



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
30945 KERN PP 230 30943 STCKDLJ2 230 1 1	MIDWAY 230kV - Section 2F & 2E	P2	Bus-tie Breaker	111	N/A	N/A	43	N/A	N/A	N/A	47	N/A	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 1	KERN PP-BKRSFLDB-MIDWAY 230kV [0] AND STCKDLEB-KERN PP-MIDWAY 230kV [0]	P6	N-1-1	112	<100	<100	<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
	Midway-Kern No. 3 & Midway-Kern No. 4 230 kV Lines	P7	DCTL	113	N/A	N/A	40	N/A	N/A	N/A	51	N/A	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
34129 MCFRLD T 70.0 34932 WASCO 70.0 1 1	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	130	174	193	16	18	200	17	89	193	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	279	276	266	278	276	278	283	149	265	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	262	261	256	276	271	265	276	163	256	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	279	276	266	278	276	278	283	149	265	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	279	275	265	278	276	278	283	149	265	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	279	275	265	278	276	278	283	149	265	Utilize Summer Setup for summer and non-summer months
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	291	N/A	N/A	N/A	145	N/A	Utilize Summer Setup for summer and non-summer months



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				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	131	173	194	<100	<100	200	<100	<100	193	Utilize Summer Setup for summer and non-summer months
	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	273	275	280	80	84	277	107	<100	282	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
34225 BELRDG J 115 34774 MIDWAY 115 1 1	PSEMCKIT 9.11kV Gen Unit 1	P1	N-1	101	64	62	21	14	64	15	20	61	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project; In-Service Date : 12/2022 Short term: Action Plan
	PSE MCKT 115/9.11kV TB 1	P1	N-1	100	64	62	21	14	64	15	20	61	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project; In-Service Date : 12/2022 Short term: Action Plan
	PSE MCKITTRICK TAP 115kV [2632] (PSE MCKJ-PSE MCKT)	P2	Line Section w/o fault	100	64	62	20	14	64	15	20	61	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project; In-Service Date : 12/2022 Short term: Action Plan
	MIDWAY-TEMBLOR 115kV [2630] (TEMBLOR-PSE MCKJ)	P2	Line Section w/o fault	40	24	25	104	64	24	64	103	25	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	Bus	40	24	25	104	64	24	64	103	25	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project; In-Service Date : 12/2022 Short term: Action Plan
	TEMBLOR - 1D 115kV & TEMBLOR-KERNRIDGE line	P2	Non bus-tie Breaker	40	24	25	104	64	24	64	103	25	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	Non bus-tie Breaker	40	24	25	104	64	24	64	103	25	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project; In-Service Date : 12/2022 Short term: Action Plan



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				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
	CALIENTE SW STA-MIDWAY #2 230kV [5226] AND CALIENTE SW STA-MIDWAY #1 230kV [5216]	P6	N-1-1	<100	<100	<100	100	<100	<100	<100	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	82	52	53	106	62	54	74	103	52	Project : Midway-Temblor 115 kV Line Reconductor and Voltage Support Project; In-Service Date : 12/2022 Short term: Action Plan
34582 ARCO 70.0 34243 TWSL J2 70.0 1 1	Base Case	P0	Base case	35	35	35	88	88	37	112	95	35	Sensitivity Only/ Redispatch Generation
	PRMTFMTP 70/21kV TB 1	P1	N-1	20	21	20	81	81	22	101	87	20	Sensitivity Only/ Redispatch Generation
34706 WESTPARK 115 34752 KERN PWR 115 1 1	PSE-BEAR 13.80kV Gen Unit 1 AND KERN-WESTPARK #2 115kV [2010]	P3	G1/N1	115	119	<100	<100	<100	123	<100	100	<100	Wheeler Ridge Junction Station Project & Kern 115 kV Area Reinforcment Project . Short Term: Action Plan/Rerate to 4fps
34706 WESTPARK 115 34752 KERN PWR 115 2 1	PSE-BEAR 13.80kV Gen Unit 1 AND KERN-WESTPARK #1 115kV [2000]	P3	G1/N1	115	119	<100	<100	<100	123	<100	100	<100	Wheeler Ridge Junction Station Project & Kern 115 kV Area Reinforcment Project . Short Term: Action Plan/Rerate to 4fps
34724 KRN OL J 115 34798 KERNWATR 115 1 1	MT POSO 13.80kV Gen Unit 1 AND 7TH STANDARD-KERN 115kV [1981]	P3	G1/N1	90	96	<100	<100	<100	101	<100	<100	<100	Sensitivity Only/ Kern 115 kV Area reinforcement project.
34728 LIVE OAK 115 34752 KERN PWR 115 1 1	7TH STANDARD-KERN 115kV [1981] AND KERN-MAGUNDEN-WITCO 115kV [1970]	P6	N-1-1	<100	<100	<100	<100	99	<100	117	<100	<100	Sensitivity Only
34741 STCKDLJ 115 34807 ARVINJ2 115 1 1	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	101	N/A	N/A	N/A	59	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcment project. (12/2020) Short Term: Action Plan
	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	Diverge	Diverge	<100	<100	<100	Diverge	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	136	Diverge	N/A	45	49	Diverge	52	8	N/A	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	60	65	65	137	134	65	135	108	66	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section



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				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
34742 SEMITRPJ 115 34704 SEMITROPIC_D 115 1 1	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	48	55	56	136	132	56	132	115	56	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
	MIDWAY 115kV Section 2E	P2	Bus	60	65	66	137	134	65	135	108	66	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	60	65	66	137	134	65	135	108	63	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	60	65	66	137	134	65	135	108	66	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	135	N/A	N/A	N/A	106	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reforcmnt project. (12/2020) Short Term: Action Plan
	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	175	185	191	<100	<100	189	<100	<100	192	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
34742 SEMITRPJ 115 34704 SEMITROPIC_D 115 BP 2	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	55	N/A	N/A	N/A	43	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reforcmnt project. (12/2020) Short Term: Action Plan
34742 SEMITRPJ 115 34746 GANSO 115 1 1(P2)	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	154	N/A	N/A	N/A	11	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reforcmnt project. (12/2020) Short Term: Action Plan
	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	129	143	149	99	99	146	107	<100	149	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
34746 GANSO 115 34774 MIDWAY 115 1 1(P2)	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	155	N/A	N/A	N/A	5	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reforcmnt project. (12/2020) Short Term: Action Plan
	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	133	147	158	100	100	151	109	<100	158	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
34749 TPMNTP1 115 34750 TUPMAN 115 1 1	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	121	129	144	8	3	133	10	82	144	Utilize Summer Setup proposed in 17-18 TP



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34751 TPMNTP2 115 34750 TUPMAN 115 1 1	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	91	95	106	9	5	99	7	61	106	Utilize Summer Setup proposed in 17-18 TP
34752 KERN PWR 115 30945 KERN PP 230 3 1	KERN PP 230/115kV TB 4 AND KERN PP 230/115kV TB 5	P6	N-1-1	103	108	<100	<100	<100	114	93	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan/Original SPS proposed as part of Kern 230 kV Reinforcement project
34752 KERN PWR 115 30945 KERN PP 230 4 1	KERN PP 230/115kV TB 5 AND KERN PP 230/115kV TB 3	P6	N-1-1	105	108	<100	<100	<100	114	93	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan/Original SPS proposed as part of Kern 230 kV Reinforcement project
34752 KERN PWR 115 30945 KERN PP 230 5 1	KERN PP 230/115kV TB 3 AND KERN PP 230/115kV TB 4	P6	N-1-1	103	108	<100	<100	<100	114	93	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan/Original SPS proposed as part of Kern 230 kV Reinforcement project
34752 KERN PWR 115 34755 TEVISJ2 115 1 1	KERN-TEVIS-STOCKDALE 115kV [1990]	P1	N-1	130	132	90	4	8	136	19	49	90	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	STOCKDLE 115kV Section 1D	P2	Bus	106	107	28	8	10	110	19	39	28	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	TEVIS 115kV Section 1D	P2	Bus	99	101	51	10	12	104	23	23	51	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	STOCKDLE - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2	Non bus-tie Breaker	130	132	57	4	8	136	19	49	58	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	TEVIS - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2	Non bus-tie Breaker	130	132	90	4	8	136	19	49	90	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	KERN PWR - 1D 115kV & KERN-TEVIS-STOCKDALE line	P2	Non bus-tie Breaker	129	N/A	N/A	4	N/A	N/A	N/A	48	N/A	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	KERN PWR 115kV - Middle Breaker Bay 1	P2	Non bus-tie Breaker	N/A	132	90	N/A	8	136	19	<100	90	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan



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	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	100	N/A	N/A	N/A	42	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reforncment project. (12/2020) Short Term: Action Plan
	KERNFRNT 9.11kV Gen Unit 1 AND KERN-TEVIS-STOCKDALE 115kV [1990]	P3	G1/N1	<100	<100	<100	<100	<100	135	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	BITTERWATRSS-MIDWAY 230kV [0] AND KERN-TEVIS-STOCKDALE 115kV [1990]	P6	N-1-1	147	149	<100	<100	<100	154	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	BITTERWATRSS-MIDWAY 230kV [0] AND MIDWAY-WHEELER RIDGE #1 230kV [5190]	P6	N-1-1	Diverge	Diverge	<100	<100	<100	Diverge	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	174	Diverge	44	43	48	Diverge	53	23	44	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34752 KERN PWR 115 34798 KERNWATR 115 1 1	MT POSO 13.80kV Gen Unit 1 AND 7TH STANDARD-KERN 115kV [1981]	P3	G1/N1	93	98	<100	<100	<100	103	<100	<100	<100	Sensitivity Only
	KERN OIL-LIVE OAK-POSO MT 115kV [0] MOAS OPENED on KRNFRNTT_POSO MT AND 7TH STANDARD-KERN 115kV [1981]	P6	N-1-1	94	101	<100	<100	<100	108	<100	<100	<100	Project : Kern 115 kV Area Reinforcement Project Short Term : Action Plan
34755 TEVISJ2 115 34741 STCKDLJ 115 1 1	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	Diverge	Diverge	<100	<100	<100	Diverge	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	136	Diverge	N/A	45	49	Diverge	52	8	N/A	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34758 LAMONT 115 34805 ARVINJ1 115 1 1	KERN PWR 115kV Section 2D	P2	Bus	103	N/A	N/A	26	N/A	N/A	N/A	15	N/A	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	103	N/A	N/A	26	N/A	N/A	N/A	15	N/A	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	103	110	24	26	29	112	43	15	24	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan



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	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	103	N/A	N/A	26	N/A	N/A	N/A	15	N/A	Contingency not valid in future years(Kern 115 kV Bus upgrade). Short Term: Action Plan
34774 MIDWAY 115 30970 MIDWAY 230 2 1	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	85	93	102	56	60	93	70	21	103	Continue to monitor future load forecast
34776 TAFT 115 34860 TAFT A 70.0 2 1	SLR-TANN 9.11kV Gen Unit 1 AND TAFT 115/70kV TB 1	P3	G1/N1	122	109	103	<100	<100	114	<100	<100	103	Potential Mitigation Required (System Upgrade/ Preferred Resources)
34777 FELLOWSG 115 34800 SANTA FE SUB 115 1 1	MIDWAY-TAFT 115kV [2620]	P1	N-1	28	36	38	98	109	33	118	108	38	Operating Solution
	MIDWAY 115kV Section 2D	P2	Bus	28	36	38	98	109	32	118	107	38	Operating Solution
	TAFT 115kV - Ring R2 & R1	P2	Non bus-tie Breaker	51	60	63	97	105	56	113	120	63	Operating Solution
	TAFT 115kV - Ring R2 & R3	P2	Non bus-tie Breaker	28	36	38	97	109	32	118	107	38	Operating Solution
	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	Non bus-tie Breaker	28	36	38	98	109	32	118	107	38	Operating Solution
	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	Non bus-tie Breaker	28	36	38	98	109	33	119	108	38	Operating Solution
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	28	36	38	98	109	32	118	107	38	Operating Solution
	CHEV.USA 9.11kV Gen Unit 1 AND MIDWAY-TAFT 115kV [2620]	P3	G1/N1	<100	<100	<100	<100	<100	<100	116	105	<100	Operating Solution
	MIDWAY-TAFT 115kV [2620] AND TAFT-CUYAMA #2 70kV [9210]	P6	N-1-1	<100	<100	<100	<100	111	<100	120	117	<100	Operating Solution
34777 FELLOWSG 115 39070 AEVICTORYJT 115 1 1	MIDWAY-TAFT 115kV [2620]	P1	N-1	17	25	28	100	113	37	124	103	28	Operating Solution
	MIDWAY 115kV Section 2D	P2	Bus	17	26	29	100	113	37	124	103	29	Operating Solution
	TAFT 115kV - Ring R2 & R1	P2	Non bus-tie Breaker	39	48	52	99	110	60	119	115	52	Operating Solution
	TAFT 115kV - Ring R2 & R3	P2	Non bus-tie Breaker	16	25	28	100	113	37	123	102	28	Operating Solution
	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	Non bus-tie Breaker	17	26	29	100	113	37	124	103	29	Operating Solution
	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	Non bus-tie Breaker	17	26	29	100	113	37	124	103	29	Operating Solution
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	18	26	29	100	113	37	124	103	29	Operating Solution



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	CHEV.USA 9.11kV Gen Unit 1 AND MIDWAY-TAFT 115kV [2620]	P3	G1/N1	<100	<100	<100	<100	<100	<100	122	<100	<100	Operating Solution
	CARNERAS-TAFT 70kV [8540] AND MIDWAY-TAFT 115kV [2620]	P6	N-1-1	<100	<100	<100	<100	118	<100	128	109	<100	Operating Solution
34800 SANTA FE SUB 115 34802 MIDSET 115 1 1	MIDWAY-TAFT 115kV [2620]	P1	N-1	28	36	38	98	109	33	118	108	38	Operating Solution
	MIDWAY 115kV Section 2D	P2	Bus	28	36	38	98	109	32	118	107	38	Operating Solution
	TAFT 115kV - Ring R2 & R1	P2	Non bus-tie Breaker	51	60	63	97	105	56	113	120	63	Operating Solution
	TAFT 115kV - Ring R2 & R3	P2	Non bus-tie Breaker	28	36	38	97	109	32	118	107	38	Operating Solution
	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	Non bus-tie Breaker	28	36	38	98	109	32	118	107	38	Operating Solution
	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	Non bus-tie Breaker	28	36	38	98	109	33	119	108	38	Operating Solution
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	28	36	38	98	109	32	118	107	38	Operating Solution
	CHEV.USA 9.11kV Gen Unit 1 AND MIDWAY-TAFT 115kV [2620]	P3	G1/N1	<100	<100	<100	<100	<100	<100	116	105	<100	Operating Solution
	CARNERAS-TAFT 70kV [8540] AND MIDWAY-TAFT 115kV [2620]	P6	N-1-1	<100	<100	<100	<100	114	<100	123	113	<100	Operating Solution
34805 ARVINJ1 115 34764 Q622BSS 115 1 1	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	136	<100	<100	<100	<100	<100	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34805 ARVINJ1 115 34764 Q622BSS 115 1 1	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	136	Diverge	N/A	25	29	Diverge	13	34	N/A	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34849 TAFT_SW_TAFC 70.0 34943 Q356JCT 70.0 1 1	TAFT-CUYAMA #1 70kV [9200] (Q356JCT-CUYAMA)	P2	Line Section w/o fault	2	2	2	2	2	2	2	108	2	Sensitivity Only
34860 TAFT A 70.0 34849 TAFT_SW_TAFC 70.0 1 1	TAFT-CUYAMA #1 70kV [9200] (Q356JCT-CUYAMA)	P2	Line Section w/o fault	2	2	2	2	2	2	2	107	2	Sensitivity Only
34873 LOSTHILLTP 70.0 34850 BLACKWLL 70.0 1 1	Base Case	P0	Base case	37	39	40	99	99	40	141	111	40	Sensitivity Only
	ARCO-CARNERAS 70kV [8430] (Q705JCT-CARNERAS)	P2	Line Section w/o fault	13	16	11	92	91	17	127	115	11	Sensitivity Only
	CARNERAS 70kV Section 1D	P2	Bus	13	16	11	92	91	17	127	115	11	Sensitivity Only



