TAFT 115/70kV TB 1	P3	G-1/N-1	109	109	111	NA	NA	NA	<100	<100	112	<100	<100	<100	Potential Mitigation Required (System Upgrade/ Preferred Resources)
	P1-2:A15:2:_ARCO-CARNERAS 70kV & P1-3:A15:76:_TAFT 115/70kV TB 1	P6	N-1-1	101	103	127	NA	NA	NA	<100	<100	106	<100	<100	127	Potential Mitigation Required (System Upgrade/ Preferred Resources)
	P1-2:A15:69:_MIDWAY-TAFT 115kV	P1	N-1	2	3	NA	NA	NA	NA	102	101	3	118	75	NA	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-2:A15:35:_MIDWAY 115kV Section 2D	P2	P2-2	1	2	14	NA	NA	NA	103	101	3	118	75	14	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units

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34777 FELLOWSG 115 34800 SANTA FE SUB 115 1	P2-3:A15:112:_TAFT 115kV - Ring R2 & R1	P2	P2-3	23	23	11	NA	NA	NA	107	105	21	121	91	11	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:113:_TAFT 115kV - Ring R2 & R3	P2	P2-3	1	2	15	NA	NA	NA	102	100	3	117	74	15	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:78:_MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	P2-3	1	2	14	NA	NA	NA	103	101	3	118	75	14	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:79:_MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	P2-3	1	2	14	NA	NA	NA	103	101	3	118	75	14	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-4:A15:13:_MIDWAY 115kV - Section 2E & 2D	P2	P2-4	2	2	15	NA	NA	NA	103	101	3	118	75	15	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-1:A15:3:_CHEV.USA 9.11kV Gen Unit 1 & P1-2:A15:69:_MIDWAY-TAFT 115kV	P3	G-1/N-1	<100	<100	<100	NA	NA	NA	98	96	<100	113	71	<100	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-2:A15:69:_MIDWAY-TAFT 115kV & P1-2:A15:95:_TAFT-ELK HILLS 70kV	P6	N-1-1	<100	<100	<100	NA	NA	NA	92	91	<100	124	83	<100	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-2:A15:69:_MIDWAY-TAFT 115kV	P1	N-1	11	12	NA	NA	NA	NA	103	102	15	121	70	NA	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-2:A15:35:_MIDWAY 115kV Section 2D	P2	P2-2	12	12	27	NA	NA	NA	103	102	15	121	70	27	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units

Study Area: PG&E Kern
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
34777 FELLOWSG 115 39070 AEVICTORYJT 115 1	P2-3:A15:112:_TAFT 115kV - Ring R2 & R1	P2	P2-3	11	11	3	NA	NA	NA	107	106	9	124	86	3	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:113:_TAFT 115kV - Ring R2 & R3	P2	P2-3	12	12	26	NA	NA	NA	103	102	15	120	69	26	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:78:_MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	P2-3	12	12	27	NA	NA	NA	103	102	15	121	70	27	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:79:_MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	P2-3	12	12	27	NA	NA	NA	103	102	15	121	70	27	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-4:A15:13:_MIDWAY 115kV - Section 2E & 2D	P2	P2-4	11	12	26	NA	NA	NA	103	103	15	122	70	26	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-1:A15:3:_CHEV.USA 9.11kV Gen Unit 1 & P1-2:A15:69:_MIDWAY-TAFT 115kV	P3	G-1/N-1	<100	<100	<100	NA	NA	NA	99	98	<100	117	<100	<100	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-2:A15:69:_MIDWAY-TAFT 115kV & P1-2:A15:95:_TAFT-ELK HILLS 70kV	P6	N-1-1	<100	<100	<100	NA	NA	NA	93	93	<100	127	78	<100	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
34780 CYMRIC 115 34781 TEXCO_NM 115 1	P1-2:A15:69:_MIDWAY-TAFT 115kV & P1-2:A15:91:_TAFT-CHALK CLIFF 115kV	P6	N-1-1	100	99	<100	NA	NA	NA	<100	<100	99	<100	<100	<100	Continue to monitor future load forecast
	P1-2:A15:69:_MIDWAY-TAFT 115kV	P1	N-1	1	3	NA	NA	NA	NA	88	87	3	101	64	NA	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units

