



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
34117 KETLMN T 70.0 34552 GATES 70.0 1 1	Base Case	P0	Basecase	31	30	33	20	97	32	31	33	127	33	Sensitivity Only
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P1	N-1	83	90	95	10	11	96	83	103	49	95	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P1	N-1	84	90	96	11	11	97	84	104	50	96	Scope Under Review: Oro Loma 70kV Reinforcement
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	EXCHEQUER-LE GRAND 115KV [1560]	P1	N-1	106	103	103	100	97	103	106	103	98	103	Exchequer SPS
34123 K1-JCT 115 34358 KERCKHF2 115 2 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	22	20	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34128 OAKH_JCT 115 34123 K1-JCT 115 1 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	22	21	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34134 WILSON A 115 34144 MERCED 115 1 1	WILSON B 115KV SECTION 2D	P2	Bus Section Fault	103	106	105	22	6	113	103	113	74	105	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34134 WILSON A 115 34144 MERCED 115 1 1	WILSON B - 2D 115KV & WILSON-ORO LOMA LINE	P2	Non bus tie breaker fault	103	105	105	22	6	113	103	113	74	105	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34136 WILSON B 115 34144 MERCED 115 2 1	WILSON A 115KV SECTION 1D	P2	Bus Section Fault	98	99	97	19	8	104	98	103	65	99	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34144 MERCED 115 34146 MERCED M 115 2 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	41	50	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34162 ORO LOMA 115 34168 EL NIDO 115 1 1	PANOCH2 115KV SECTION 2D	P2	Bus Section Fault	83	98	98	29	15	107	83	106	54	98	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34162 ORO LOMA 115 34168 EL NIDO 115 1 1	PANOCH2 - 2D 115KV & EXCELSIORSS-PANOCH2 LINE	P2	Non bus tie breaker fault	83	98	98	29	15	107	83	106	54	98	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34162 ORO LOMA 115 34168 EL NIDO 115 1 1	PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus-tie breaker fault	83	99	99	28	15	107	83	106	54	99	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34202 MERCED 70.0 34146 MERCED M 115 2 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	67	85	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34202 MERCED 70.0 34230 MRCDFLLS 70.0 1 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	187	160	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	ARBURUA 70KV - RING R1 & R3	P2	Non bus tie breaker fault	91	97	104	10	11	104	91	112	72	104	Scope Under Review: Oro Loma 70kV Reinforcement



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34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	ARBURUA 70KV - RING R1 & R3	P2	Non bus tie breaker fault	92	98	105	11	12	105	92	113	73	105	Scope Under Review: Oro Loma 70kV Reinforcement
34252 MADERA 70.0 34256 BORDEN 70.0 2 1	BORDEN 70KV SECTION MD	P2	Bus Section Fault	96	95	95	35	37	102	96	101	74	94	Sensitivity Only
34252 MADERA 70.0 34256 BORDEN 70.0 2 1	BORDEN - MD 70KV & BORDEN-COPPERMINE LINE	P2	Non bus tie breaker fault	96	95	95	35	37	102	96	101	74	94	Sensitivity Only
34321 MCSWAINJ 70.0 34230 MRCDFLLS 70.0 1 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	189	153	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	LE GRAND 115KV SECTION MA	P2	Bus Section Fault	106	104	104	100	98	103	106	103	98	104	Exchequer SPS
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	LE GRAND - MA 115KV & LE GRAND-DAIRYLAND LINE	P2	Non bus tie breaker fault	106	104	104	100	98	103	106	103	98	104	Exchequer SPS
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	LE GRAND - MA 115KV & LE GRAND-CHOWCHILLA LINE	P2	Non bus tie breaker fault	106	104	104	100	98	103	106	103	99	104	Exchequer SPS
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	NConv	NConv	NConv	252	183	NConv	NConv	NConv	NConv	NConv	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34357 AIRWAYJ1 115 34366 SANGER 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	92	92	94	13	13	109	92	NConv	62	101	Scope Under Review: Northen Fresno Project
34357 AIRWAYJ1 115 34368 LASPALMS 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	80	79	80	11	12	95	80	NConv	53	87	Scope Under Review: Northen Fresno Project
34358 KERCKHF2 115 34360 WWARD JT 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	96	97	101	56	26	73	96	NConv	66	75	Scope Under Review: Northen Fresno Project
34359 AIRWAYJ2 115 34408 BARTON 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	85	86	89	12	11	103	85	NConv	57	96	Scope Under Review: Northen Fresno Project
34360 WWARD JT 115 34348 SHEPHERD 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	87	88	92	26	12	92	87	NConv	57	89	Scope Under Review: Northen Fresno Project
34366 SANGER 115 34359 AIRWAYJ2 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	101	102	105	16	11	122	101	NConv	67	113	Scope Under Review: Northen Fresno Project



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34366 SANGER 115 34370 MC CALL 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	69	69	72	1	6	91	69	NConv	47	89	Scope Under Review: Northen Fresno Project
34366 SANGER 115 34370 MC CALL 115 3 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	92	92	96	1	8	121	92	NConv	62	118	Scope Under Review: Northen Fresno Project
34382 WAHTOKE 115 34380 REEDLEY 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	71	70	73	3	10	89	71	NConv	46	93	Scope Under Review: Northen Fresno Project
34382 WAHTOKE 115 34380 REEDLEY 115 1 1	SANGER 115KV - SECTION ME & MD	P2	Bus-tie breaker fault	71	79	85	15	19	87	71	95	46	129	Scope Under Review: McCall-Reedley Project
34408 BARTON 115 34412 HERNDON 115 1 1	MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	121	119	126	12	11	137	121	145	85	148	Scope Under Review: Northen Fresno Project
34409 PNDLJ2 115 34416 BULLARD 115 1 1	HERNDON-BULLARD #1 115KV [1760] (HERNDON-PNDLJ1)	P2	Line section w/o fault	113	111	110	19	12	121	113	118	74	111	Close NO Switch 462/Drop Load ( <75 MW)/ Use Preferred Resources)
34409 PNDLJ2 115 34416 BULLARD 115 1 1	HERNDON 115KV SECTION 1D	P2	Bus Section Fault	113	111	110	19	12	121	113	118	74	111	Close NO Switch 462/Drop Load ( <75 MW)/ Use Preferred Resources)
34410 MANCHSTR 115 34412 HERNDON 115 1 1	MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	121	119	124	12	8	136	121	143	85	145	Scope Under Review: Northen Fresno Project
34412 HERNDON 115 34422 CHLDHOSP 115 1 1	MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	83	82	87	4	19	95	83	103	57	99	Scope Under Review: Northen Fresno Project
34414 WOODWARD 115 34422 CHLDHOSP 115 1 1	MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	80	80	86	6	21	93	80	101	55	97	Scope Under Review: Northen Fresno Project
34418 KINGSBRG 115 34428 CONTADNA 115 1 1	MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	95	91	96	9	38	117	95	125	44	117	Scope Under Review: Northen Fresno Project
34429 GWF_HEP 115 34428 CONTADNA 115 1 1	HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	74	71	73	19	16	92	74	NConv	51	90	Scope Under Review: Northen Fresno Project
34429 GWF_HEP 115 34428 CONTADNA 115 1 1	MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	99	95	99	10	42	120	99	128	48	120	Scope Under Review: Northen Fresno Project



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				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
34559 HURONJ 70.0 34560 CALFLAX 70.0 1 1	GATES 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	30	32	36	19	106	38	30	44	64	58	Short term rating followed by a redispatch
34562 SCHLNDLR 70.0 34567 FIVEPOINTSSS 70.0 1 1	GATES 230KV SECTION 2D	P2	Bus Section Fault	37	40	31	20	108	44	37	37	76	52	Short term rating followed by a redispatch
34562 SCHLNDLR 70.0 34567 FIVEPOINTSSS 70.0 1 1	GATES 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	44	48	39	28	120	54	44	48	75	60	Short term rating followed by a redispatch
34562 SCHLNDLR 70.0 34567 FIVEPOINTSSS 70.0 1 1	GATES 230KV - SECTION 2D & 2E	P2	Bus-tie breaker fault	38	41	32	22	105	43	38	36	71	52	Short term rating followed by a redispatch
34567 FIVEPOINTSSS 70.0 34560 CALFLAX 70.0 1 1	PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus-tie breaker fault	27	25	26	39	96	22	27	20	111	20	Sensitivity Only
34113 ARBURU T 70.0 34108 WRIGHT T 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	87	107	125	7	5	122	87	184	53	120	Scope Under Review: Oro Loma 70kV Reinforcement
34206 CANAL 70.0 34220 ORTIGA 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	126	158	184	16	17	179	126	270	101	175	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	LOS BANOS-MERCY SPRINGS SW STA 70KV [8929] (MERCYSPRNGSS-ARBURU T)	P2	Line section w/o fault	83	90	95	10	11	96	83	103	49	95	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	MRCYSPRS-MERCYSPRNGSS 70KV [0] NO FAULT	P2	Line section w/o fault	91	97	103	10	11	104	91	112	72	104	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	LOS BANOS-MERCY SPRINGS SW STA 70KV [8929] (LOS BANS-PCHCOWND)	P2	Line section w/o fault	98	98	103	11	7	105	98	111	55	103	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	MERCY SPRINGS SW STA-CANAL-ORO LOMA 70KV [8930] (ORTIGA-MRCYSPRS)	P2	Line section w/o fault	91	97	103	14	11	104	91	112	72	104	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	LOS BANOS-MERCY SPRINGS SW STA 70KV [8929] (MERCYSPRNGSS-ARBURU T)	P2	Line section w/o fault	84	91	96	11	11	97	84	104	50	96	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	MRCYSPRS-MERCYSPRNGSS 70KV [0] NO FAULT	P2	Line section w/o fault	91	98	104	11	12	105	91	113	73	105	Scope Under Review: Oro Loma 70kV Reinforcement