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
34874 WHEELER 70.0 34756 WHEELER 115 2 1	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940]	P1	N-1	88	92	0	100	102	96	101	100	0	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	TEVIS2 - 1E 115kV & KERN-TEVIS-STOCKDALE-LAMONT line	P2	Non bus-tie Breaker	88	92	0	100	102	96	101	100	0	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	KERN PWR 115kV - Middle Breaker Bay 2	P2	Non bus-tie Breaker	N/A	92	0	N/A	101	96	101	N/A	0	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	Kern-Tevis-Stockdale-Lamont & Kern-Tevis-Stockdale 115 kV Lines	P7	DCTL	88	92	0	100	101	96	101	101	0	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
34918 KERN PW2 70.0 34914 KERN PW1 70.0 1 1	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	80	N/A	N/A	N/A	20	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcment project. (12/2020) Short Term : Utilize Summer Setup and if needed replace the limiting equipment
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY AND KERN PW2 70/115kV TB 1	P6	N-1-1	128	156	175	<100	<100	171	<100	<100	174	Utilize Summer Setup and if needed replace the limiting equipment
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	183	233	265	24	28	263	26	130	265	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	350	343	336	267	267	345	276	114	335	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	331	330	329	265	262	333	268	128	330	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	183	226	265	24	28	263	26	130	265	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	350	343	336	267	267	345	276	114	335	Utilize Summer Setup for summer and non-summer months
	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non bus-tie Breaker	183	233	265	24	28	263	26	130	265	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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
34918 KERN PW2 70.0 34922 KRN OL J 70.0 1 1	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non bus-tie Breaker	183	229	265	24	28	263	26	130	265	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	350	342	335	267	267	345	276	114	335	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	349	342	336	267	267	345	276	114	336	Utilize Summer Setup for summer and non-summer months
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	308	N/A	N/A	N/A	109	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcement project. (12/2020) Short Term : Utilize Summer Setup for summer and non-summer months
	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	184	232	265	<100	<100	263	<100	131	266	Utilize Summer Setup for summer and non-summer months
	ELKHIL3G 18/230kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	183	237	266	<100	<100	263	<100	130	265	Utilize Summer Setup for summer and non-summer months
34022 KRN OL I 70.0 34121 CAML OL	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	134	171	195	18	21	193	19	95	195	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	257	252	247	196	196	253	202	84	246	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	243	242	241	194	192	245	197	94	242	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	257	252	247	196	196	253	202	84	246	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	257	251	246	196	196	253	202	83	246	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	256	251	247	196	196	253	202	84	247	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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
34922 KRN 70.0 34151 CAWLOD T 70.0 1 1	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	226	N/A	N/A	N/A	80	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcement project. (12/2020) Short Term : Utilize Summer Setup for summer and non-summer months
	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	135	170	195	<100	<100	193	<100	96	195	Utilize Summer Setup for summer and non-summer months
	MIDWAY-KERN #1 230kV [5150] AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	<100	171	195	<100	<100	193	<100	<100	194	Utilize Summer Setup for summer and non-summer months
34926 FAMOSO 70.0 34129 MCFRLD T 70.0 1 1	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	90	115	132	10	13	130	12	63	132	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	174	171	168	137	137	172	142	60	167	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	165	164	164	136	135	166	138	66	164	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	174	171	168	137	137	172	142	60	167	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	174	171	167	137	137	172	142	59	167	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	174	171	168	137	137	172	142	59	168	Utilize Summer Setup for summer and non-summer months
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	154	N/A	N/A	N/A	57	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcement project. (12/2020) Short Term : 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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<100	<100	132	<100	<100	130	<100	<100	132	Utilize Summer Setup for summer and non-summer months
	ELKHIL3G 18/230kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	<100	117	132	<100	<100	130	<100	<100	132	Utilize Summer Setup for summer and non-summer months
34926 FAMOSO 70.0 34131 CAWLOB T 70.0 1 1	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	194	248	283	21	29	281	27	136	283	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	375	368	361	296	296	370	305	128	360	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	355	354	353	293	290	357	297	143	354	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	194	240	283	21	29	281	27	136	283	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	375	368	361	296	296	370	305	128	360	Utilize Summer Setup for summer and non-summer months
	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non bus-tie Breaker	194	248	283	21	29	281	27	136	283	Utilize Summer Setup for summer and non-summer months
	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non bus-tie Breaker	194	244	283	21	29	281	27	136	283	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	375	367	360	296	296	370	305	128	360	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	375	367	361	296	296	370	305	128	361	Utilize Summer Setup for summer and non-summer months
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	331	N/A	N/A	N/A	123	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcment project. (12/2020) Short Term : Utilize Summer Setup for summer and non-summer months
	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	195	247	283	<100	<100	280	<100	137	284	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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
	MIDWAY-KERN #1 230kV [5150] AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	<100	249	284	<100	<100	281	<100	<100	283	Utilize Summer Setup for summer and non-summer months
34932 WASCO 70.0 34934 SEMITRPC 70.0 1 1	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	100	135	146	14	16	155	15	66	147	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	240	239	230	285	280	240	286	170	229	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	221	223	217	282	275	225	279	184	218	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	240	239	230	285	280	240	286	170	229	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	240	238	229	285	280	240	286	170	229	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	240	238	230	285	280	240	286	170	230	Utilize Summer Setup for summer and non-summer months
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	289	N/A	N/A	N/A	167	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcement project. (12/2020) Short Term : Utilize Summer Setup for summer and non-summer months
	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<100	134	147	<100	<100	155	<100	<100	146	Utilize Summer Setup for summer and non-summer months
	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	308	311	320	77	83	315	107	100	321	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	52	45	39	128	129	44	131	80	39	Utilize Summer Setup for summer and non-summer months
	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	50	44	40	127	127	44	128	86	40	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV Section 2E	P2	Bus	52	45	39	128	129	44	131	80	39	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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
34934 SEMITRPC 70.0 34704 SEMITROPIC_D 115 2 1	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	51	45	39	128	129	44	131	80	39	Utilize Summer Setup for summer and non-summer months
	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	52	45	39	128	129	44	131	80	39	Utilize Summer Setup for summer and non-summer months
	KERN PP 230kV - Section 1D & 2D	P2	Bus-tie Breaker	Diverge	N/A	N/A	132	N/A	N/A	N/A	79	N/A	Contingency not valid in future years. Project :Kern PP 230 kV bus conversion (BAAH) will be done as part of Kern PP 230 kV area reinforcment project. (12/2020) Short Term : Action Plan
	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	135	135	136	<100	<100	137	<100	<100	137	Utilize Summer Setup for summer and non-summer months
365550 BITTERWATRSS 230 38645 WHLR RJ2 230 2 1	MIDWAY 230kV Section 1D	P2	Bus	105	101	60	58	58	102	60	80	61	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non bus-tie Breaker	105	N/A	N/A	58	N/A	N/A	N/A	80	N/A	Contingency not valid in future years. Project : Midway-Kern PP 230 kV Line capacity increase project and Midway-Kern PP # 2 230 kV line project. Short Term:Action Plan
	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non bus-tie Breaker	105	101	60	59	58	103	66	81	61	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	105	103	66	58	57	104	59	81	67	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	BITTERWATRSS-MIDWAY 230kV [0]	P1	N-1	100	101	60	35	38	102	39	53	60	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	BITTERWATRSS-WHLR RJ2 230kV [0] No Fault	P2	Line Section w/o fault	101	101	59	58	58	102	60	79	60	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV Section 2D	P2	Bus	113	110	63	44	46	111	48	63	64	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
38600 BUENAVJ1 230 30970 MIDWAY 230 1 1	MIDWAY - 2D 230kV & BITTERWATRSS-MIDWAY line	P2	Non bus-tie Breaker	101	101	60	35	38	102	40	54	60	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2	Non bus-tie Breaker	113	110	63	44	46	111	48	64	64	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	116	112	71	44	46	113	47	64	72	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND BITTERWATRSS-MIDWAY 230kV [0]	P3	G1/N1	102	102	<100	<100	<100	103	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	BITTERWATRSS-MIDWAY line & WHEELER-WHEELER Jn 230 kV line	P6	N-1-1	110	110	110	<100	<100	<100	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan/SPS
	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	130	124	<100	<100	<100	126	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
38600 BUENAVJ1 230 38640 WHLR RJ1 230 1 1	MIDWAY 230kV Section 2D	P2	Bus	103	100	52	34	36	101	38	53	53	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY - 2D 230kV & MIDWAY-MIDWAY-R12 #1 line	P2	Non bus-tie Breaker	103	100	52	35	37	101	38	54	53	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	105	102	60	34	36	103	37	54	61	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	120	114	<100	<100	<100	116	<100	<100	<100	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV Section 1D	P2	Bus	115	112	70	44	44	113	46	65	71	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
38605 BUENAVJ2 230 30970 MIDWAY 230 1 1	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non bus-tie Breaker	115	N/A	N/A	44	N/A	N/A	N/A	65	N/A	Contingency not valid in future years. Project : Midway-Kern PP 230 kV Line capacity increase project and Midway-Kern PP # 2 230 kV line project. Short Term:Action Plan
	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non bus-tie Breaker	116	112	70	44	44	113	54	66	71	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	115	113	77	44	43	114	45	65	78	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
38605 BUENAVJ2 230 365550 BITTERWATRSS 230 2 1	MIDWAY 230kV Section 1D	P2	Bus	104	101	60	33	34	103	35	54	61	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non bus-tie Breaker	105	N/A	N/A	33	N/A	N/A	N/A	55	N/A	Contingency not valid in future years. Project : Midway-Kern PP 230 kV Line capacity increase project and Midway-Kern PP # 2 230 kV line project. Short Term:Action Plan
	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non bus-tie Breaker	105	102	60	34	34	103	46	55	61	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	105	103	66	33	33	104	35	55	67	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan
38640 WHLR RJ1 230 38650 WND GPJ1 230 1 1	BITTERWATRSS-MIDWAY 230kV [0] AND KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940]	P6	N-1-1	111	105	<100	<100	<100	107	<100	<100	<100	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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
7STNDRD 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
ANTELOPE 70 kV	Base Case	P0	Base case	1.03	1.02	1.02	1.05	1.05	1.02	1.05	1.03	1.02	Load power factor correction and voltage support if needed
ARVIN 70 kV	Base Case	P0	Base case	1.03	1.01	1.02	1.05	1.04	1.01	1.05	1.04	1.03	Load power factor correction and voltage support if needed
ATWELL_ISL 115 kV	Base Case	P0	Base case	1.03	1.02	1.00	1.06	1.06	1.02	1.06	1.06	1.00	Load power factor correction and voltage support if needed
BRY_PTLM 70 kV	Base Case	P0	Base case	1.03	1.03	1.03	1.05	1.05	1.03	1.05	1.02	1.03	Load power factor correction and voltage support if needed
CAWELO C 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.06	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
CHARKA 115 kV	Base Case	P0	Base case	1.04	1.02	1.00	1.04	1.05	1.02	1.06	1.04	1.01	Load power factor correction and voltage support if needed
CHSR12SWSTA 115 kV	Base Case	P0	Base case	N/A	1.02	1.00	N/A	1.05	1.02	1.06	N/A	1.01	Load power factor correction and voltage support if needed
DEVLDNPP 70 kV	Base Case	P0	Base case	1.03	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.03	Load power factor correction and voltage support if needed
DEXZEL 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
DISCOVER 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
DOUBLECJ 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.05	1.03	1.04	Load power factor correction and voltage support if needed
DSCVRYTP 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
EANDB 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.05	1.03	1.04	Load power factor correction and voltage support if needed
EANDBJT 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.05	1.03	1.04	Load power factor correction and voltage support if needed
ELK HLLS 70 kV	Base Case	P0	Base case	1.01	1.03	1.03	1.04	1.06	1.03	1.07	1.01	1.02	Load power factor correction and voltage support if needed
FAMOSO 115 kV	Base Case	P0	Base case	1.04	1.02	1.00	1.04	1.06	1.02	1.06	1.05	1.00	Load power factor correction and voltage support if needed

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
FRITO LY 115 kV	Base Case	P0	Base case	1.03	1.04	1.03	1.04	1.05	1.04	1.05	1.03	1.03	Load power factor correction and voltage support if needed
FRTLYTP 115 kV	Base Case	P0	Base case	1.03	1.04	1.03	1.04	1.05	1.04	1.05	1.03	1.03	Load power factor correction and voltage support if needed
GODN_BER 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
GOSE LKE 115 kV	Base Case	P0	Base case	1.04	1.04	1.02	1.05	1.05	1.04	1.05	1.04	1.02	Load power factor correction and voltage support if needed
HighSRA 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.05	1.03	1.04	Load power factor correction and voltage support if needed
INERGY 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
KERN OIL 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
KERN PWR 115 kV	Base Case	P0	Base case	1.04	1.04	1.05	1.06	1.06	1.04	1.06	1.02	1.04	Load power factor correction and voltage support if needed
KERNFRNT 115 kV	Base Case	P0	Base case	1.04	1.04	1.03	1.05	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
KERNRDGE 115 kV	Base Case	P0	Base case	1.06	1.06	1.03	1.07	1.07	1.06	1.07	1.06	1.03	Load power factor correction and voltage support if needed
KERNWATR 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
KRN OL J 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
KRNFRNTT 115 kV	Base Case	P0	Base case	1.04	1.04	1.03	1.05	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
LERDO 115 kV	Base Case	P0	Base case	1.04	1.04	1.03	1.05	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
LIVE OAK 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
LRDO JCT 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
MAGUNDEN 115 kV	Base Case	P0	Base case	1.03	1.03	1.03	1.05	1.06	1.03	1.06	1.02	1.03	Load power factor correction and voltage support if needed