Study Area: PG&E Kern
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
34800 SANTA FE SUB 115 34802 MIDSET 115 1	P2-2:A15:35:_MIDWAY 115kV Section 2D	P2	P2-2	1	2	12	NA	NA	NA	88	87	3	101	64	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:112:_TAFT 115kV - Ring R2 & R1	P2	P2-3	20	20	9	NA	NA	NA	92	90	18	104	78	9	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:113:_TAFT 115kV - Ring R2 & R3	P2	P2-3	1	2	13	NA	NA	NA	88	86	2	101	64	13	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:78:_MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	P2-3	1	2	12	NA	NA	NA	88	87	3	101	64	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:79:_MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	P2-3	1	2	12	NA	NA	NA	88	87	2	101	64	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-4:A15:13:_MIDWAY 115kV - Section 2E & 2D	P2	P2-4	2	1	13	NA	NA	NA	88	87	2	102	65	13	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-2:A15:69:_MIDWAY-TAFT 115kV & P1-2:A15:95:_TAFT-ELK HILLS 70kV	P6	N-1-1	<100	<100	<100	NA	NA	NA	79	78	<100	107	72	<100	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-2:A15:69:_MIDWAY-TAFT 115kV	P1	N-1	2	3	NA	NA	NA	NA	89	88	3	102	65	NA	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-1:A15:128:_TAFT-CUYAMA #1 70kV [9200] (Q356JCT-CUYAMA)	P2	P2-1	2	2	12	NA	NA	NA	89	87	2	102	65	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units