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34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	LOS BANOS-MERCY SPRINGS SW STA 70KV [8929] (LOS BANS-PCHCOWND)	P2	Line section w/o fault	99	98	104	12	7	106	99	112	56	104	Scope Under Review: Oro Loma 70kV Reinforcement
34214 LOS BANS 70.0 34231 PCHCOWND 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	110	125	145	9	6	143	110	212	63	140	Scope Under Review: Oro Loma 70kV Reinforcement
34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CANAL-LVNGSTNT)	P2	Line section w/o fault	107	98	108	16	11	105	107	118	70	108	Scope Under Review: Oro Loma 70kV Reinforcement
34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	151	184	215	21	18	208	151	320	117	205	Scope Under Review: Oro Loma 70kV Reinforcement
34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (SNTA NLA-LVNGSTNT)	P2	Line section w/o fault	107	97	106	15	9	105	106	118	68	107	Scope Under Review: Oro Loma 70kV Reinforcement
34222 MRCYSPRS 70.0 34258 MERCYSPRNGSS 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	104	127	149	8	12	144	104	222	81	142	Scope Under Review: Oro Loma 70kV Reinforcement
34231 PCHCOWND 70.0 34108 WRIGHT T 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	96	109	127	8	5	125	96	185	55	122	Scope Under Review: Oro Loma 70kV Reinforcement
34258 MERCYSPRNGSS 70.0 34113 ARBURU T 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	96	118	138	8	10	134	96	206	57	132	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	VEGA 0.36KV GEN UNIT 1 & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P3	G-1/N-1	91	98	104	<90	<90	104	91	112	<90	104	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	VEGA 0.36KV GEN UNIT 1 & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P3	G-1/N-1	92	99	105	<90	<90	105	92	113	<90	105	Scope Under Review: Oro Loma 70kV Reinforcement
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	HELMS 1 18.00KV GEN UNIT 1 & EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	100	100	100	<90	<90	100	100	100	100	100	Exchequer SPS
34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	VEGA 0.36KV GEN UNIT 1 & LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	G-1/N-1	112	101	112	<90	<90	109	112	123	<90	112	Scope Under Review: Oro Loma 70kV Reinforcement
30796 STOREY 1 230 30800 WILSON 230 1 1	GREGG 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redndant relay (Bus)	NConv	NConv	NConv	18	50	NConv	NConv	NConv	NConv	NConv	Install Redundant relay at Gregg
30810 GREGG 230 30796 STOREY 1 230 1 1	GREGG 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redndant relay (Bus)	NConv	NConv	NConv	15	50	NConv	NConv	NConv	NConv	NConv	Install Redundant relay at Gregg
30810 GREGG 230 30879 HENTAP1 230 1 1	GREGG 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redndant relay (Bus)	NConv	NConv	NConv	9	66	NConv	NConv	NConv	NConv	NConv	Install Redundant relay at Gregg
30830 KEARNEY 230 30835 HERNDON 230 1 1	GREGG 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redndant relay (Bus)	NConv	NConv	NConv	2	11	NConv	NConv	NConv	NConv	NConv	Install Redundant relay at Gregg



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30879 HENTAP1 230 30885 MUSTANGSS 230 1 1	GREGG 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redndant relay (Bus)	NConv	NConv	NConv	3	48	NConv	NConv	NConv	NConv	NConv	Install Redundant relay at Gregg
34117 KETLMN T 70.0 34552 GATES 70.0 1 1	GREGG 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redndant relay (Bus)	NConv	NConv	NConv	17	83	NConv	NConv	NConv	NConv	NConv	Install Redundant relay at Gregg
30810 GREGG 230 30835 HERNDON 230 1 1	BORDEN-GREGG 230KV [4400] & GREGG-HERNDON #2 230KV [4840]	P6	N-1-1	92	92	93	<90	<90	98	92	99	<90	97	SPS Under Review
30810 GREGG 230 30845 FGRDN T2 230 1 1	GREGG-HERNDON #1 230KV [4830] & GREGG-HERNDON #2 230KV [4840]	P6	N-1-1	100	100	100	<90	51	102	100	109	100	100	Sensitivity Only
30875 MC CALL 230 30878 MCCALL3M 115 3 1	MC CALL 230/115KV TB 1 & MC CALL 230/115KV TB 2	P6	N-1-1	93	<90	92	<90	<90	100	93	100	<90	100	Sensitivity Only
34105 CERTANJ1 115 34100 CHWCHLLA 115 1 1	WILSON-LE GRAND 115KV [4170] & PANOCHÉ-MENDOTA 115KV [3230]	P6	N-1-1	<90	<90	<90	<90	100	<90	<90	<90	<90	<90	Sensitivity Only
34107 CERTANJ2 115 34101 CERTAN T 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	<90	<90	<90	<90	<90	98	<90	101	<90	96	Sensitivity Only
34107 CERTANJ2 115 34103 CHWCGNJT 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	<90	<90	<90	<90	<90	98	<90	101	<90	96	Sensitivity Only
34116 LE GRAND 115 34134 WILSON A 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	138	<90	<90	<90	<90		138	<90	<90	<90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34118 LE GRNDJ 115 34168 EL NIDO 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	94	102	102	<90	<90	116	94	116	<90	93	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34134 WILSON A 115 34104 ATWATER 115 1 1	ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS O & EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	111	117	117	<90	<90	130	111	129	<90	117	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34134 WILSON A 115 34144 MERCED 115 1 1	WILSON-MERCED #2 115KV [4190] & EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	100	102	101	<90	<90	112	100	112	<90	101	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34136 WILSON B 115 34138 EL CAPTN 115 1 1	ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS & WILSON-ATWATER #2 115KV [4160]	P6	N-1-1	92	97	96	<90	<90	106	92	106	<90	96	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34136 WILSON B 115 34144 MERCED 115 2 1	WILSON-MERCED #1 115KV [4180] & EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	103	105	104	<90	<90	116	103	116	<90	105	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34145 RVRRC T 70.0 34464 COPPRMNE 70.0 1 1	WILSON-BORDEN 230KV [9001] & BORDEN-GREGG 230KV [4400]	P6	N-1-1	<90	<90	<90	176	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)
34149 CHENYT 115 34158 PANOCHÉ2 115 1 1	GATES-COALINGA #2 70KV [8680] & PANOCHÉ-SCHINDLER #1 115KV [3250] MOAS OPENED ON PANOCHÉ1_KAMM	P6	N-1-1	<90	<90	<90	<90	102	<90	<90	<90	<90	<90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34155 PANOCHÉ1 115 34350 KAMM 115 1 1	EXCELSIORSS-PANOCHÉ2 115KV [3231] & GATES 230/70KV TB 5	P6	N-1-1	<90	<90	<90	<90	100	<90	<90	<90	122	<90	Sensitivity Only