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
MCKIBBEN 115 kV	Base Case	P0	Base case	1.04	1.03	1.01	1.05	1.05	1.03	1.06	1.04	1.01	Load power factor correction and voltage support if needed
MIDWAY 115 kV	Base Case	P0	Base case	1.05	1.05	1.04	1.05	1.05	1.05	1.05	1.04	1.04	Load power factor correction and voltage support if needed
NORCO 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
NORCO_TA 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
OGLE JCT 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.06	1.04	1.06	1.04	1.04	Load power factor correction and voltage support if needed
OGLE TAP 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.06	1.04	1.06	1.04	1.04	Load power factor correction and voltage support if needed
OLD RIVR 70 kV	Base Case	P0	Base case	1.02	1.01	1.02	1.04	1.05	1.01	1.05	1.02	1.02	Load power factor correction and voltage support if needed
ORION 70 kV	Base Case	P0	Base case	1.03	1.01	1.02	1.05	1.04	1.01	1.05	1.04	1.03	Load power factor correction and voltage support if needed
ORIONTP 70 kV	Base Case	P0	Base case	1.03	1.01	1.02	1.05	1.04	1.01	1.05	1.04	1.03	Load power factor correction and voltage support if needed
POLPASPP 70 kV	Base Case	P0	Base case	1.02	1.02	1.01	1.06	1.03	1.02	1.03	1.02	1.01	Load power factor correction and voltage support if needed
PONDROAD 115 kV	Base Case	P0	Base case	1.03	1.02	1.00	1.05	1.06	1.02	1.06	1.05	1.00	Load power factor correction and voltage support if needed
POSO MT 115 kV	Base Case	P0	Base case	1.04	1.04	1.03	1.05	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
POSOMTJT 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
PSE-3 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.05	1.03	1.04	Load power factor correction and voltage support if needed
PTRL JCT 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
PUMPJACK 115 kV	Base Case	P0	Base case	1.05	1.06	1.04	1.06	1.06	1.06	1.06	1.06	1.03	Load power factor correction and voltage support if needed
Q482 115 kV	Base Case	P0	Base case	1.03	1.02	1.00	1.06	1.06	1.02	1.06	1.06	1.00	Load power factor correction and voltage support if needed

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
Q557 115 kV	Base Case	P0	Base case	1.03	1.01	1.00	1.06	1.06	1.01	1.07	1.06	1.00	Load power factor correction and voltage support if needed
Q972 115 kV	Base Case	P0	Base case	1.05	1.06	1.04	1.06	1.06	1.06	1.07	1.06	1.03	Load power factor correction and voltage support if needed
RASMSNTP 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
RASMUSEN 115 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.06	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
RENFRJCT 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.05	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
RENFRO 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
RENFRO2 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.05	1.05	1.03	1.06	1.03	1.01	Load power factor correction and voltage support if needed
RIO BRVO 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.05	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
RIOBRVTM 115 kV	Base Case	P0	Base case	1.04	1.04	1.03	1.05	1.05	1.04	1.05	1.04	1.03	Load power factor correction and voltage support if needed
RNFROTP1 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
RNFROTP2 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.05	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
ROSEDAL 115 kV	Base Case	P0	Base case	1.04	1.05	1.05	1.06	1.06	1.04	1.06	1.02	1.04	Load power factor correction and voltage support if needed
S_KERN 70 kV	Base Case	P0	Base case	1.02	1.02	1.02	1.06	1.08	1.02	1.08	1.06	1.02	Load power factor correction and voltage support if needed
S_KERN_TP 70 kV	Base Case	P0	Base case	1.02	1.02	1.02	1.06	1.08	1.02	1.08	1.06	1.02	Load power factor correction and voltage support if needed
SAN EMDO 70 kV	Base Case	P0	Base case	1.02	1.02	1.02	1.05	1.07	1.01	1.07	1.04	1.02	Load power factor correction and voltage support if needed
SEMITR&1 115 kV	Base Case	P0	Base case	1.04	1.03	1.01	1.04	1.05	1.03	1.05	1.04	1.01	Load power factor correction and voltage support if needed
SEMITROPIC_D 115 kV	Base Case	P0	Base case	1.04	1.03	1.01	1.04	1.05	1.03	1.05	1.04	1.01	Load power factor correction and voltage support if needed

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITRPJ 115 kV	Base Case	P0	Base case	1.04	1.03	1.01	1.04	1.05	1.03	1.05	1.04	1.01	Load power factor correction and voltage support if needed
SHAFTER 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.05	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
SLR_TANH 70 kV	Base Case	P0	Base case	1.03	1.03	1.03	1.05	1.05	1.03	1.05	1.02	1.03	Load power factor correction and voltage support if needed
SMYRNA 115 kV	Base Case	P0	Base case	1.03	1.02	1.00	1.05	1.06	1.02	1.06	1.05	1.00	Load power factor correction and voltage support if needed
STALIONJ 70 kV	Base Case	P0	Base case	1.03	1.02	1.02	1.05	1.04	1.01	1.05	1.04	1.03	Load power factor correction and voltage support if needed
STALLION 70 kV	Base Case	P0	Base case	1.03	1.02	1.02	1.05	1.04	1.01	1.05	1.04	1.03	Load power factor correction and voltage support if needed
STCKDLJ 115 kV	Base Case	P0	Base case	1.03	1.04	1.04	1.05	1.06	1.03	1.05	1.02	1.04	Load power factor correction and voltage support if needed
STOCKDLE 115 kV	Base Case	P0	Base case	1.03	1.03	1.04	1.06	1.06	1.03	1.06	1.01	1.04	Load power factor correction and voltage support if needed
TAFT A 70 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
TAFT A_J 70 kV	Base Case	P0	Base case	1.03	1.03	1.03	1.05	1.05	1.03	1.05	1.02	1.03	Load power factor correction and voltage support if needed
TAFT_SW_TAFC 70 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
TAFT_SW_TAFM 70 kV	Base Case	P0	Base case	1.04	1.04	1.04	1.05	1.05	1.04	1.06	1.03	1.04	Load power factor correction and voltage support if needed
TEMBLOR 115 kV	Base Case	P0	Base case	1.05	1.06	1.04	1.06	1.06	1.06	1.06	1.06	1.03	Load power factor correction and voltage support if needed
TEVIS 115 kV	Base Case	P0	Base case	1.03	1.04	1.04	1.06	1.07	1.04	1.06	1.02	1.04	Load power factor correction and voltage support if needed
TEVIS2 115 kV	Base Case	P0	Base case	1.02	1.03	1.04	1.06	1.06	1.03	1.06	1.01	1.04	Load power factor correction and voltage support if needed
TEVISJ1 115 kV	Base Case	P0	Base case	1.03	1.04	1.04	1.06	1.06	1.04	1.06	1.02	1.04	Load power factor correction and voltage support if needed
TEVISJ2 115 kV	Base Case	P0	Base case	1.03	1.04	1.04	1.05	1.06	1.03	1.06	1.02	1.04	Load power factor correction and voltage support if needed