Study Area: PG&E Kern
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
34802 MIDSET 115 34776 TAFT 115 1	P2-2:A15:35:_MIDWAY 115kV Section 2D	P2	P2-2	20	21	10	NA	NA	NA	93	91	19	105	79	10	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:111:_TAFT 115kV - Ring R1 & R5	P2	P2-3	2	2	12	NA	NA	NA	88	87	2	101	65	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:112:_TAFT 115kV - Ring R2 & R1	P2	P2-3	2	2	12	NA	NA	NA	89	87	2	102	65	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:78:_MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	P2-3	2	2	12	NA	NA	NA	89	88	2	102	65	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P2-3:A15:79:_MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	P2-3	3	2	12	NA	NA	NA	89	88	2	102	66	12	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
	P1-2:A15:69:_MIDWAY-TAFT 115kV & P1-2:A15:95:_TAFT-ELK HILLS 70kV	P6	N-1-1	<100	<100	<100	NA	NA	NA	80	79	<100	107	72	<100	Short term: Overload seen in Non-Peak(Off and sensitivity scenarios) Studies. Redispatch not possible due to QF units in the area. Long Term: Propose Solution/ SPS to trip QF units
34849 TAFT_SW_TAFC 70.0 34943 Q356JCT 70.0 1	Base Case	P0	N-0	35	34	35	NA	NA	NA	74	71	36	116	97	35	Sensitivity Only
	P2-1:A15:128:_TAFT-CUYAMA #1 70kV [9200] (Q356JCT-CUYAMA)	P2	P2-1	2	2	2	NA	NA	NA	74	71	2	110	111	2	Sensitivity Only
34860 TAFT A 70.0 34849 TAFT_SW_TAFC 70.0 1	Base Case	P0	N-0	35	34	35	NA	NA	NA	73	70	36	115	96	35	Sensitivity Only
	P2-1:A15:128:_TAFT-CUYAMA #1 70kV [9200] (Q356JCT-CUYAMA)	P2	P2-1	2	2	2	NA	NA	NA	73	70	2	109	110	2	Sensitivity Only
34873 LOSTHILLTP 70.0 34850 BLACKWLL 70.0 1	Base Case	P0	N-0	24	27	29	NA	NA	NA	92	92	27	102	84	29	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)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
34876 TEJON 70.0 34143 TECUYA T 70.0 1	Base Case	P0	N-0	95	102	111	NA	NA	NA	42	45	102	43	83	111	Under review
	P1-3:A15:88:_WHEELER 230/70kV TB 4 & P1-3:A15:89:_WHEELER 230/70kV TB 5	P6	N-1-1	102	106	110	NA	NA	NA	<100	<100	106	<100	<100	106	Use the appropriate Summer Setup. (Magunden CB 22)
34886 MAGNDN J 70.0 34902 MAGUNDEN 70.0 1	P1-1:A15:19:_KERNCNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	86	95	107	NA	NA	NA	<100	<100	96	<100	<100	123	Potential Mitigation Required (System Upgrade/ Preferred Resources)/System readjustment as needed
34891 WEEDPATCH_SF 70.0 34886 MAGNDN J 70.0 1	P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P1	N-1	94	102	114	NA	NA	NA	26	29	103	25	76	116	Use the appropriate Summer Setup. (Magunden CB 22)
34892 WEEDPATCH_SF 70.0 34886 MAGNDN J 70.0 1	P1-1:A15:19:_KERNCNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	98	107	120	NA	NA	NA	<100	<100	109	<100	79	123	Potential Mitigation Required (System Upgrade/ Preferred Resources)/System readjustment as needed
34898 BAKRSFLD 70.0 34902 MAGUNDEN 70.0 1	P1-1:A15:19:_KERNCNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	86	95	107	NA	NA	NA	<100	<100	96	<100	<100	123	Potential Mitigation Required (System Upgrade/ Preferred Resources)/System readjustment as needed
38600 BUENAVJ1 230 30970 MIDWAY 230 1	P2-2:A15:40:_MIDWAY 230kV Section 2D	P2	P2-2	102	60	68	NA	NA	NA	74	25	60	24	85	68	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-3:A15:80:_MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2	P2-3	102	60	68	NA	NA	NA	74	25	60	27	85	68	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-4:A15:19:_MIDWAY 230kV - Section 2E & 2D	P2	P2-4	103	67	78	NA	NA	NA	74	24	68	23	85	78	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
38605 BUENAVJ2 230 30970 MIDWAY 230 1	P2-2:A15:37:_MIDWAY 230kV Section 1D	P2	P2-2	103	67	77	NA	NA	NA	74	25	68	23	85	78	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-3:A15:74:_MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	P2-3	103	NA	NA	NA	NA	NA	74	NA	NA	NA	85	NA	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-3:A15:85:_MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	P2-3	103	67	78	NA	NA	NA	74	25	68	26	85	78	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	P2-4:A15:15:_MIDWAY 230kV - Section 1E & 1D	P2	P2-4	103	73	86	NA	NA	NA	74	24	74	22	85	86	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
HighSRA 115 kV	Base Case	P0	Basecase	1.05	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
7STNDRD 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
ANTELOPE 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.03	1.05	1.03	1.03	Load power factor correction and voltage support if needed
ANTLP JC 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.03	1.05	1.03	1.03	Load power factor correction and voltage support if needed
BDGRCKRJ 115 kV	Base Case	P0	Basecase	1.05	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
BDGRCKRP 115 kV	Base Case	P0	Basecase	1.05	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
BEAR MTN 115 kV	Base Case	P0	Basecase	1.05	1.05	1.03	NA	NA	NA	1.04	1.05	1.05	1.05	1.03	1.03	Load power factor correction and voltage support if needed
BEAR TAP 115 kV	Base Case	P0	Basecase	1.05	1.05	1.02	NA	NA	NA	1.04	1.05	1.05	1.05	1.03	1.02	Load power factor correction and voltage support if needed
BRRNDA A 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.03	1.05	1.03	1.03	Load power factor correction and voltage support if needed
BRRNDA C 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.03	1.05	1.03	1.03	Load power factor correction and voltage support if needed
CALWATER 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.04	1.05	1.05	1.05	1.03	1.02	Load power factor correction and voltage support if needed
CALWTRTP 115 kV	Base Case	P0	Basecase	1.05	1.05	1.03	NA	NA	NA	1.04	1.05	1.05	1.05	1.03	1.02	Load power factor correction and voltage support if needed
CARNAT T 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
CARNATIO 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
CAWELO C 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
CHLME JT 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.03	1.05	1.04	1.03	Load power factor correction and voltage support if needed
COLUMBUS 115 kV	Base Case	P0	Basecase	1.05	1.05	1.02	NA	NA	NA	1.04	1.05	1.05	1.05	1.03	1.02	Load power factor correction and voltage support if needed
DEXZEL 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
DISCOVER 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
DOUBLECJ 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
DSCVRYTP 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
EANDB 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
EANDBJT 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
FRITO LY 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.02	Load power factor correction and voltage support if needed
FRTLTP 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.05	1.04	1.04	1.02	Load power factor correction and voltage support if needed
GODN_BER 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
INERGY 115 kV	Base Case	P0	Basecase	1.04	1.05	1.01	NA	NA	NA	1.05	1.04	1.05	1.04	1.04	1.01	Load power factor correction and voltage support if needed
KERN OIL 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
KERN PWR 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.06	1.04	1.03	Load power factor correction and voltage support if needed
KERNWATR 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.03	1.02	Load power factor correction and voltage support if needed
KRN OL J 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
LERDO 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
LIVE OAK 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
LRDO JCT 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
MAGUNDEN 115 kV	Base Case	P0	Basecase	1.02	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.02	1.02	Load power factor correction and voltage support if needed
MC FRLND 70 kV	Base Case	P0	Basecase	1.00	1.00	0.98	NA	NA	NA	1.05	1.05	1.00	1.05	1.01	0.98	Load power factor correction and voltage support if needed
MCFRLD T 70 kV	Base Case	P0	Basecase	1.01	1.01	1.00	NA	NA	NA	1.05	1.05	1.01	1.05	1.02	1.00	Load power factor correction and voltage support if needed
MIDWAY 115 kV	Base Case	P0	Basecase	1.04	1.05	1.04	NA	NA	NA	1.05	1.04	1.05	1.04	1.05	1.04	Load power factor correction and voltage support if needed
NORCO 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.05	1.04	1.04	1.02	Load power factor correction and voltage support if needed
NORCO_TA 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.05	1.04	1.04	1.02	Load power factor correction and voltage support if needed
OGLE JCT 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
OGLE TAP 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
OLD RIVR 70 kV	Base Case	P0	Basecase	1.03	1.03	1.02	NA	NA	NA	1.05	1.06	1.04	1.06	1.04	1.02	Load power factor correction and voltage support if needed
OLD_RVR1 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.06	1.04	1.06	1.04	1.03	Load power factor correction and voltage support if needed