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
34159 PANOCHEJ 115 34160 HAMMONDS 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	160	<90	<90	<90	<90		160	<90	<90	<90	Project : Panoche Oroloma Reconductor Project In Service Date : 12/2020. Short term: Action Plan
34160 HAMMONDS 115 34161 DFSTP 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	151	<90	<90	<90	<90	<90	151	<90	<90	<90	Project : Panoche Oroloma Reconductor Project In Service Date : 12/2020. Short term: Action Plan
34161 DFSTP 115 34162 ORO LOMA 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	149	<90	<90	<90	<90		149	<90	<90	<90	Project : Panoche Oroloma Reconductor Project In Service Date : 12/2020. Short term: Action Plan
34162 ORO LOMA 115 34168 EL NIDO 115 1 1	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	123	137	138	<90	<90	154	123	156	<90	127	Scope Under Review: Wilson 115 kV Area Reinforcement Project
34200 ORO LOMA 70.0 34234 POSO J1 70.0 1 1	MENDOTA 115/70KV TB 1 & HELM 230/70KV TB 1	P6	N-1-1	<90	<90	<90	103	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	VEGA-MERCYSPRNGSS #1 70KV [0] & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P6	N-1-1	91	97	104	<90	<90	104	91	112	<90	104	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	VEGA-MERCYSPRNGSS #1 70KV [0] & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P6	N-1-1	92	98	105	<90	<90	105	92	113	<90	105	Scope Under Review: Oro Loma 70kV Reinforcement
34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	VEGA-MERCYSPRNGSS #1 70KV [0] & LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P6	N-1-1	112	101	112	<90	<90	109	112	123	<90	112	Scope Under Review: Oro Loma 70kV Reinforcement
34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	107	97	107	16	11	105	107	117	70	107	Scope Under Review: Oro Loma 70kV Reinforcement
34240 GLASS 70.0 34256 BORDEN 70.0 1 1	BORDEN-MADERA #2 70KV [8520] & BORDEN-MADERA #1 70KV [8710]	P6	N-1-1	98	96	96	<90	<90	103	98	102	<90	95	Sensitivity Only
34252 MADERA 70.0 34256 BORDEN 70.0 2 1	BORDEN-GLASS 70KV [8510] & BORDEN-MADERA #1 70KV [8710]	P6	N-1-1	96	95	95	<90	<90	102	96	101	<90	95	Sensitivity Only
34252 MADERA 70.0 34256 BORDEN 70.0 2 1	BORDEN-MADERA #1 70KV [8710] & BORDEN-GLASS 70KV [8510]	P6	N-1-1	96	95	95	<90	<90	102	96	101	<90	95	Sensitivity Only
34256 BORDEN 70.0 34252 MADERA 70.0 1 1	BORDEN-GLASS 70KV [8510] & BORDEN-MADERA #2 70KV [8520]	P6	N-1-1	97	95	95	<90	<90	102	97	101	<90	95	Sensitivity Only
34256 BORDEN 70.0 34252 MADERA 70.0 1 1	BORDEN-MADERA #2 70KV [8520] & BORDEN-GLASS 70KV [8510]	P6	N-1-1	97	95	95	<90	<90	102	97	101	<90	95	Sensitivity Only
34256 BORDEN 70.0 34262 CASSIDY 70.0 1 1	WILSON-BORDEN 230KV [9001] & BORDEN-GREGG 230KV [4400]	P6	N-1-1	<90	<90	<90	132	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)
34262 CASSIDY 70.0 34145 RVRRC T 70.0 1 1	WILSON-BORDEN 230KV [9001] & BORDEN-GREGG 230KV [4400]	P6	N-1-1	<90	<90	<90	174	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
34269 BIOMSJCT 70.0 34268 MENDOTA 70.0 1 1	TRANQUILLITY SW STA-HELM 230KV [5370] & MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<90	<90	<90	100	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)
34350 KAMM 115 34352 CANTUA 115 1 1	GATES 230/70KV TB 5 & EXCELSIORSS-PANOCH2 115KV [3231]	P6	N-1-1	<90	<90	<90	<90	97	<90	<90	<90	123	90	Sensitivity Only
34352 CANTUA 115 34432 WESTLND5 115 1 1	GATES 230/70KV TB 5 & EXCELSIORSS-PANOCH2 115KV [3231]	P6	N-1-1	<90	<90	<90	<90	94	<90	<90	<90	112	<90	Sensitivity Only
34366 SANGER 115 34389 RAINBWTP 115 1 1	SANGER-REEDLEY 115KV [9140] MOAS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	139	143	152	<90	<90	161	139	174	<90	163	Scope Under Review: McCall-Reedley Project
34366 SANGER 115 34487 SNRJCT 115 1 1	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	<90	<90	<90	<90	<90	93	<90	96	<90	113	Scope Under Review: McCall-Reedley Project
34367 POMWDFLJT 115 34490 PARLIER 115 1 1	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	93	93	96	<90	<90	101	93	105	<90	101	Scope Under Review: McCall-Reedley Project
34380 REEDLEY 115 34394 PIEDRA 1 115 1 1	SANGER-REEDLEY 115KV [9140] MOAS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	168	166	172	<90	<90	185	168	194	101	184	Scope Under Review: McCall-Reedley Project
34382 WAHTOKE 115 34380 REEDLEY 115 1 1	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	116	114	117	<90	<90	123	116	127	<90	125	Scope Under Review: McCall-Reedley Project
34389 RAINBWTP 115 34394 PIEDRA 1 115 1 1	SANGER-REEDLEY 115KV [9140] MOAS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	122	121	127	<90	<90	138	122	148	<90	138	Scope Under Review: McCall-Reedley Project
34417 KINGS J2 115 34418 KINGSBRG 115 1 1	MCCALL-KINGSBURG #2 115KV [2301] & GWF-KINGSBURG 115KV [1743]	P6	N-1-1	100	93	91	<90	<90	100	100	100	<90	93	Mitigation Under Review
34464 COPPRMNE 70.0 34478 TVY VLLY 70.0 1 1	WILSON-BORDEN 230KV [9001] & BORDEN-GREGG 230KV [4400]	P6	N-1-1	<90	<90	<90	140	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)
34478 TVY VLLY 70.0 34492 REEDLEY 70.0 1 1	WILSON-BORDEN 230KV [9001] & BORDEN-GREGG 230KV [4400]	P6	N-1-1	<90	<90	<90	155	<90	<90	<90	<90	<90	<90	Mitigation Under Review (Extend Summer Setup for non-peak seasons)
34487 SNRJCT 115 34367 POMWDFLJT 115 1 1	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	102	107	110	<90	<90	115	102	119	<90	115	Scope Under Review: McCall-Reedley Project