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High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
TPMNTP1 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
TPMNTP2 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
TUPMAN 115 kV	Base Case	P0	Base case	1.03	1.03	1.02	1.04	1.05	1.03	1.06	1.03	1.02	Load power factor correction and voltage support if needed
TX_BV_HL 70 kV	Base Case	P0	Base case	1.02	1.04	1.03	1.04	1.06	1.04	1.06	1.01	1.03	Load power factor correction and voltage support if needed
TX_ROSDL 115 kV	Base Case	P0	Base case	1.04	1.05	1.05	1.06	1.06	1.04	1.06	1.02	1.04	Load power factor correction and voltage support if needed
VEDDER 115 kV	Base Case	P0	Base case	1.04	1.04	1.03	1.05	1.06	1.04	1.06	1.03	1.03	Load power factor correction and voltage support if needed
WEEDPTCH 70 kV	Base Case	P0	Base case	1.02	1.01	1.00	1.05	1.04	1.00	1.05	1.03	1.02	Load power factor correction and voltage support if needed
WESTPARK 115 kV	Base Case	P0	Base case	1.03	1.04	1.04	1.05	1.06	1.04	1.06	1.02	1.04	Load power factor correction and voltage support if needed
WESTPLAT 115 kV	Base Case	P0	Base case	1.03	1.04	1.03	1.04	1.05	1.04	1.05	1.03	1.03	Load power factor correction and voltage support if needed
WILDWOOD1 115 kV	Base Case	P0	Base case	1.04	1.04	1.02	1.05	1.05	1.04	1.05	1.04	1.02	Load power factor correction and voltage support if needed
WILDWOOD1TP 115 kV	Base Case	P0	Base case	1.04	1.04	1.02	1.05	1.05	1.04	1.05	1.04	1.02	Load power factor correction and voltage support if needed
WILDWOOD2 115 kV	Base Case	P0	Base case	1.04	1.04	1.02	1.05	1.05	1.04	1.06	1.04	1.02	Load power factor correction and voltage support if needed
WSCOPRSN 115 kV	Base Case	P0	Base case	1.04	1.03	1.01	1.04	1.05	1.03	1.05	1.04	1.01	Load power factor correction and voltage support if needed
KERNRDGE 115 kV	MIDWAY-TEMBLOR 115kV [2630]	P1	N-1	1.05	1.05	1.03	1.10	1.11	1.06	1.12	1.06	1.03	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
CHARKA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.87	0.67	0.58	1.03	1.10	0.60	1.11	0.96	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
FAMOSO 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.87	0.67	0.57	1.03	1.11	0.59	1.11	0.96	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.90	0.79	0.73	1.03	1.07	0.75	1.08	0.97	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.88	0.76	0.68	1.03	1.07	0.71	1.08	0.95	0.69	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.87	0.68	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.85	0.68	0.59	1.02	1.08	0.61	1.09	0.94	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.87	0.72	0.64	1.03	1.08	0.66	1.08	0.95	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	0.87	0.68	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
ARVIN_ED 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.48	N/A	N/A	1.04	N/A	N/A	N/A	0.97	N/A	Contingency not valid in future years. Short Term: Action Plan
GRIMWAY 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.50	N/A	N/A	1.03	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
LAMONT 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
Q622BSS 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.89	N/A	N/A	1.03	N/A	N/A	N/A	1.02	N/A	Contingency not valid in future years. Short Term: Action Plan
Q744 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.99	N/A	Contingency not valid in future years. Short Term: Action Plan
REGULUS 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
STCKDLJ 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.46	N/A	N/A	1.04	N/A	N/A	N/A	0.95	N/A	Contingency not valid in future years. 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
TEVIS2 115 kV	KERN PWR - 2D 115kV & KERN-KERN FRONT line	P2	Non Bus-tie Breaker	0.45	N/A	N/A	1.04	N/A	N/A	N/A	0.94	N/A	Contingency not valid in future years. Short Term: Action Plan
ARVIN_ED 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.49	N/A	N/A	1.04	N/A	N/A	N/A	0.97	N/A	Contingency not valid in future years. Short Term: Action Plan
ARVINJ1 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.52	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
ARVINJ2 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.49	N/A	N/A	1.04	N/A	N/A	N/A	0.97	N/A	Contingency not valid in future years. Short Term: Action Plan
GRIMWAY 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.50	N/A	N/A	1.03	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
LAMONT 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
Q622BSS 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.89	N/A	N/A	1.03	N/A	N/A	N/A	1.02	N/A	Contingency not valid in future years. Short Term: Action Plan
Q744 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.99	N/A	Contingency not valid in future years. Short Term: Action Plan
REGULUS 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
STCKDLJ 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.46	N/A	N/A	1.04	N/A	N/A	N/A	0.95	N/A	Contingency not valid in future years. Short Term: Action Plan
TEVIS2 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.45	N/A	N/A	1.04	N/A	N/A	N/A	0.94	N/A	Contingency not valid in future years. Short Term: Action Plan
TEVISJ2 115 kV	KERN PWR 115kV - Section 2D & 1D	P2	Bus-tie Breaker	0.46	N/A	N/A	1.04	N/A	N/A	N/A	0.94	N/A	Contingency not valid in future years. Short Term: Action Plan
ARVIN_ED 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.48	N/A	N/A	1.04	N/A	N/A	N/A	0.97	N/A	Contingency not valid in future years. Short Term: Action Plan
GRIMWAY 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
LAMONT 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
Q622BSS 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	N/A	N/A	1.03	N/A	N/A	N/A	1.02	N/A	Contingency not valid in future years. Short Term: Action Plan
Q744 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.99	N/A	Contingency not valid in future years. 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
REGULUS 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
TEVIS2 115 kV	KERN PWR 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.45	N/A	N/A	1.04	N/A	N/A	N/A	0.94	N/A	Contingency not valid in future years. Short Term: Action Plan
ARVIN_ED 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.48	N/A	N/A	1.04	N/A	N/A	N/A	0.97	N/A	Contingency not valid in future years. Short Term: Action Plan
GRIMWAY 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.50	N/A	N/A	1.03	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
LAMONT 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
Q622BSS 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.89	N/A	N/A	1.03	N/A	N/A	N/A	1.02	N/A	Contingency not valid in future years. Short Term: Action Plan
Q744 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.99	N/A	Contingency not valid in future years. Short Term: Action Plan
REGULUS 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.50	N/A	N/A	1.04	N/A	N/A	N/A	0.98	N/A	Contingency not valid in future years. Short Term: Action Plan
TEVIS2 115 kV	KERN PWR 115kV Section 2D	P2	Bus	0.45	N/A	N/A	1.04	N/A	N/A	N/A	0.94	N/A	Contingency not valid in future years. Short Term: Action Plan
ARVIN_ED 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.48	0.52	1.03	1.04	1.04	0.51	1.04	0.97	1.04	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
GRIMWAY 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.50	0.53	1.03	1.03	1.03	0.52	1.03	0.98	1.04	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
LAMONT 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.50	0.53	1.03	1.04	1.04	0.52	1.04	0.98	1.04	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
Q622BSS 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.89	0.91	1.02	1.03	1.03	0.91	1.01	1.02	1.04	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
Q744 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.50	0.53	1.03	1.04	1.03	0.52	1.03	0.99	1.04	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
REGULUS 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.50	0.53	1.03	1.04	1.04	0.52	1.04	0.98	1.04	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
STCKDLJ 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.46	0.50	1.03	1.04	1.04	0.48	1.04	0.95	1.03	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
TEVIS2 115 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] (KERN PWR-TEVISJ2)	P2	Line Section w/o fault	0.45	0.49	1.03	1.04	1.04	0.48	1.04	0.94	1.03	Project : Wheeler Ridge Junction Station Project; In-Service Date:05/2024 Short term: Action Plan (Potentially open the 115 kV line between Wheeler and Q622)
BUENAVJ1 230 kV	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non Bus-tie Breaker	0.90	N/A	N/A	0.96	N/A	N/A	N/A	0.91	N/A	Contingency not valid in future years. Short Term: Action Plan
BUENAVT1 230 kV	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non Bus-tie Breaker	0.90	N/A	N/A	0.96	N/A	N/A	N/A	0.91	N/A	Contingency not valid in future years. Short Term: Action Plan
WHLR RJ1 230 kV	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non Bus-tie Breaker	0.90	N/A	N/A	0.96	N/A	N/A	N/A	0.91	N/A	Contingency not valid in future years. Short Term: Action Plan
WHLR RT1 230 kV	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non Bus-tie Breaker	0.90	N/A	N/A	0.96	N/A	N/A	N/A	0.91	N/A	Contingency not valid in future years. Short Term: Action Plan
WND GPJ1 230 kV	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non Bus-tie Breaker	0.90	N/A	N/A	0.96	N/A	N/A	N/A	0.91	N/A	Contingency not valid in future years. Short Term: Action Plan
WND GPT1 230 kV	MIDWAY - 1D 230kV & STCKDLEB-KERN PP-MIDWAY line	P2	Non Bus-tie Breaker	0.90	N/A	N/A	0.96	N/A	N/A	N/A	0.91	N/A	Contingency not valid in future years. Short Term: Action Plan
KERNRDGE 115 kV	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	Non Bus-tie Breaker	1.08	1.08	1.03	1.10	1.11	1.09	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
Q972 115 kV	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	Non Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
RIOBRAVO1 115 kV	MIDWAY - 2D 115kV & MIDWAY-RENFRO-TUPMAN line	P2	Non Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE 115 kV	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	Non Bus-tie Breaker	1.05	1.06	1.03	1.10	1.11	1.06	1.12	1.06	1.03	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
TEMBLOR 115 kV	MIDWAY - 2D 115kV & MIDWAY-TEMBLOR line	P2	Non Bus-tie Breaker	1.05	1.05	1.03	1.09	1.10	1.06	1.11	1.06	1.04	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
CHARKA 115 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.69	0.58	1.03	1.10	0.60	1.11	0.96	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	>.9, < 1.1	0.69	0.58	>.9, < 1.1	1.10	0.60	1.11	>.9, < 1.1	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.68	0.57	1.03	1.11	0.59	1.11	0.96	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.90	0.80	0.73	1.03	1.07	0.75	1.08	0.97	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.88	0.77	0.68	1.03	1.07	0.71	1.08	0.95	0.69	Utilize Summer Setup for summer and non-summer months
SEMITR&1 115 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.70	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.70	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.85	0.69	0.59	1.02	1.08	0.61	1.09	0.94	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.73	0.64	1.03	1.08	0.66	1.08	0.95	0.64	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WSCOPRSN 115 kV	MIDWAY - 2E 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.69	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
ATWELL_ISL 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.46	0.40	0.34	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.86	0.86	0.85	0.97	0.98	0.85	0.98	1.02	0.85	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	>.9, < 1.1	0.40	0.35	>.9, < 1.1	1.01	0.39	1.01	>.9, < 1.1	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.63	0.61	0.59	0.93	0.95	0.61	0.94	1.00	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
GANSO 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MC FRLND 70 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.59	0.57	0.54	0.93	0.95	0.56	0.94	0.99	0.54	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MCKIBBEN 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
PONDROAD 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q482 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.46	0.40	0.34	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q557 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.46	0.39	0.34	1.02	1.04	0.38	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.46	0.41	0.37	0.98	1.00	0.40	0.99	1.03	0.37	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SMYRNA 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WASCO 70 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.52	0.49	0.46	0.94	0.96	0.48	0.96	1.01	0.45	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WSCOPRSN 115 kV	MIDWAY 115kV - Section 1E & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.98	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
KERNRDGE 115 kV	MIDWAY 115kV - Section 2D & 1D	P2	Bus-tie Breaker	1.08	1.08	1.03	1.10	1.11	1.09	1.10	1.09	1.01	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
Q972 115 kV	MIDWAY 115kV - Section 2D & 1D	P2	Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
RIOBRAVO1 115 kV	MIDWAY 115kV - Section 2D & 1D	P2	Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
ATWELL_ISL 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.46	0.40	0.34	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.86	0.85	0.85	0.97	0.98	0.85	0.98	1.02	0.85	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	>.9, < 1.1	0.40	0.35	>.9, < 1.1	1.01	0.39	1.01	>.9, < 1.1	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.63	0.61	0.59	0.93	0.95	0.61	0.94	1.00	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
GANSO 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
KERNRDGE 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.01	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
MC FRLND 70 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.59	0.57	0.54	0.93	0.95	0.56	0.95	0.99	0.54	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
MCKIBBEN 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
PONDROAD 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q482 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.46	0.40	0.34	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q557 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.46	0.39	0.34	1.02	1.04	0.38	1.04	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q972 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
RIOBRAVO1 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
SEMITRPC 70 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.46	0.41	0.37	0.98	1.00	0.40	0.99	1.03	0.37	Utilize Summer Setup for summer and non-summer months
SEMITRPJ 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SMYRNA 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WASCO 70 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.52	0.49	0.46	0.94	0.96	0.48	0.96	1.01	0.46	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	MIDWAY 115kV - Section 2D & 2E	P2	Bus-tie Breaker	0.47	0.41	0.36	0.98	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
KERNRDGE 115 kV	MIDWAY 115kV Section 2D	P2	Bus	1.08	1.08	1.03	1.10	1.11	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
Q972 115 kV	MIDWAY 115kV Section 2D	P2	Bus	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
ATWELL_ISL 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.46	0.40	0.35	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	MIDWAY 115kV Section 2E	P2	Bus	>.9, < 1.1	0.40	0.35	>.9, < 1.1	1.01	0.39	1.01	>.9, < 1.1	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	MIDWAY 115kV Section 2E	P2	Bus	0.63	0.62	0.59	0.93	0.95	0.61	0.94	1.00	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
GANSO 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MC FRLND 70 kV	MIDWAY 115kV Section 2E	P2	Bus	0.59	0.57	0.54	0.93	0.95	0.56	0.94	0.99	0.54	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MCKIBBEN 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
PONDROAD 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q482 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.46	0.40	0.35	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q557 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.46	0.39	0.34	1.02	1.04	0.38	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITR&1 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	MIDWAY 115kV Section 2E	P2	Bus	0.46	0.41	0.37	0.98	1.00	0.40	0.99	1.03	0.37	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPJ 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SMYRNA 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WASCO 70 kV	MIDWAY 115kV Section 2E	P2	Bus	0.52	0.49	0.46	0.94	0.96	0.48	0.96	1.01	0.45	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WSCOPRSN 115 kV	MIDWAY 115kV Section 2E	P2	Bus	0.47	0.41	0.36	0.98	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
BUENAVJ1 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.01	0.96	1.03	1.02	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
BUENAVT1 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.01	0.96	1.03	1.02	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHEELER 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.02	0.96	1.03	1.03	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RJ1 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.02	0.96	1.03	1.02	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RT1 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.01	0.96	1.03	1.02	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPJ1 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.02	0.96	1.03	1.03	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPT1 230 kV	MIDWAY 230kV - Section 1E & 1D	P2	Bus-tie Breaker	0.90	1.03	1.01	0.96	1.03	1.02	1.02	0.91	1.01	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
BITTERWATRSS 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.03	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
BUENAVJ2 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.02	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
BUENAVT2 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.02	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
Q946 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.03	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHEELER 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.90	1.03	1.02	0.98	1.04	1.03	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RJ2 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.03	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RT2 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.02	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPJ2 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.03	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPT2 230 kV	MIDWAY 230kV - Section 2D & 2E	P2	Bus-tie Breaker	0.89	1.03	1.02	0.98	1.04	1.02	1.03	0.94	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
BUENAVJ1 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.89	1.03	1.02	0.96	1.02	1.02	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