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
OLD_RVR1_TP 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.06	1.04	1.06	1.04	1.03	Load power factor correction and voltage support if needed
PSE-3 115 kV	Base Case	P0	Basecase	1.05	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
PTRL JCT 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
Q972 115 kV	Base Case	P0	Basecase	1.04	1.04	1.04	NA	NA	NA	1.05	1.04	1.04	1.04	1.05	1.04	Load power factor correction and voltage support if needed
RASMSNTP 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
RASMUSEN 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.05	1.04	1.05	1.03	1.02	Load power factor correction and voltage support if needed
RENFRJCT 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.02	Load power factor correction and voltage support if needed
RENFRO2 115 kV	Base Case	P0	Basecase	1.03	1.04	1.01	NA	NA	NA	1.05	1.05	1.04	1.04	1.04	1.01	Load power factor correction and voltage support if needed
RIO BRVO 115 kV	Base Case	P0	Basecase	1.03	1.04	1.01	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.01	Load power factor correction and voltage support if needed
RIOBRVTM 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.04	1.05	1.04	1.05	1.03	Load power factor correction and voltage support if needed
RNFROTP2 115 kV	Base Case	P0	Basecase	1.03	1.04	1.01	NA	NA	NA	1.05	1.05	1.04	1.04	1.04	1.01	Load power factor correction and voltage support if needed
ROSEDAL 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.06	1.05	1.06	1.04	1.03	Load power factor correction and voltage support if needed
S_KERN 70 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.09	1.09	1.04	1.09	1.07	1.03	Load power factor correction and voltage support if needed
S_KERN_TP 70 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.09	1.09	1.04	1.09	1.07	1.03	Load power factor correction and voltage support if needed
SAN EMDO 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.07	1.08	1.04	1.08	1.06	1.03	Load power factor correction and voltage support if needed
SHAFTER 115 kV	Base Case	P0	Basecase	1.03	1.04	1.01	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.01	Load power factor correction and voltage support if needed
STCKDLJ 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.03	1.03	Load power factor correction and voltage support if needed
STOCKDLE 115 kV	Base Case	P0	Basecase	1.03	1.04	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.03	1.03	Load power factor correction and voltage support if needed
SW85 J1 70 kV	Base Case	P0	Basecase	1.03	1.03	1.03	NA	NA	NA	1.05	1.05	1.03	1.05	1.04	1.03	Load power factor correction and voltage support if needed
TEVIS 115 kV	Base Case	P0	Basecase	1.03	1.04	1.02	NA	NA	NA	1.05	1.06	1.05	1.06	1.03	1.02	Load power factor correction and voltage support if needed
TEVIS2 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.05	1.05	1.05	1.03	1.02	Load power factor correction and voltage support if needed
TEVISJ1 115 kV	Base Case	P0	Basecase	1.03	1.04	1.03	NA	NA	NA	1.05	1.05	1.05	1.06	1.03	1.03	Load power factor correction and voltage support if needed