BUENAVT1 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.89	1.03	1.02	0.96	1.02	1.02	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHEELER 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.90	1.03	1.02	0.96	1.03	1.03	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RJ1 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.90	1.03	1.02	0.96	1.02	1.03	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RT1 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.90	1.03	1.02	0.96	1.02	1.03	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPJ1 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.90	1.03	1.02	0.96	1.02	1.03	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPT1 230 kV	MIDWAY 230kV Section 1D & MIDWAY-MIDWAY-R12 #1 line	P2	Non Bus-tie Breaker	0.90	1.03	1.02	0.96	1.02	1.03	1.09	0.90	1.02	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
KERNRDGE 115 kV	MIDWAY-TEMBLOR 115kV [2630] (BELRDG J-MIDWAY)	P2	Line Section w/o fault	1.08	1.08	1.03	1.10	1.11	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
RIOBRAVO1 115 kV	MIDWAY-TEMBLOR 115kV [2630] (BELRDG J-MIDWAY)	P2	Line Section w/o fault	1.07	1.07	1.03	1.10	1.10	1.08	1.10	1.09	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE 115 kV	MIDWAY-TEMBLOR 115kV [2630] (PSE MCKJ-BELRDG J)	P2	Line Section w/o fault	1.07	1.07	1.03	1.11	1.13	1.08	1.13	1.08	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
TEMBLOR 115 kV	MIDWAY-TEMBLOR 115kV [2630] (PSE MCKJ-BELRDG J)	P2	Line Section w/o fault	1.07	1.07	1.03	1.11	1.12	1.08	1.12	1.07	1.02	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE 115 kV	MIDWAY-TEMBLOR 115kV [2630] (TEMBLOR-PSE MCKJ)	P2	Line Section w/o fault	1.05	1.05	1.03	1.10	1.11	1.06	1.12	1.06	1.03	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
TEMBLOR 115 kV	MIDWAY-TEMBLOR 115kV [2630] (TEMBLOR-PSE MCKJ)	P2	Line Section w/o fault	1.05	1.05	1.03	1.09	1.10	1.06	1.11	1.06	1.04	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
KERNRDGE 115 kV	PUMPJACK - 1D 115kV & line	P2	Non Bus-tie Breaker	1.05	1.05	1.03	1.10	1.11	1.06	1.12	1.06	1.03	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
TEMBLOR 115 kV	PUMPJACK - 1D 115kV & line	P2	Non Bus-tie Breaker	1.05	1.05	1.03	1.09	1.10	1.06	1.11	1.06	1.04	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
CHARKA 115 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.67	0.58	1.03	1.10	0.60	1.11	0.96	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	>.9, < 1.1	0.67	0.58	>.9, < 1.1	1.10	0.60	1.11	>.9, < 1.1	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.67	0.57	1.03	1.11	0.59	1.11	0.96	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
FAMOSO 70 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.90	0.80	0.73	1.03	1.07	0.75	1.08	0.97	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.88	0.76	0.68	1.03	1.07	0.71	1.08	0.95	0.69	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.69	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.85	0.68	0.59	1.02	1.08	0.61	1.09	0.94	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.72	0.64	1.03	1.08	0.66	1.08	0.95	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	SMYRNA - 1D 115kV & SMYRNA-SEMITROPIC-MIDWAY line	P2	Non Bus-tie Breaker	0.87	0.68	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
ATWELL_ISL 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.46	0.40	0.35	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.86	0.86	0.85	0.97	0.98	0.85	0.98	1.02	0.85	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	>.9, < 1.1	0.40	0.35	>.9, < 1.1	1.01	0.39	1.01	>.9, < 1.1	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.40	0.35	0.98	1.01	0.39	1.01	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.63	0.62	0.59	0.93	0.95	0.61	0.94	1.00	0.59	Utilize Summer Setup for summer and non-summer months
GANSO 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MC FRLND 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.59	0.57	0.54	0.93	0.95	0.56	0.94	0.99	0.54	Utilize Summer Setup for summer and non-summer months
MCKIBBEN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.41	0.36	0.99	1.01	0.40	1.01	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
PONDROAD 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q482 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.46	0.40	0.35	1.02	1.03	0.39	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
Q557 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.46	0.39	0.34	1.02	1.04	0.38	1.03	1.05	0.34	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.46	0.41	0.37	0.98	1.00	0.40	0.99	1.03	0.37	Utilize Summer Setup for summer and non-summer months
SEMITRPJ 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.41	0.36	0.99	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SMYRNA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.46	0.40	0.35	1.00	1.02	0.39	1.02	1.04	0.35	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WASCO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.52	0.49	0.46	0.94	0.96	0.48	0.96	1.01	0.46	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (GANSO-MIDWAY)	P2	Line Section w/o fault	0.47	0.41	0.36	0.98	1.01	0.40	1.00	1.04	0.36	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.87	0.86	0.86	0.97	0.98	0.86	0.98	1.01	0.86	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.42	0.39	0.98	1.01	0.41	1.01	1.02	0.39	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	>.9, < 1.1	0.42	0.39	>.9, < 1.1	1.01	0.41	1.01	>.9, < 1.1	0.39	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.42	0.38	0.98	1.01	0.41	1.01	1.03	0.38	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.66	0.63	0.61	0.93	0.95	0.63	0.95	0.99	0.61	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.62	0.59	0.56	0.93	0.95	0.58	0.95	0.98	0.56	Utilize Summer Setup for summer and non-summer months
MCKIBBEN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.43	0.39	0.99	1.01	0.42	1.01	1.03	0.39	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
PONDROAD 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.49	0.42	0.38	1.00	1.02	0.41	1.02	1.03	0.38	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q482 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.49	0.41	0.38	1.02	1.03	0.40	1.03	1.04	0.38	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
Q557 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.49	0.41	0.37	1.02	1.04	0.40	1.04	1.05	0.38	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITR&1 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.43	0.39	0.99	1.01	0.42	1.01	1.02	0.40	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.43	0.39	0.99	1.01	0.42	1.01	1.02	0.40	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPJ 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.43	0.39	0.99	1.01	0.42	1.01	1.02	0.40	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SMYRNA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.49	0.42	0.38	1.00	1.02	0.41	1.02	1.03	0.38	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WSCOPRSN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-GANSO)	P2	Line Section w/o fault	0.50	0.43	0.39	0.98	1.01	0.42	1.01	1.02	0.39	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.97	0.94	0.90	1.04	1.06	0.91	1.05	1.00	0.90	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.87	0.70	0.58	1.03	1.11	0.60	1.11	0.96	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	>.9, < 1.1	0.70	0.58	>.9, < 1.1	1.11	0.60	1.11	>.9, < 1.1	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.87	0.69	0.57	1.03	1.11	0.59	1.11	0.96	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.90	0.81	0.73	1.03	1.07	0.75	1.07	0.96	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.88	0.78	0.68	1.03	1.08	0.71	1.08	0.95	0.68	Utilize Summer Setup for summer and non-summer months
SEMITR&1 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.87	0.71	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.87	0.71	0.59	1.03	1.10	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITRPC 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.85	0.70	0.59	1.02	1.09	0.61	1.09	0.94	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.87	0.74	0.64	1.02	1.08	0.66	1.08	0.95	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] (SEMITRPJ-SEMITROPIC_D)	P2	Line Section w/o fault	0.87	0.71	0.59	1.03	1.11	0.61	1.11	0.96	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	DEXEL + 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	0.95	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	0.95	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Sensitivity Only
FAMOSO 115 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.90	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.88	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.68	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITROPIC_D 115 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.85	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.93	>.9	>.9	>.9	0.91	>.9	>.9	0.90	Utilize Summer Setup for summer and non-summer months
CHSR12SWSTA 115 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	0.60	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.66	>.9	>.9	>.9	>.9	>.9	>.9	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
FAMOSO 70 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.79	>.9	>.9	>.9	0.75	>.9	>.9	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.76	>.9	>.9	>.9	0.71	>.9	>.9	0.68	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.68	>.9	>.9	>.9	0.61	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	0.61	>.9	>.9	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.72	>.9	>.9	>.9	0.66	>.9	>.9	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	0.61	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.68	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
FAMOSO 115 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	0.59	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.74	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.71	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.69	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.68	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.66	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.68	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
FAMOSO 115 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.59	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.75	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.79	>.9	>.9	>.9	>.9	>.9	>.9	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.76	>.9	>.9	>.9	>.9	>.9	>.9	0.68	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITROPIC_D 115 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.68	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.72	>.9	>.9	>.9	>.9	>.9	>.9	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CAWELO B 70 kV	KERNFRNT 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.90	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	SEKR 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	0.68	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	0.86	0.67	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	TX MIDST 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
CHARKA 115 kV	WASCO-LV 12.47kV Gen Unit RN AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.95	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WHLR RJ2 230 kV	BITTERWATRSS-MIDWAY 230kV [0] AND KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940]	P6	N-1-1	0.89	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RT1 230 kV	BITTERWATRSS-MIDWAY 230kV [0] AND KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940]	P6	N-1-1	0.90	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPJ1 230 kV	BITTERWATRSS-MIDWAY 230kV [0] AND KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940]	P6	N-1-1	0.90	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPT1 230 kV	BITTERWATRSS-MIDWAY 230kV [0] AND KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940]	P6	N-1-1	0.90	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHEELER 230 kV	BITTERWATRSS-WHEELER 230kV [0] AND MIDWAY-WHEELER RIDGE #1 230kV [5190]	P6	N-1-1	0.46	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
FAMOSO 115 kV	DISCOVER 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	DISCOVER 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.69	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITRPC 70 kV	DISCOVER 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.68	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	DISCOVER 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.72	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	DISCOVER 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.68	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	DOUBLECJ 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.57	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	DOUBLECJ 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	DOUBLECJ 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.85	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WASCO 70 kV	DOUBLECJ 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.64	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	DOUBLECJ 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.59	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.67	>.9	>.9	>.9	0.60	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.67	>.9	>.9	>.9	0.60	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	ELKHIL2G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.66	>.9	>.9	>.9	0.59	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MC FRLND 70 kV	ELKHIL2G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.88	0.75	>.9	>.9	>.9	0.71	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	ELKHIL2G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.67	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	ELKHIL2G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.85	0.67	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WASCO 70 kV	ELKHIL2G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.71	>.9	>.9	>.9	0.66	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	ELKHIL2G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.67	>.9	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.66	0.58	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.66	0.57	>.9	>.9	0.59	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.79	0.72	>.9	>.9	0.74	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.75	0.68	>.9	>.9	0.71	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.67	0.59	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.85	0.67	0.59	>.9	>.9	0.61	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WASCO 70 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.71	0.64	>.9	>.9	0.66	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	ELKHIL3G 18/230kV TB 1 AND SMYRNA SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.87	0.67	0.58	>.9	>.9	0.61	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.68	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	FELLOWS 21.00kV Gen Unit QF AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.68	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	FRITOLAY 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	0.60	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	HighSRA 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.79	>.9	>.9	>.9	>.9	>.9	>.9	0.73	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	HighSRA 115/13.8kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.76	>.9	>.9	>.9	>.9	>.9	>.9	0.68	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
CHARKA 115 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	HISIERRA 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	0.67	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	KERN PP 230/115kV TB 3 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.90	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	KERN PP 230/115kV TB 3 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.88	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
CAWELO B 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.51	0.49	0.45	>.9	>.9	0.49	>.9	>.9	0.45	Utilize Summer Setup for summer and non-summer months
EISEN 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.45	0.43	0.39	>.9	>.9	0.43	>.9	>.9	0.39	Utilize Summer Setup for summer and non-summer months
KERN PW2 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.44	0.42	0.37	>.9	>.9	0.41	>.9	>.9	0.37	Utilize Summer Setup for summer and non-summer months
MAGUNDEN 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.48	0.46	0.42	>.9	>.9	0.45	>.9	>.9	0.42	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.66	0.64	0.59	>.9	>.9	0.64	>.9	>.9	0.59	Utilize Summer Setup for summer and non-summer months
RIOBRVQF 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.49	0.47	0.44	>.9	>.9	0.47	>.9	>.9	0.44	Utilize Summer Setup for summer and non-summer months
S_KERN_TP 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.41	0.38	0.35	>.9	>.9	0.37	>.9	>.9	0.35	Utilize Summer Setup for summer and non-summer months
SEMITRPC 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	>.9	>.9	0.89	>.9	>.9	>.9	>.9	>.9	0.89	Utilize Summer Setup for summer and non-summer months
WELLFILD 70 kV	KERN PW1 70/115kV TB 1 AND KERN PW2 70/115kV TB 1	P6	N-1-1	0.45	0.43	0.40	>.9	>.9	0.42	>.9	>.9	0.40	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
CAWELO B 70 kV	KERN PW1 70/115kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.90	Sensitivity Only
MC FRLND 70 kV	KERN PW1 70/115kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	0.71	>.9	>.9	0.68	Utilize Summer Setup for summer and non-summer months
BAKRSFLD 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.46	0.43	0.39	>.9	>.9	0.43	>.9	>.9	0.39	Utilize Summer Setup for summer and non-summer months
CARNATIO 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.42	0.40	0.36	>.9	>.9	0.39	>.9	>.9	0.36	Utilize Summer Setup for summer and non-summer months
FAMOSO 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.66	0.64	0.61	>.9	>.9	0.64	>.9	>.9	0.61	Utilize Summer Setup for summer and non-summer months
FRUITVLE 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.44	0.41	0.37	>.9	>.9	0.41	>.9	>.9	0.37	Utilize Summer Setup for summer and non-summer months
GRMMWY T 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.45	0.43	0.40	>.9	>.9	0.42	>.9	>.9	0.40	Utilize Summer Setup for summer and non-summer months
GRMWY_SM 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.45	0.43	0.40	>.9	>.9	0.42	>.9	>.9	0.40	Utilize Summer Setup for summer and non-summer months
KERN PW1 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.44	0.41	0.37	>.9	>.9	0.41	>.9	>.9	0.37	Utilize Summer Setup for summer and non-summer months
KRN CNYN 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.49	0.48	0.44	>.9	>.9	0.47	>.9	>.9	0.44	Utilize Summer Setup for summer and non-summer months
MAGNDN J 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.48	0.46	0.43	>.9	>.9	0.46	>.9	>.9	0.43	Utilize Summer Setup for summer and non-summer months
OLD RIVR 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.40	0.38	0.35	>.9	>.9	0.37	>.9	>.9	0.35	Utilize Summer Setup for summer and non-summer months
OLD_RVR1 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.41	0.38	0.35	>.9	>.9	0.37	>.9	>.9	0.35	Utilize Summer Setup for summer and non-summer months
PANAMA 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.41	0.39	0.35	>.9	>.9	0.38	>.9	>.9	0.35	Utilize Summer Setup for summer and non-summer months
S_KERN 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.41	0.38	0.35	>.9	>.9	0.37	>.9	>.9	0.35	Utilize Summer Setup for summer and non-summer months

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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SAN EMDO 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.41	0.38	0.35	>.9	>.9	0.37	>.9	>.9	0.35	Utilize Summer Setup for summer and non-summer months
WEEDPATCH_SF 70 kV	KERN PW2 70/115kV TB 1 AND KERN PW1 70/115kV TB 1	P6	N-1-1	0.46	0.44	0.41	>.9	>.9	0.43	>.9	>.9	0.41	Utilize Summer Setup for summer and non-summer months
FAMOSO 70 kV	KERN PW2 70/115kV TB 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	0.74	>.9	>.9	0.72	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	KERNFRNT 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	0.58	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHARKA 115 kV	KERNRDGE 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.86	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
BITTERWATRSS 230 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND P1-2:A15:8:_BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	0.89	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
Q946 230 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND P1-2:A15:8:_BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	0.89	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RJ1 230 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND P1-2:A15:8:_BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	0.90	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHLR RT2 230 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND P1-2:A15:8:_BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	0.89	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WND GPJ2 230 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND P1-2:A15:8:_BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	0.89	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WND GPT2 230 kV	KERN-TEVIS-STOCKDALE-LAMONT 115kV [1940] AND P1-2:A15:8:_BITTERWATRSS-MIDWAY 230kV [0]	P6	N-1-1	0.89	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
FAMOSO 70 kV	MIDWAY-LAPALOMA #2 230kV [0] AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P6	N-1-1	0.90	0.79	>.9	>.9	>.9	0.74	>.9	>.9	0.73	Utilize Summer Setup for summer and non-summer months
3EMIDIO 70 kV	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND P1-2:A15:9:_BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
EMDO JCT 70 kV	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND P1-2:A15:9:_BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	0.49	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
GRAPEVNE 70 kV	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND P1-2:A15:9:_BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
KELLEY 70 kV	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND P1-2:A15:9:_BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
LAKEVIEW 70 kV	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND P1-2:A15:9:_BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	0.49	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
Q622BSS 115 kV	MIDWAY-WHEELER RIDGE #1 230kV [5190] AND P1-2:A15:9:_BITTERWATRSS-WHEELER 230kV [0]	P6	N-1-1	0.52	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
ARVIN 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Utilize Summer Setup for summer and non-summer months
ARVINJ1 115 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.85	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
CASTAC 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.46	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
GRIMWAY 115 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.87	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
LAMONT 115 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.88	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
LEBEC 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.46	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
ORION 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
ORIONTP 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
PACI_PIP 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
Q744 115 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.88	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
REGULUS 115 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.88	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
ROSE 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
SN BRNRD 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
STALIONJ 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
STALLION 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.47	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
TECUYA 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
TECUYA T 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
TEJON 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
VALPREDO 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.48	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WEEDPTCH 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.46	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHEELER 115 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.51	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
WHEELER 70 kV	WHEELER 230/70kV TB 5 AND WHEELER 230/70kV TB 4	P6	N-1-1	0.49	>.9	>.9	>.9	>.9	>.9	>.9	>.9	>.9	Project : Wheeler Ridge Voltage Support Project In Service Date: 12/2020 Short term: Action Plan
KERNRDGE 115 kV	Midsun-Midway & Midway-Temblor 115 kV Lines	P7	DCTL	1.05	1.06	1.03	1.10	1.11	1.06	1.12	1.06	1.03	Load Power Factor correction and voltage support if needed; Project: Midway-Temblor 115 kV Line Reconductor and Voltage Support
3EMIDIO 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.58	1.04	1.05	1.05	0.79	1.04	0.99	1.03	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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
ARVIN 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.56	1.04	1.06	1.06	0.77	1.05	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
ARVINJ1 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.85	0.84	1.04	1.04	1.04	0.88	1.04	1.02	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
CASTAC 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.46	0.56	1.03	1.04	1.04	0.78	1.03	0.97	1.02	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
EMDO JCT 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.49	0.59	1.04	1.05	1.06	0.80	1.05	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
GRAPEVNE 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.57	1.03	1.04	1.04	0.78	1.03	0.98	1.03	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
GRIMWAY 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.87	0.87	1.03	1.04	1.04	0.90	1.04	1.02	1.03	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
KELLEY 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.57	1.03	1.05	1.05	0.79	1.04	0.98	1.03	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
LAKEVIEW 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.49	0.59	1.04	1.06	1.06	0.80	1.05	1.00	1.04	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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
LAMONT 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.88	0.87	1.04	1.04	1.04	0.90	1.04	1.03	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
LEBEC 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.46	0.56	1.02	1.04	1.04	0.77	1.03	0.97	1.02	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
ORION 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.56	1.04	1.06	1.06	0.77	1.05	1.00	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
ORIONTP 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.56	1.04	1.06	1.06	0.77	1.05	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
PACI_PIP 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.57	1.03	1.04	1.05	0.78	1.04	0.98	1.03	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
Q622BSS 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.52	0.56	1.04	1.05	1.05	0.72	1.04	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
Q744 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.88	0.87	1.04	1.04	1.04	0.90	1.03	1.03	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
REGULUS 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.88	0.87	1.04	1.04	1.04	0.90	1.04	1.03	1.04	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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
ROSE 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.58	1.04	1.05	1.05	0.79	1.04	0.99	1.03	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
SN BRNRD 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.57	1.04	1.06	1.06	0.79	1.05	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
STALIONJ 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.56	1.04	1.06	1.06	0.78	1.05	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
STALLION 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.47	0.56	1.04	1.06	1.06	0.78	1.05	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
TECUYA 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.58	1.04	1.05	1.05	0.80	1.04	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
TECUYA T 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.58	1.04	1.05	1.05	0.80	1.04	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
TEJON 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.58	1.04	1.05	1.05	0.80	1.04	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
VALPREDO 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.48	0.58	1.04	1.05	1.05	0.79	1.04	0.99	1.04	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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WEEDPTCH 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.46	0.55	1.03	1.06	1.06	0.76	1.06	0.98	1.02	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
WHEELER 115 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.51	0.55	1.04	1.05	1.05	0.73	1.04	0.99	1.04	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
WHEELER 230 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.46	0.54	1.03	1.00	1.13	0.74	1.12	0.92	1.03	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 Short term: Action Plan
WHEELER 70 kV	Midway-Wheeler Ridge #1 & #2 230 kV Lines	P7	DCTL	0.49	0.59	1.05	1.06	1.06	0.80	1.05	0.99	1.05	Project : Wheeler Ridge Junction Station Project In Service Date: 05/2024 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)				Project & Potential Mitigation Solutions
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
PANAMA 70 kV	KERN PW2-PANMJCT2 70kV [0] MOAS OPENED on PANMJCT2_CARNAT T	P1	N-1	7	9	10	0	-1	9	-1	4	10	Utilize Summer Setup for summer and non-summer months
CAWELO B 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	6	10	12	0	-1	12	-1	3	12	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	17	35	43	1	-5	42	-6	9	43	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12A 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	<8	35	43	<8	-5	42	-6	<8	43	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12B 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	<8	35	43	<8	-5	42	-6	<8	43	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	<8	35	43	<8	-5	42	-6	<8	43	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	17	35	43	1	-5	42	-6	9	43	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	11	22	27	1	-3	27	-3	6	27	Utilize Summer Setup for summer and non-summer months
KRN OL J 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	4	7	9	0	-1	9	-1	2	9	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	12	24	29	1	-3	29	-3	6	29	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	17	34	42	1	-5	42	-6	9	42	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	17	34	41	1	-5	41	-5	9	41	Utilize Summer Setup for summer and non-summer months