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
TEVISJ2 115 kV	Base Case	P0	Basecase	1.04	1.04	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.04	1.03	Load power factor correction and voltage support if needed
TPMNTP1 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.05	1.04	1.04	1.02	Load power factor correction and voltage support if needed
TPMNTP2 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.02	Load power factor correction and voltage support if needed
TUPMAN 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.02	Load power factor correction and voltage support if needed
TX_ROSDL 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.06	1.05	1.06	1.04	1.03	Load power factor correction and voltage support if needed
WESTPARK 115 kV	Base Case	P0	Basecase	1.04	1.05	1.03	NA	NA	NA	1.05	1.05	1.05	1.05	1.03	1.03	Load power factor correction and voltage support if needed
WESTPLAT 115 kV	Base Case	P0	Basecase	1.04	1.04	1.02	NA	NA	NA	1.05	1.04	1.04	1.04	1.04	1.02	Load power factor correction and voltage support if needed
PANAMA 70 kV	P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P1	N-1	0.98	0.97	0.94	NA	NA	NA	1.08	1.10	0.96	1.10	1.00	0.94	Load power factor correction and voltage support if needed
S_KERN 70 kV	P1-2:A15:39:_KERN-OLD RIVER #1 70kV	P1	N-1	1.02	1.01	0.98	NA	NA	NA	1.11	1.12	1.01	1.13	1.06	0.98	Load power factor correction and voltage support if needed
S_KERN_TP 70 kV	P1-2:A15:39:_KERN-OLD RIVER #1 70kV	P1	N-1	1.02	1.01	0.98	NA	NA	NA	1.11	1.12	1.01	1.13	1.06	0.98	Load power factor correction and voltage support if needed
SAN EMDO 70 kV	P1-2:A15:39:_KERN-OLD RIVER #1 70kV	P1	N-1	1.02	1.01	0.98	NA	NA	NA	1.09	1.11	1.01	1.11	1.04	0.98	Load power factor correction and voltage support if needed
GRMWY_SM 70 kV	P1-1:A15:19:_KERN CNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	NA	NA	0.88	NA	NA	NA	NA	NA	0.90	NA	NA	0.85	Use the appropriate Summer Setup. (Magunden CB 22)
KERNRDGE_L04 69 kV	P1-1:A15:22:_KERNRDG332G3 13.80kV Gen Unit 3 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L04 69 kV	P1-1:A15:23:_KERNRDGE32G1 13.80kV Gen Unit 1 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L04 69 kV	P1-1:A15:24:_KERNRDGE32G2 13.80kV Gen Unit 2 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L06 69 kV	P1-1:A15:22:_KERNRDG332G3 13.80kV Gen Unit 3 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.87	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
KERNRDGE_L06 69 kV	P1-1:A15:23:_KERNRDGE32G1 13.80kV Gen Unit 1 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.87	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L06 69 kV	P1-1:A15:24:_KERNRDGE32G2 13.80kV Gen Unit 2 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.87	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L19 69 kV	P1-1:A15:22:_KERNRDG332G3 13.80kV Gen Unit 3 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L19 69 kV	P1-1:A15:23:_KERNRDGE32G1 13.80kV Gen Unit 1 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L19 69 kV	P1-1:A15:24:_KERNRDGE32G2 13.80kV Gen Unit 2 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGELH 69 kV	P1-1:A15:22:_KERNRDG332G3 13.80kV Gen Unit 3 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGELH 69 kV	P1-1:A15:23:_KERNRDGE32G1 13.80kV Gen Unit 1 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGELH 69 kV	P1-1:A15:24:_KERNRDGE32G2 13.80kV Gen Unit 2 & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P3	G-1/N-1	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
OLD RIVR 70 kV	P1-1:A15:58:_S_KERN 0.36kV Gen Unit 1 & P1-2:A15:39:_KERN-OLD RIVER #1 70kV	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
PANAMA 70 kV	P1-1:A15:29:_OLD_RVR1 12.47kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
PANAMA 70 kV	P1-1:A15:48:_Q885 0.36kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.10	NA	1.11	NA	NA	Load power factor correction and voltage support if needed