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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
WASCO 70 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	15	29	35	1	-4	35	-4	7	35	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P1	N-1	17	35	42	1	-5	42	-6	9	42	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MC FRLND 70 kV	DEXEL + 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	12	<8	<8	<8	<8	<8	<8	<8	29	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	DEXEL + 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	17	<8	<8	<8	<8	<8	<8	9	42	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	DEXEL + 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	17	<8	<8	<8	<8	<8	<8	9	41	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	DEXEL + 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	15	<8	<8	<8	<8	<8	<8	<8	35	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	DEXEL + 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	17	<8	<8	<8	<8	<8	<8	9	42	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
MC FRLND 70 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	23	<8	<8	<8	<8	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
MCFRLD T 70 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	23	<8	<8	<8	<8	<8	<8	<8	Utilize Summer Setup for summer and non-summer months

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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
SEMITR&1 115 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	34	<8	<8	<8	<8	<8	9	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	34	<8	<8	<8	<8	<8	9	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	34	<8	<8	<8	<8	<8	9	<8	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	29	<8	<8	<8	<8	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	DISCOVERY 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	35	<8	<8	<8	<8	<8	9	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	DOUBLE C 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	12	<8	<8	<8	<8	<8	<8	<8	27	Utilize Summer Setup for summer and non-summer months
FAMOSO 70 kV	ELKHIL1G 18.00kV & ELKHIL2G 18.00kV & ELKHIL3G 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	22	<8	<8	<8	27	<8	<8	27	Utilize Summer Setup for summer and non-summer months
KRN OL J 70 kV	PSE-BEAR 13.80kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	9	<8	<8	9	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	SEKR 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	23	<8	<8	<8	<8	<8	<8	<8	Utilize Summer Setup for summer and non-summer months

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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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
CAWELO B 70 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	11	<8	<8	<8	13	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
CHARKA 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	18	36	<8	<8	<8	43	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12A 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	36	<8	<8	<8	43	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12B 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	36	<8	<8	<8	43	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
CHSR12SWSTA 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	36	<8	<8	<8	43	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	18	36	<8	<8	<8	43	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
FAMOSO 70 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	12	23	<8	<8	<8	27	<8	<8	<8	Utilize Summer Setup for summer and non-summer months

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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
KRN OL J 70 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	8	<8	<8	<8	10	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
MC FRLND 70 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	13	25	<8	<8	<8	29	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
SEMITR&1 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	18	36	<8	<8	<8	42	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITROPIC_D 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	18	36	<8	<8	<8	42	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	18	35	<8	<8	<8	41	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
WASCO 70 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	15	30	<8	<8	<8	36	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	TEXSUN1G 18.00kV & TEXSUN2G 18.00kV & TEXSUNST 18.00kV Gen Units AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	18	36	<8	<8	<8	43	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section

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
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Off-Peak	2023 SP High CEC Forecast	2023 SpOP Hi Renew & Min Gas Gen	2020 SP Heavy Renewable & Min Gas Gen	2028 Retirement of QF Generations	
MC FRLND 70 kV	TX MIDST 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	29	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
SEMITROPIC_D 115 kV	TX MIDST 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	42	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
WASCO 70 kV	TX MIDST 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	35	<8	<8	<8	Utilize Summer Setup for summer and non-summer months
WSCOPRSN 115 kV	TX MIDST 9.11kV Gen Unit 1 AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	42	<8	<8	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITR&1 115 kV	WASCO-LV 12.47kV Gen Unit RN AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	<8	<8	10	<8	Remove Semitropic Shoefly and close Semitropic D to Semitropic E section
SEMITRPC 70 kV	WASCO-LV 12.47kV Gen Unit RN AND SMYRNA-SEMITROPIC-MIDWAY 115kV [3710] MOAS OPENED on GANSO_MIDWAY	P3	G1/N1	<8	<8	<8	<8	<8	<8	<8	10	<8	Utilize Summer Setup for summer and non-summer months



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2020 Summer Peak	2028 Summer Peak	2023 Spring Off-Peak	2020 SP Heavy Renewable & Min Gas Gen	2023 SpOP Hi Renew & Min Gas Gen	
Midway 230/115 Bank Transformer 3Ø fault with normal clearing.	P1-3	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Kern PP 230/115 kV #13 Transformer 3Ø fault with normal clearing.	P1-3	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Wheeler 230 kV Cap Bank 3Ø fault with normal clearing.	P1-4	N-1	NA	Stable/WECC criteria met	Stable/WECC criteria met	NA	Stable/WECC criteria met	No violation (Shunt Device in-service 12/2020)
Midway 230 kV bus SLG fault with normal clearing.	P2-2	Bus	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Midway 230 kV bus-tie breaker SLG fault with normal clearing.	P2-4	Bus-Tie Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Kern Power to 7 Standard 115 kV line fault with normal clearing with MT Poso offline in the base case.	P3-2	G-1/N-1	Stable/WECC criteria met	Stable/WECC criteria met	Diverged	Stable/WECC criteria met	Stable/WECC criteria met	Under Review with PTO. Final mitigation,if required, will be proposed in the draft transmission plan
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	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	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	Stable/WECC criteria met	Stable/WECC criteria met	Diverged	Stable/WECC criteria met	Stable/WECC criteria met	Under Review with PTO. Final mitigation,if required, will be proposed in the draft transmission plan
La Paloma SLG Fault with delayed clearing	P5-1	Non-Redundant Relay	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Midway-Wheeler Ridge #1 & #2 230 kV Lines SLG fault with successful high speed reclose.	P7-1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

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Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

No single source substation with of more than 100 MW

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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