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
PANAMA 70 kV	P1-1:A15:58:_S_KERN 0.36kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
PANMJCT2 70 kV	P1-1:A15:29:_OLD_RVR1 12.47kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
PANMJCT2 70 kV	P1-1:A15:48:_Q885 0.36kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.10	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
PANMJCT2 70 kV	P1-1:A15:58:_S_KERN 0.36kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
S_KERN 70 kV	P1-1:A15:29:_OLD_RVR1 12.47kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.12	NA	1.12	NA	NA	Load power factor correction and voltage support if needed
S_KERN_TP 70 kV	P1-1:A15:29:_OLD_RVR1 12.47kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.12	NA	1.12	NA	NA	Load power factor correction and voltage support if needed
SAN EMDO 70 kV	P1-1:A15:29:_OLD_RVR1 12.47kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.10	NA	1.10	NA	NA	Load power factor correction and voltage support if needed
SAN EMDO 70 kV	P1-1:A15:58:_S_KERN 0.36kV Gen Unit 1 & P1-2:A15:39:_KERN-OLD RIVER #1 70kV	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.12	NA	NA	Load power factor correction and voltage support if needed
UNIONJCT 70 kV	P1-1:A15:29:_OLD_RVR1 12.47kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed
UNIONJCT 70 kV	P1-1:A15:48:_Q885 0.36kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.10	NA	1.10	NA	NA	Load power factor correction and voltage support if needed
UNIONJCT 70 kV	P1-1:A15:58:_S_KERN 0.36kV Gen Unit 1 & P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P3	G-1/N-1	NA	NA	NA	NA	NA	NA	NA	1.11	NA	1.11	NA	NA	Load power factor correction and voltage support if needed

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
WEEDPATCH_SF 70 kV	P1-1:A15:19:_KERNCNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	NA	NA	0.89	NA	NA	NA	NA	NA	NA	NA	NA	0.86	Use the appropriate Summer Setup. (Magunden CB 22)
WEEDPTCH 70 kV	P1-1:A15:19:_KERNCNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	NA	NA	0.89	NA	NA	NA	NA	NA	NA	NA	NA	0.86	Use the appropriate Summer Setup. (Magunden CB 22)
WELLFILD 70 kV	P1-1:A15:19:_KERNCNYN 11.00kV Gen Unit 1 & P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P3	G-1/N-1	NA	NA	0.88	NA	NA	NA	NA	NA	0.90	NA	NA	0.85	Use the appropriate Summer Setup. (Magunden CB 22)
ADOBESWSTA 115 kV	P1-3:A15:88:_WHEELER 230/70kV TB 4 & P1-3:A15:89:_WHEELER 230/70kV TB 5	P6	N-1-1	0.46	0.44	0.43	NA	NA	NA	NA	NA	0.44	NA	NA	0.41	Use the appropriate Summer Setup. (Magunden CB 22)
KERNRDGE 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.79	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_G32 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.79	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L11 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L18 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L32 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_L34 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_S17 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE_S20 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support

Study Area: PG&E Kern

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
Q622B 115 kV	P1-3:A15:88:_WHEELER 230/70kV TB 4 & P1-3:A15:89:_WHEELER 230/70kV TB 5	P6	N-1-1	0.46	0.44	0.43	NA	NA	NA	NA	NA	0.44	NA	NA	0.41	Use the appropriate Summer Setup. (Magunden CB 22)
TEMBLOR 115 kV	P1-2:A15:11:_CALIENTE SW STA-MIDWAY #1 230kV [5216] & P1-2:A15:70:_MIDWAY-TEMBLOR 115kV	P6	N-1-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.79	NA	Short Term: Load Power Factor correction Long Term: Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
WHEELER 115 kV	P1-3:A15:88:_WHEELER 230/70kV TB 4 & P1-3:A15:89:_WHEELER 230/70kV TB 5	P6	N-1-1	0.46	0.44	0.43	NA	NA	NA	NA	NA	0.44	NA	NA	0.41	Use the appropriate Summer Setup. (Magunden CB 22)
ADOBESWSTA 115 kV	P7-1:A15:18:_Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	1.38	1.02	1.02	NA	NA	NA	0.93	1.02	1.04	1.02	0.13	1.02	Project : Wheeler Ridge Voltage Support Project In-Service Date: 12/20 Short term: Action Plan
WHEELER 115 kV	P7-1:A15:18:_Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	1.38	1.02	1.02	NA	NA	NA	0.93	1.02	1.04	1.02	0.13	1.02	Project : Wheeler Ridge Voltage Support Project In-Service Date: 12/20 Short term: Action Plan
WHEELER 230 kV	P7-1:A15:18:_Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	1.28	1.01	1.01	NA	NA	NA	0.94	1.02	1.03	1.01	0.18	1.01	Project : Wheeler Ridge Voltage Support Project In-Service Date: 12/20 Short term: Action Plan

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)				ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Winter Peak	2024 Winter Peak	2029 Winter Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	2029 Retirement of QF Generations	
GRMMWY T 70 kV	P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P1	N-1	4	5	7	NA	NA	NA	0	1	6	1	4	9	Use the appropriate Summer Setup. (Magunden CB 22)
GRMWY_SM 70 kV	P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P1	N-1	4	5	7	NA	NA	NA	0	1	6	1	4	9	Use the appropriate Summer Setup. (Magunden CB 22)
PANAMA 70 kV	P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P1	N-1	5	6	8	NA	NA	NA	-3	-4	7	-4	3	8	Use the appropriate Summer Setup. (Magunden CB 22)
PANMJCT2 70 kV	P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P1	N-1	6	6	9	NA	NA	NA	-3	-5	7	-5	3	9	Use the appropriate Summer Setup. (Magunden CB 22)
UNIONJCT 70 kV	P1-2:A15:32:_KERN PW2-PANMJCT2 70kV MOAS OPENED on PANMJCT2_CARNAT T	P1	N-1	5	6	8	NA	NA	NA	-3	-4	6	-4	3	8	Use the appropriate Summer Setup. (Magunden CB 22)
WEEDPATCH_SF 70 kV	P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P1	N-1	4	5	7	NA	NA	NA	0	1	6	1	4	9	Use the appropriate Summer Setup. (Magunden CB 22)
WEEDPTCH 70 kV	P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P1	N-1	4	5	7	NA	NA	NA	0	1	6	1	4	9	Use the appropriate Summer Setup. (Magunden CB 22)
WELLFILD 70 kV	P1-2:A15:108:_WHEELER RIDGE-WEEDPATCH 70kV	P1	N-1	4	5	7	NA	NA	NA	0	1	6	1	4	9	Use the appropriate Summer Setup. (Magunden CB 22)

Study Area: PG&E Kern

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
Midway-Caliente Sw. Station 230 kV line	P1-2	L-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	T-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	T-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)	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kern Power to 7 Standard 115 kV line fault with normal clearing with Mt. Poso Offline in the case	P3-2	G-1/L-1	No Issues	WECC/NERC Minimum voltage duration criteria violation at Old River 70 kV Bus	No Issues	No Issues	No Issues	Under Review
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	WECC/NERC Minimum voltage duration criteria violation at Old River 70 kV Bus	No Issues	No Issues	No Issues	Under Review
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	No Issues	No Issues	No Issues	No Issues	No Violation

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 of more than 100 MW