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
34561 Q526TP 70.0 34566 PLSNTVLY 70.0 1 1	GATES 230/70KV TB 5 & SCHLNDLR-FIVEPOINTSSS #1 70KV [0]	P6	N-1-1	<90	<90	<90	<90	73	<90	<90	<90	<90	102	Sensitivity Only
34562 SCHLNDLR 70.0 34561 Q526TP 70.0 1 1	SCHLNDLR-FIVEPOINTSSS #1 70KV [0] & GATES 230/70KV TB 5	P6	N-1-1	<90	<90	<90	<90	75	<90	<90	<90	103	100	Sensitivity Only
34562 SCHLNDLR 70.0 34567 FIVEPOINTSSS 70.0 1 1	COALINGA #1-SAN MIGUEL 70KV & GATES 230/70KV TB 5	P6	N-1-1	<90	<90	<90	<90	100	<90	<90	<90	103	<90	Sensitivity Only
36354 SAN MIGL 70.0 34574 COLNGA 1 70.0 1 1	GATES 230/70KV TB 5 & SCHINDLR 115/70KV TB 1	P6	N-1-1	<90	<90	<90	<90	100	101	<90	<90	232	194	Sensitivity Only
34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	EXCHEQUER-LE GRAND 115KV [1560] & PANOCHÉ-MENDOTA 115 kV	P6	N-1-1	105	100	100	<90	<90	100	105	100	98	100	Exchequer SPS
34208 CHEVPIPE 70.0 34210 SNTA NLA 70.0 1 1	LOS BANOS-PANOCHÉ #1 230KV [5030] & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P7	N-2	83	89	95	9	11	96	83	103	49	95	Scope Under Review: Oro Loma 70kV Reinforcement
34208 CHEVPIPE 70.0 34214 LOS BANS 70.0 1 1	LOS BANOS-PANOCHÉ #1 230KV [5030] & LOS BANOS-MERCY SPRINGS SW STA 70KV [8929]	P7	N-2	84	90	96	10	11	97	84	104	50	96	Scope Under Review: Oro Loma 70kV Reinforcement
34567 FIVEPOINTSSS 70.0 34560 CALFLAX 70.0 1 1	EXCELSIORSS-PANOCHÉ1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231]	P7	N-1-1	22	24	24	30	97	27	22	27	106	33	Sensitivity Only
34567 FIVEPOINTSSS 70.0 34560 CALFLAX 70.0 1 1	PANOCHÉ-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231]	P7	N-1-1	33	35	35	44	97	41	33	42	112	45	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
ADAMS_E 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.05	1.03	Under Review
ADAMS_E TP 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.05	1.03	Under Review
AIRPROD 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
AIRWAYJ1 115kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
AIRWAYJ2 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.04	1.01	1.02	1.01	1.03	1.02	Under Review
AIRWAYS 115kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.04	1.01	1.02	1.01	1.03	1.01	Under Review
AIRWAYS2 115kV	Base Case	P0	Basecase	1.02	1.01	1.01	1.06	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
ALPAUGH 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.02	1.03	1.03	Under Review
ALPAUGHN_20P 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
ALPAUGHN_50P 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
ALPAUGHN_JCT 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
ALPAUGHNRTH 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
ANGIOLA 70kV	Base Case	P0	Basecase	1.02	1.03	1.03	1.08	1.07	1.02	1.02	1.03	1.05	1.03	Under Review
ARBURU T 70kV	Base Case	P0	Basecase	1.00	1.00	1.00	1.05	1.02	1.00	1.00	1.00	1.00	1.00	Under Review
ARBURUA 70kV	Base Case	P0	Basecase	1.00	1.00	1.00	1.05	1.01	0.99	1.00	0.99	1.00	1.00	Under Review
ATWATER 115kV	Base Case	P0	Basecase	1.03	1.01	1.01	1.07	1.05	1.00	1.03	1.00	1.02	1.01	Under Review
ATWATR J 115kV	Base Case	P0	Basecase	1.03	1.01	1.01	1.07	1.05	1.00	1.03	1.00	1.02	1.01	Under Review
ATWELL&1 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.02	1.02	1.03	Under Review
ATWELL_JCT 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
BALCH 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.07	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
BARTON 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.04	1.01	1.02	1.01	1.03	1.01	Under Review
BER VLLY 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.07	1.03	1.01	1.01	1.01	1.02	1.01	Under Review
BIOLA 70kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.05	1.03	1.02	1.02	1.01	1.03	1.01	Under Review
BOSWELL 70kV	Base Case	P0	Basecase	1.03	1.03	1.04	1.08	1.07	1.03	1.03	1.03	1.05	1.03	Under Review
BRCEBG J 70kV	Base Case	P0	Basecase	1.00	1.01	1.01	1.07	1.03	1.01	1.00	1.01	1.02	1.01	Under Review
BSWLL TP 70kV	Base Case	P0	Basecase	1.03	1.03	1.04	1.08	1.07	1.03	1.03	1.03	1.05	1.03	Under Review
BULLARD 115kV	Base Case	P0	Basecase	1.01	1.01	1.00	1.05	1.04	1.00	1.01	1.00	1.02	1.00	Under Review
CAL AVE 115kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
CAMDEN 70kV	Base Case	P0	Basecase	0.99	0.99	0.98	1.06	1.04	0.98	0.99	0.98	1.00	0.98	Under Review
CASTLE 115kV	Base Case	P0	Basecase	1.03	1.01	1.01	1.07	1.05	1.00	1.03	1.00	1.02	1.01	Under Review
CERTAN T 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.04	1.01	1.03	1.01	1.02	1.02	Under Review
CERTANJ1 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.07	1.04	1.01	1.02	1.01	1.02	1.02	Under Review
CERTANJ2 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.04	1.02	1.03	1.01	1.03	1.02	Under Review
CERTTEED 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
CHEVPIPE 70kV	Base Case	P0	Basecase	1.00	1.00	1.01	1.05	1.02	1.00	1.00	1.00	1.01	1.00	Under Review
CHLDHOSP 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.04	1.02	1.03	1.02	1.03	1.02	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
CHWCGN 115kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.07	1.05	1.02	1.03	1.02	1.03	1.03	Under Review
CHWCGNJT 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
CHWCHLA2 115kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.07	1.05	1.02	1.03	1.02	1.03	1.03	Under Review
CHWCHLASLR 115kV	Base Case	P0	Basecase	1.02	1.01	1.01	1.06	1.03	1.00	1.02	1.00	1.02	1.01	Under Review
CHWCHLASLRJT 115kV	Base Case	P0	Basecase	1.02	1.01	1.01	1.06	1.03	1.00	1.02	1.00	1.02	1.01	Under Review
CHWCHLLA 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.07	1.04	1.01	1.02	1.01	1.02	1.02	Under Review
CLOVIS-1 115kV	Base Case	P0	Basecase	1.03	1.03	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
CLOVIS-2 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.03	1.02	Under Review
CLOVISJ1 115kV	Base Case	P0	Basecase	1.03	1.03	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
CLOVISJ2 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
CORCORAN 70kV	Base Case	P0	Basecase	1.03	1.04	1.04	1.08	1.07	1.04	1.03	1.04	1.05	1.04	Under Review
CORCORAN 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.04	1.02	Under Review
CORCORANPV_P 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.04	1.02	Under Review
CORSGOLD 115kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.06	1.04	1.00	1.01	1.00	1.02	1.01	Under Review
CRESSEY 115kV	Base Case	P0	Basecase	1.03	1.00	1.00	1.07	1.05	1.00	1.03	1.00	1.01	1.00	Under Review
DAIRYLND 115kV	Base Case	P0	Basecase	1.01	1.01	1.00	1.06	1.03	1.00	1.01	1.00	1.02	1.00	Under Review
DANISHCM 115kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.05	1.01	1.02	1.01	1.03	1.01	Under Review
DINUBA 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.06	1.06	1.00	1.01	1.00	1.02	1.00	Under Review
DNUBAEGY 70kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.06	1.02	1.03	1.02	1.03	1.02	Under Review
DNUBAJCT 70kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.06	1.01	1.03	1.01	1.03	1.01	Under Review
DOS PALS 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.05	1.01	1.01	1.00	1.02	1.01	Under Review
DUNLAP 70kV	Base Case	P0	Basecase	1.00	0.99	0.99	1.05	1.05	0.98	1.00	0.98	1.01	0.98	Under Review
EL CAPTN 115kV	Base Case	P0	Basecase	1.03	1.01	1.01	1.08	1.05	1.00	1.03	1.00	1.02	1.01	Under Review
EL NIDO 115kV	Base Case	P0	Basecase	1.03	1.02	1.01	1.06	1.05	1.01	1.03	1.01	1.02	1.01	Under Review
ELNIDO 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
ELNIDOTP 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
EXCHEQUR 70kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.07	1.03	1.02	1.02	1.02	1.03	1.02	Under Review
EXCHEQUR 115kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.07	1.04	1.02	1.03	1.02	1.03	1.03	Under Review
FIREBAGH 70kV	Base Case	P0	Basecase	0.99	0.98	0.98	1.04	1.05	0.98	0.99	0.98	1.01	0.98	Under Review
GALLO 115kV	Base Case	P0	Basecase	1.03	1.00	1.00	1.07	1.05	1.00	1.03	1.00	1.01	1.00	Under Review
GATES 115kV	Base Case	P0	Basecase	1.11	1.10	1.10	1.10	1.09	1.10	1.11	1.10	1.09	1.10	Under Review
GAURD J1 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
GAURD J2 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
GFFNJCT 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.04	1.03	Under Review
GIFFEN 70kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.05	1.04	1.02	1.03	1.02	1.06	1.02	Under Review
GRDN GLS 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
GRDNGLS2 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
HARDWICK 70kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
HELM 70kV	Base Case	P0	Basecase	1.05	1.04	1.04	1.05	1.05	1.04	1.05	1.04	1.04	1.04	Under Review
HERNDON 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.05	1.04	1.02	1.03	1.02	1.03	1.02	Under Review
HNFRD SW 70kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.03	1.02	Under Review
HRDWK TP 70kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.03	1.02	Under Review
INDN FLT 70kV	Base Case	P0	Basecase	0.99	1.00	1.00	1.07	1.03	1.00	0.99	1.00	1.01	1.00	Under Review
JGBSWLL 70kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.08	1.07	1.03	1.03	1.03	1.05	1.03	Under Review
JR WOOD 115kV	Base Case	P0	Basecase	1.03	1.01	1.01	1.07	1.05	1.00	1.03	1.00	1.02	1.01	Under Review
JRWD GEN 115kV	Base Case	P0	Basecase	1.03	1.01	1.01	1.07	1.05	1.00	1.03	1.00	1.02	1.01	Under Review
K1-JCT 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KCOGNJCT 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KERCKHF1 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KERCKHF2 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KINGS J1 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KINGS J2 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KINGSBRG 115kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.06	1.05	1.03	1.03	1.03	1.03	1.03	Under Review
KNGLOBUS 70kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.06	1.05	1.03	1.03	1.02	1.03	1.03	Under Review
KNGSCOGN 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KNGSRVR1 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
KRCDP 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
LASPALMS 115kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
LE GRAND 115kV	Base Case	P0	Basecase	1.02	1.01	1.01	1.07	1.04	1.01	1.02	1.01	1.02	1.01	Under Review
LE GRNDJ 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.05	1.01	1.03	1.01	1.02	1.02	Under Review
LIVNGSTN 115kV	Base Case	P0	Basecase	1.03	1.00	1.00	1.07	1.05	1.00	1.03	1.00	1.01	1.00	Under Review
LOS BANS 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.02	1.01	1.01	1.01	1.01	1.01	Under Review
LOSBANOS 230kV	Base Case	P0	Basecase	1.03	1.02	1.03	1.06	1.02	1.02	1.03	1.02	1.02	1.02	Under Review
MALAGA 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
MALAGATP 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
MANCHSTR 115kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.06	1.05	1.00	1.01	1.00	1.02	1.01	Under Review
MARIPOS2 70kV	Base Case	P0	Basecase	0.99	0.98	0.98	1.07	1.03	0.98	0.99	0.98	1.00	0.98	Under Review
MC CALL 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.06	1.06	1.04	1.04	1.04	1.04	1.04	Under Review
MC SWAIN 70kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.06	1.04	1.03	1.03	1.02	1.03	1.03	Under Review
MCCABEJ1 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.02	1.01	1.01	1.01	1.01	1.01	Under Review
MCCABEJ2 70kV	Base Case	P0	Basecase	1.00	1.01	1.01	1.05	1.02	1.01	1.00	1.01	1.01	1.01	Under Review
MCSWAINJ 70kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.06	1.04	1.02	1.03	1.02	1.03	1.03	Under Review



Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
MERCED 70kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.04	1.02	1.03	1.02	1.03	1.02	Under Review
MERCED 115kV	Base Case	P0	Basecase	1.03	1.02	1.01	1.08	1.05	1.01	1.03	1.01	1.02	1.01	Under Review
MERCYSPRNGSS 70kV	Base Case	P0	Basecase	1.00	1.00	1.00	1.05	1.02	1.00	1.00	1.00	1.00	1.00	Under Review
MRCDFLLS 70kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.06	1.04	1.02	1.03	1.02	1.03	1.03	Under Review
MRCYSPRS 70kV	Base Case	P0	Basecase	1.00	1.00	1.00	1.05	1.02	1.00	1.00	0.99	1.00	1.00	Under Review
OAKH_JCT 115kV	Base Case	P0	Basecase	1.03	1.03	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
OAKHURST 115kV	Base Case	P0	Basecase	1.00	1.00	1.00	1.06	1.04	0.99	1.00	0.99	1.01	1.00	Under Review
OLIVE_SS 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
ONLL PMP 69kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.02	1.01	1.01	1.01	1.01	1.01	Under Review
ORO LOMA 70kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.05	1.05	1.02	1.02	1.02	1.03	1.02	Under Review
OROSI 70kV	Base Case	P0	Basecase	1.01	1.01	1.00	1.07	1.06	1.00	1.01	1.00	1.02	1.00	Under Review
ORSI JCT 70kV	Base Case	P0	Basecase	1.02	1.01	1.01	1.07	1.06	1.00	1.02	1.00	1.02	1.00	Under Review
PARLIER 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.01	1.03	1.01	1.02	1.01	Under Review
PCHCO PP 70kV	Base Case	P0	Basecase	0.95	1.00	1.00	1.02	1.01	1.00	0.95	1.00	1.01	1.00	Under Review
PCHCOWND 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.02	1.01	1.01	1.01	1.01	1.01	Under Review
PIEDRA 1 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
PIEDRA 2 115kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.06	1.05	1.03	1.03	1.03	1.03	1.03	Under Review
PNDLJ1 115kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.04	1.00	1.01	1.00	1.02	1.00	Under Review
PNDLJ2 115kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.04	1.00	1.01	1.00	1.02	1.01	Under Review
PNEDLE 115kV	Base Case	P0	Basecase	1.01	1.01	1.00	1.05	1.04	1.00	1.01	1.00	1.02	1.00	Under Review
PNEDLE2 115kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.05	1.04	1.00	1.01	1.00	1.02	1.01	Under Review
POMWDFL 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.05	1.02	1.03	1.01	1.02	1.01	Under Review
POMWDFLJT 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
POSO J1 70kV	Base Case	P0	Basecase	0.99	0.99	0.99	1.05	1.05	0.99	0.99	0.98	1.01	0.99	Under Review
POSO J2 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
PPG 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
Q529 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.04	1.02	Under Review
Q529TP 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.04	1.02	Under Review
Q558 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.04	1.02	Under Review
Q577 230kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.02	1.02	1.03	1.02	1.02	1.02	Under Review
Q632B 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.05	1.03	Under Review
Q679 70kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.05	1.04	1.02	1.03	1.02	1.06	1.02	Under Review
QUEBEC 115kV	Base Case	P0	Basecase	1.05	1.02	1.03	1.06	1.05	1.02	1.05	1.02	1.03	1.02	Under Review
QUEBECTP 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.02	1.04	1.02	1.03	1.03	Under Review
QUINTO_SS 230kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.02	1.02	1.03	1.02	1.02	1.02	Under Review
RAINBW 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
RAINBWTP 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
RANCHRS 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
REEDLEY 70kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.06	1.02	1.03	1.02	1.03	1.02	Under Review
REEDLEY 115kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
SANDCRK 70kV	Base Case	P0	Basecase	1.00	0.99	0.99	1.06	1.05	0.99	1.00	0.99	1.01	0.99	Under Review
SANGER 115kV	Base Case	P0	Basecase	1.03	1.03	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
SAXONCRK 70kV	Base Case	P0	Basecase	1.00	1.01	1.01	1.07	1.03	1.00	1.00	1.01	1.02	1.01	Under Review
SCWAX 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
SCWAXJCT 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
SESWTF 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.04	1.01	1.02	1.01	1.03	1.01	Under Review
SESWTFTP 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.04	1.01	1.02	1.01	1.03	1.01	Under Review
SHARON 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.04	1.01	1.03	1.01	1.02	1.02	Under Review
SHARON T 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.07	1.04	1.01	1.03	1.01	1.02	1.02	Under Review
SHEPHERD 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.04	1.03	1.04	1.03	1.03	1.03	Under Review
SJNO2 70kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.05	1.04	1.04	1.04	1.04	1.04	1.04	Under Review
SNGRCOGN 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
SNGRJCT 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
SNJQJCT 70kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.05	1.04	1.04	1.04	1.04	1.04	1.04	Under Review
SNTA NLA 70kV	Base Case	P0	Basecase	1.00	1.00	1.01	1.05	1.02	1.00	1.00	1.00	1.00	1.00	Under Review
SNTA RTA 70kV	Base Case	P0	Basecase	1.01	1.00	1.00	1.05	1.05	1.00	1.01	1.00	1.02	1.00	Under Review
STCRRJ 70kV	Base Case	P0	Basecase	1.01	1.01	1.00	1.07	1.06	1.00	1.01	1.00	1.02	1.00	Under Review
STONCRRL 70kV	Base Case	P0	Basecase	1.01	1.00	1.00	1.06	1.05	0.99	1.01	0.99	1.01	0.99	Under Review
STRD JCT 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.05	1.03	Under Review
SUNMAID 115kV	Base Case	P0	Basecase	1.04	1.04	1.04	1.06	1.05	1.03	1.04	1.03	1.04	1.03	Under Review
TVY VLLY 70kV	Base Case	P0	Basecase	1.02	1.02	1.01	1.06	1.06	1.01	1.02	1.01	1.03	1.01	Under Review
ULTPWRJ 115kV	Base Case	P0	Basecase	1.04	1.04	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
VEGA 70kV	Base Case	P0	Basecase	1.00	1.00	1.00	1.05	1.02	1.00	1.00	1.00	1.00	1.00	Under Review
WAHTOKE 115kV	Base Case	P0	Basecase	1.03	1.02	1.02	1.06	1.05	1.02	1.03	1.02	1.03	1.02	Under Review
WAUKENA_SS 115kV	Base Case	P0	Basecase	1.02	1.02	1.02	1.06	1.05	1.02	1.02	1.02	1.04	1.02	Under Review
WESIX 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.04	1.03	Under Review
WESTLAND 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.04	1.03	Under Review
WHITERIVER_P 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
WILSON A 115kV	Base Case	P0	Basecase	1.04	1.02	1.02	1.08	1.05	1.02	1.04	1.02	1.03	1.02	Under Review
WILSON B 115kV	Base Case	P0	Basecase	1.04	1.02	1.02	1.08	1.05	1.02	1.04	1.02	1.03	1.02	Under Review
WISHON 70kV	Base Case	P0	Basecase	1.03	1.03	1.03	1.05	1.04	1.03	1.03	1.03	1.04	1.03	Under Review
WOODWARD 115kV	Base Case	P0	Basecase	1.03	1.03	1.02	1.06	1.04	1.02	1.03	1.02	1.03	1.02	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
WRGHT PP 70kV	Base Case	P0	Basecase	1.00	1.01	1.01	1.06	1.02	1.00	1.00	1.00	1.01	1.01	Under Review
WRIGHT T 70kV	Base Case	P0	Basecase	1.01	1.01	1.01	1.06	1.02	1.00	1.01	1.00	1.01	1.01	Under Review
WST FRSO 115kV	Base Case	P0	Basecase	1.02	1.01	1.01	1.07	1.05	1.01	1.02	1.01	1.02	1.01	Under Review
WSTLDJCT 70kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.05	1.04	1.03	1.04	1.03	1.04	1.03	Under Review
WWARD JT 115kV	Base Case	P0	Basecase	1.04	1.03	1.03	1.06	1.05	1.03	1.04	1.03	1.03	1.03	Under Review
YOSEMITE 70kV	Base Case	P0	Basecase	0.98	1.00	1.00	1.07	1.02	0.99	0.98	0.99	1.01	1.00	Under Review
BER VLLY 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.95	0.97	0.97	1.12	1.05	0.95	0.95	0.95	1.01	0.96	Under Review
BRCEBG J 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.94	0.96	0.96	1.12	1.05	0.95	0.94	0.94	1.00	0.96	Under Review
DOS PALS 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P1	N-1	0.94	0.90	0.90	1.05	1.05	0.88	0.94	0.88	0.96	0.89	Under Review
ELNIDO 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	1.03	1.03	1.03	1.10	1.06	1.03	1.04	1.03	1.04	1.03	Under Review
ELNIDOTP 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	1.03	1.03	1.03	1.10	1.06	1.03	1.03	1.03	1.04	1.03	Under Review
EXCHEQUR 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.96	0.98	0.97	1.12	1.05	0.96	0.96	0.96	1.01	0.97	Under Review
FIREBAGH 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P1	N-1	0.91	0.87	0.86	1.05	1.05	0.85	0.91	0.85	0.94	0.86	Under Review
GATES 115kV	P1-3:A14:1:_GATES 500/230KV TB 11	P1	N-1	1.10	1.11	1.11	1.13	1.11	1.11	1.10	1.10	1.11	1.11	Under Review
GATES 115kV	P1-4:A14:19:_GATES11T SVD=V	P1	N-1	1.11	1.10	1.10	1.12	1.09	1.10	1.11	1.10	1.09	1.10	Under Review
INDN FLT 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.93	0.95	0.95	1.12	1.04	0.94	0.93	0.94	1.00	0.95	Under Review
MARIPOS2 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.92	0.94	0.94	1.12	1.04	0.92	0.92	0.91	0.99	0.93	Under Review
MC SWAIN 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.99	1.00	1.00	1.12	1.05	0.98	0.99	0.98	1.03	1.00	Under Review
MCSWAINJ 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.99	1.00	1.00	1.12	1.05	0.98	0.99	0.98	1.03	0.99	Under Review
MERCED 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	1.03	1.02	1.02	1.10	1.05	1.02	1.03	1.02	1.04	1.02	Under Review
MRCDFLLS 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.99	1.00	1.00	1.12	1.05	0.98	0.99	0.98	1.03	0.99	Under Review
OAKHURST 115kV	P1-2:A13:40:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P1	N-1	0.92	0.92	0.92	1.06	1.03	0.90	0.92	0.90	0.96	0.92	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
OAKHURST 115kV	P1-2:A14:47:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P1	N-1	0.92	0.92	0.92	1.06	1.03	0.90	0.92	0.90	0.96	0.92	Sensitivity Only
ORO LOMA 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P1	N-1	0.95	0.91	0.91	1.06	1.06	0.90	0.95	0.89	0.97	0.91	Sensitivity Only
ORO LOMA 115kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P1	N-1	0.95	0.91	0.91	1.05	1.05	0.90	0.95	0.90	0.97	0.91	Sensitivity Only
POSO J1 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P1	N-1	0.92	0.88	0.87	1.05	1.05	0.86	0.92	0.86	0.95	0.87	Under Review
POSO J2 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	1.04	1.03	1.03	1.10	1.06	1.03	1.04	1.03	1.04	1.03	Under Review
SAXONCRK 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.94	0.96	0.96	1.12	1.05	0.94	0.94	0.94	1.00	0.96	Under Review
SNTA RTA 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P1	N-1	0.93	0.89	0.89	1.05	1.05	0.87	0.93	0.87	0.95	0.89	Under Review
YOSEMITE 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P1	N-1	0.92	0.95	0.95	1.13	1.04	0.93	0.92	0.93	0.99	0.95	Under Review
ARBURU T 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.93	0.87	0.83	1.05	1.02	0.84	0.93	0.63	0.96	0.84	Scope Under Review: Oro Loma 70kV Reinforcement
ARBURUA 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.92	0.87	0.82	1.05	1.01	0.83	0.92	0.62	0.95	0.84	Scope Under Review: Oro Loma 70kV Reinforcement
CANAL 70kV	P2-1:A13:65:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CANAL-LVNGSTNT)	P2	Line section w/o fault	0.91	0.93	0.91	1.04	1.01	0.91	0.91	0.89	0.95	0.91	Scope Under Review: Oro Loma 70kV Reinforcement
CANAL 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.84	0.75	0.68	1.03	1.01	0.70	0.84	0.35	0.89	0.70	Scope Under Review: Oro Loma 70kV Reinforcement
CANAL 70kV	P2-1:A13:68:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (SNTA NLA-LVNGSTNT)	P2	Line section w/o fault	0.92	0.93	0.92	1.04	1.01	0.91	0.92	0.90	0.96	0.91	Scope Under Review: Oro Loma 70kV Reinforcement
CHEVPIPE 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.83	0.72	0.65	1.03	1.00	0.67	0.83	0.30	0.87	0.67	Scope Under Review: Oro Loma 70kV Reinforcement
DFS 115kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.95	0.91	0.91	1.05	1.05	0.89	0.95	0.89	0.97	0.91	Sensitivity Only



Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
DFSTP 115kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.95	0.91	0.91	1.05	1.05	0.89	0.95	0.89	0.97	0.91	Sensitivity Only
DOS PALS 70kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.94	0.89	0.89	1.05	1.05	0.88	0.94	0.87	0.96	0.89	Scope Under Review: Oro Loma 70kV Reinforcement
DOS PALS 70kV	P2-1:A13:41:_PANOCHE-ORO LOMA 115KV [3240] (DFSTP-ORO LOMA)	P2	Line section w/o fault	0.94	0.90	0.89	1.05	1.05	0.88	0.94	0.88	0.96	0.89	Scope Under Review: Oro Loma 70kV Reinforcement
FIREBAGH 70kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.91	0.86	0.86	1.05	1.05	0.84	0.91	0.84	0.94	0.86	Under Review
FIREBAGH 70kV	P2-1:A13:41:_PANOCHE-ORO LOMA 115KV [3240] (DFSTP-ORO LOMA)	P2	Line section w/o fault	0.91	0.87	0.86	1.05	1.05	0.85	0.91	0.85	0.94	0.86	Under Review
LIVNGSTN 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.84	0.75	0.68	1.04	1.01	0.69	0.84	0.35	0.89	0.70	Scope Under Review: Oro Loma 70kV Reinforcement
LIVNGSTN 70kV	P2-1:A13:68:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (SNTA NLA-LVNGSTNT)	P2	Line section w/o fault	0.92	0.93	0.92	1.04	1.02	0.92	0.92	0.90	0.96	0.92	Scope Under Review: Oro Loma 70kV Reinforcement
LVNGSTNT 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.84	0.75	0.67	1.03	1.01	0.69	0.84	0.34	0.89	0.70	Scope Under Review: Oro Loma 70kV Reinforcement
LVNGSTNT 70kV	P2-1:A13:68:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (SNTA NLA-LVNGSTNT)	P2	Line section w/o fault	0.92	0.93	0.92	1.04	1.01	0.91	0.92	0.90	0.96	0.91	Scope Under Review: Oro Loma 70kV Reinforcement
MERCYSPRNGSS 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.91	0.85	0.80	1.05	1.01	0.81	0.91	0.57	0.95	0.82	Scope Under Review: Oro Loma 70kV Reinforcement
MRCYSPRS 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.91	0.84	0.79	1.04	1.01	0.80	0.91	0.55	0.94	0.81	Scope Under Review: Oro Loma 70kV Reinforcement
OAKHURST 115kV	P2-1:A13:31:_CHOWCHILLA-KERCKHOFF 115KV [1250] (OAKH_JCT-K1-JCT)	P2	Line section w/o fault	0.92	0.92	0.92	1.06	1.03	0.90	0.92	0.90	0.96	0.92	Sensitivity Only
ORO LOMA 70kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.95	0.91	0.91	1.06	1.05	0.89	0.95	0.89	0.97	0.90	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
ORO LOMA 70kV	P2-1:A13:41:_PANOCHE-ORO LOMA 115KV [3240] (DFSTP-ORO LOMA)	P2	Line section w/o fault	0.95	0.91	0.91	1.06	1.06	0.90	0.95	0.89	0.97	0.91	Sensitivity Only
ORO LOMA 115kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.95	0.91	0.91	1.05	1.05	0.89	0.95	0.89	0.97	0.91	Sensitivity Only
ORO LOMA 115kV	P2-1:A13:41:_PANOCHE-ORO LOMA 115KV [3240] (DFSTP-ORO LOMA)	P2	Line section w/o fault	0.95	0.91	0.91	1.05	1.05	0.90	0.95	0.90	0.97	0.91	Sensitivity Only
ORTIGA 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.88	0.81	0.75	1.04	1.01	0.76	0.88	0.47	0.92	0.77	Scope Under Review: Oro Loma 70kV Reinforcement
POSO J1 70kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.92	0.87	0.87	1.05	1.05	0.85	0.92	0.85	0.94	0.87	Scope Under Review: Oro Loma 70kV Reinforcement
POSO J1 70kV	P2-1:A13:41:_PANOCHE-ORO LOMA 115KV [3240] (DFSTP-ORO LOMA)	P2	Line section w/o fault	0.92	0.88	0.87	1.05	1.05	0.86	0.92	0.86	0.95	0.87	Under Review
SNTA NLA 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.83	0.72	0.65	1.03	1.00	0.67	0.83	0.30	0.87	0.67	Scope Under Review: Oro Loma 70kV Reinforcement
SNTA RTA 70kV	P2-1:A13:40:_PANOCHE-ORO LOMA 115KV [3240] (HAMMONDS-DFSTP)	P2	Line section w/o fault	0.93	0.89	0.88	1.05	1.05	0.87	0.93	0.87	0.95	0.88	Under Review
SNTA RTA 70kV	P2-1:A13:41:_PANOCHE-ORO LOMA 115KV [3240] (DFSTP-ORO LOMA)	P2	Line section w/o fault	0.93	0.89	0.89	1.05	1.05	0.87	0.93	0.87	0.96	0.89	Under Review
VEGA 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.91	0.85	0.80	1.05	1.01	0.81	0.91	0.57	0.95	0.82	Scope Under Review: Oro Loma 70kV Reinforcement
WRGHT PP 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.97	0.94	0.92	1.05	1.02	0.92	0.97	0.82	0.99	0.93	Scope Under Review: Oro Loma 70kV Reinforcement
WRIGHT T 70kV	P2-1:A13:67:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] (CHEVPIPE-LOS BANS)	P2	Line section w/o fault	0.97	0.94	0.92	1.05	1.02	0.92	0.97	0.82	0.99	0.93	Scope Under Review: Oro Loma 70kV Reinforcement
AIRPROD 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
AIRWAYJ1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Under Review
AIRWAYJ2 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
AIRWAYJ2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
AIRWAYS 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
AIRWAYS 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Under Review
AIRWAYS2 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
AIRWAYS2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ATWATER 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Scope Under Review: Wilson 115 kV Area Reinforcement Project
ATWATR J 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Scope Under Review: Wilson 115 kV Area Reinforcement Project
BALCH 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
BARTON 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
BARTON 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
BER VLLY 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
BRCEBG J 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
BULLARD 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CAL AVE 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CAMDEN 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CASTLE 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CHLDHOSP 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CLOVIS-1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CLOVIS-2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CLOVISJ1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CLOVISJ2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CORCORAN 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CORCORANPV_P 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
CORSGOLD 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only



Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
CRESSEY 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DANISHCM 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DFS 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DFS 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DFS 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DFSTP 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DFSTP 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DFSTP 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DINUBA 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DNUBAEGY 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DNUBAJCT 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DOS PALS 70kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
DOS PALS 70kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DOS PALS 70kV	P2-3:A13:31:_PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DOS PALS 70kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DUNLAP 70kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
DUNLAP 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
EL CAPTN 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ELNIDO 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ELNIDO 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ELNIDOTP 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ELNIDOTP 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
EXCHEQUR 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
FIREBAGH 70kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
FIREBAGH 70kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
FIREBAGH 70kV	P2-3:A13:31:_PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
FIREBAGH 70kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GALLO 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GATES 115kV	P2-2:A14:18:_GATES 230KV SECTION 2E	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GATES 115kV	P2-3:A14:16:_HENRIETA - 1D 230KV & MUSTANG SW STA-GREGG LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GATES 115kV	P2-3:A14:19:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GATES 115kV	P2-4:A14:8:_GATES 230KV - SECTION 2E & 1E	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GAURD J1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GAURD J2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
GRDN GLS 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
GRDNGLS2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HAMMONDS 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HAMMONDS 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HAMMONDS 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HARDWICK 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HERNDON 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HERNDON 230kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HNFRD SW 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
HRDWK TP 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
INDN FLT 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
JR WOOD 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
JRWD GEN 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KCOGNJCT 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only



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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
KINGS J1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KINGS J2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KINGSBRG 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KNGLOBUS 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KNGSCOGN 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KNGSRVR1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
KRCDP 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LASPALMS 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LIVNGSTN 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUIS_#3 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUIS_#3 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUIS_#3 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUIS_#5 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
LUIS_#5 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUIS_#5 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUISJCT 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUISJCT 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
LUISJCT 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MALAGA 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MALAGATP 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MANCHSTR 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MANCHSTR 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MARIPOS2 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MC CALL 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MC SWAIN 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
MC SWAIN 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MCSWAINJ 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MCSWAINJ 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MERCED 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MERCED 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MERCED 115kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MRCDFLLS 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
MRCDFLLS 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OAKHURST 115kV	P2-2:A14:25:_KERCKHF2 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OAKHURST 115kV	P2-3:A14:24:_KERCKHF2 - 1D 115KV & CHOWCHILLA-KERCKHOFF LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OAKHURST 115kV	P2-3:A14:25:_KERCKHF2 - 1D 115KV & KERCKHOFF-CLOVIS-SANGER #1 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OAKHURST 115kV	P2-3:A14:26:_KERCKHF2 - 1D 115KV & KERCKHOFF-CLOVIS-SANGER #2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
OAKHURST 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OAKHURST 115kV	P2-4:A14:38:_KERCKHF1 SECTION 1D & KERCKHF2 SECTION 1D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OAKHURST 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 70kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 70kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 70kV	P2-3:A13:31:_PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 70kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 115kV	P2-3:A13:31:_PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORO LOMA 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only



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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
OROSI 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ORSI JCT 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OXFORD 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OXFORD 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OXFORD 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OXFRDJCT 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OXFRDJCT 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
OXFRDJCT 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PANOCHEJ 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PANOCHEJ 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PANOCHEJ 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PARLIER 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
PIEDRA 1 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PIEDRA 2 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PNDLJ1 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PNDLJ2 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PNEDLE 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PNEDLE2 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POMWDFL 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POMWDFLJT 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POSO J1 70kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POSO J1 70kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POSO J1 70kV	P2-3:A13:31:_PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POSO J1 70kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
POSO J2 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
POSO J2 70kV	P2-4:A13:11:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
PPG 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
Q529 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
Q529TP 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
Q558 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
RAINBW 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
RAINBWTP 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
RANCHRS 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
REEDLEY 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
REEDLEY 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SANDCRK 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SANGER 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
SAXONCRK 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SCWAX 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SCWAXJCT 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SESWTF 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SESWTF 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SESWTFTP 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SESWTFTP 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SHEPHERD 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SNGRCOGN 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SNGRJCT 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SNTA RTA 70kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SNTA RTA 70kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only



Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
SNTA RTA 70kV	P2-3:A13:31:_PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SNTA RTA 70kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
STCRRL J 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
STONCRRL 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
SUNMAID 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
TVY VLLY 70kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
ULTPWRJ 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WAHTOKE 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WAUKENA_SS 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WOODWARD 115kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WST FRSO 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WSTLD1RA 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
WSTLD1RA 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WSTLD1RA 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WSTLDJCT 115kV	P2-2:A13:22:_PANOCHE2 115KV SECTION 2D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WSTLDJCT 115kV	P2-3:A13:30:_PANOCHE2 - 2D 115KV & EXCELSIORSS-PANOCHE2 LINE	P2	Non-bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WSTLDJCT 115kV	P2-4:A13:12:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
WWARD JT 115kV	P2-4:A14:5:_MC CALL 230KV - SECTION 1D & 2D	P2	Bus-tie breaker fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
YOSEMITE 70kV	P2-2:A13:9:_EXCHEQUR 115KV SECTION 1D	P2	Bus Section Fault	0.96	0.95	0.93	1.05	1.03	0.90	0.96	0.87	0.97	0.88	Sensitivity Only
BER VLLY 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Sensitivity Only
BER VLLY 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
BER VLLY 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.89	>0.90	>0.90	>0.90	>0.90	0.88	0.89	0.88	>0.90	>0.90	Under Review
BRCEBG J 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
BRCEBG J 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
BRCEBG J 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.89	>0.90	>0.90	>0.90	>0.90	0.87	0.89	0.87	>0.90	>0.90	Under Review
CANAL 70kV	P1-1:A13:10:_WRIGHT D 12.47KV GEN UNIT QF & P1-2:A13:60:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	>0.90	Under Review
CANAL 70kV	P1-1:A13:7:_VEGA 0.36KV GEN UNIT 1 & P1-2:A13:60:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	G-1/N-1	0.88	0.89	0.88	>0.90	>0.90	0.88	0.88	0.86	>0.90	0.88	Under Review
CORSGOLD 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:40:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	>0.90	0.90	0.90	>0.90	>0.90	0.88	>0.90	0.87	>0.90	0.90	Under Review
CORSGOLD 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A14:47:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	>0.90	0.90	0.90	>0.90	>0.90	0.88	>0.90	0.87	>0.90	0.90	Under Review
DOS PALS 70kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.89	0.89	>0.90	>0.90	0.87	>0.90	0.87	>0.90	0.89	Under Review
DOS PALS 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	0.89	>0.90	>0.90	0.88		0.88	>0.90	0.89	Under Review
DOS PALS 70kV	P1-1:A13:2:_ORO LOMA_3 12.47KV GEN UNIT EW & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.89	0.89	>0.90	>0.90	0.87	>0.90	0.87	>0.90	0.88	Under Review
DOS PALS 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.90	0.89	>0.90	>0.90	0.88	>0.90	0.88	>0.90	0.89	Under Review
DOS PALS 70kV	P1-1:A14:47:_KERCKHOF 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	0.89	>0.90	>0.90	0.88	>0.90	0.88	>0.90	0.89	Under Review
ELNIDO 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
ELNIDO 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
ELNIDOTP 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
ELNIDOTP 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
EXCHEQUR 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
EXCHEQUR 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
EXCHEQUR 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
EXCHEQUR 115kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
FIREBAGH 70kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.86	0.86	>0.90	>0.90	0.84	>0.90	0.84	>0.90	0.86	Under Review
FIREBAGH 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	0.86	>0.90	>0.90	0.85	>0.90	0.84	>0.90	0.86	Under Review
FIREBAGH 70kV	P1-1:A13:2:_ORO LOMA_3 12.47KV GEN UNIT EW & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.86	0.85	>0.90	>0.90	0.84	>0.90	0.84	>0.90	0.85	Under Review
FIREBAGH 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.87	0.86	>0.90	>0.90	0.85	>0.90	0.84	>0.90	0.86	Under Review
FIREBAGH 70kV	P1-1:A14:47:_KERCKHOF 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.87	0.86	>0.90	>0.90	0.85	>0.90	0.84	>0.90	0.86	Under Review
GATES 115kV	P1-1:A14:58:_HELMS 1 18.00KV GEN UNIT 1 & P1-3:A14:1:_GATES 500/230KV TB 11	P3	G-1/N-1	<1.10	1.11	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	1.11	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
GATES 115kV	P1-1:A14:59:_HELMS 2 18.00KV GEN UNIT 1 & P1-3:A14:1:_GATES 500/230KV TB 11	P3	G-1/N-1	<1.10	1.11	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	1.11	Under Review
GATES 115kV	P1-1:A14:61:_HELMS 3 18.00KV GEN UNIT 1 & P1-3:A14:1:_GATES 500/230KV TB 11	P3	G-1/N-1	<1.10	1.11	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	1.11	Under Review
INDN FLT 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
INDN FLT 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
INDN FLT 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.87	0.90	0.89	>0.90	>0.90	0.86	0.87	0.86	>0.90	0.89	Under Review
INDN FLT 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.89	>0.90	>0.90	>0.90	>0.90	0.89	0.89	0.89	>0.90	>0.90	Under Review
MARIPOS2 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MARIPOS2 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MARIPOS2 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.86	0.88	0.87	>0.90	>0.90	0.84	0.86	0.84	>0.90	0.87	Under Review
MARIPOS2 70kV	P1-1:A13:18:_MERCEDFL 9.11KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.90	>0.90	>0.90	>0.90	>0.90	0.89	0.90	0.89	>0.90	>0.90	Under Review
MARIPOS2 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.89	>0.90	0.90	>0.90	>0.90	0.87	0.89	0.87	>0.90	0.90	Under Review
MC SWAIN 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MC SWAIN 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review



Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
MCSWAINJ 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MCSWAINJ 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MERCED 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MERCED 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MRCDFLLS 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MRCDFLLS 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
OAKH_JCT 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:40:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.90	>0.90	>0.90	Under Review
OAKH_JCT 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A14:47:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.90	>0.90	>0.90	Under Review
OAKHURST 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:40:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	0.89	0.89	0.89	>0.90	>0.90	0.86	0.89	0.86	>0.90	0.89	Under Review
OAKHURST 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A14:47:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	0.89	0.89	0.89	>0.90	>0.90	0.86	0.89	0.86	>0.90	0.89	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
OAKHURST 115kV	P1-1:A13:14:_CHWCHLA2 13.80KV GEN UNIT 1 & P1-2:A13:40:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
OAKHURST 115kV	P1-1:A13:14:_CHWCHLA2 13.80KV GEN UNIT 1 & P1-2:A14:47:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 70kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 70kV	P1-1:A13:2:_ORO LOMA_3 12.47KV GEN UNIT EW & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	0.90	Sensitivity Only
ORO LOMA 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 70kV	P1-1:A14:47:_KERCKHOF 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 115kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 115kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 115kV	P1-1:A13:2:_ORO LOMA_3 12.47KV GEN UNIT EW & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORO LOMA 115kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.89	>0.90	>0.90	Sensitivity Only

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
ORO LOMA 115kV	P1-1:A14:47:_KERCKHOF 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.89	>0.90	>0.90	Sensitivity Only
ORTIGA 70kV	P1-1:A13:7:_VEGA 0.36KV GEN UNIT 1 & P1-2:A13:60:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	>0.90	Under Review
POSO J1 70kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.87	0.87	>0.90	>0.90	0.85	>0.90	0.85	>0.90	0.87	Under Review
POSO J1 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	0.87	>0.90	>0.90	0.86	>0.90	0.85	>0.90	0.87	Under Review
POSO J1 70kV	P1-1:A13:2:_ORO LOMA_3 12.47KV GEN UNIT EW & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.87	0.87	>0.90	>0.90	0.85	>0.90	0.85	>0.90	0.86	Under Review
POSO J1 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.88	0.87	>0.90	>0.90	0.86	>0.90	0.85	>0.90	0.87	Under Review
POSO J1 70kV	P1-1:A14:47:_KERCKHOF 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.88	0.87	>0.90	>0.90	0.86	>0.90	0.85	>0.90	0.87	Under Review
POSO J2 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
POSO J2 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
SAXONCRK 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
SAXONCRK 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
SAXONCRK 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.88	>0.90	>0.90	>0.90	>0.90	0.87	0.88	0.87	>0.90	>0.90	Under Review
SNTA RTA 70kV	P1-1:A13:13:_CHOWCOGN 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.88	0.88	>0.90	>0.90	0.87	>0.90	0.86	>0.90	0.88	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
SNTA RTA 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	>0.90	0.88	>0.90	>0.90	0.87	>0.90	0.87	>0.90	0.88	Under Review
SNTA RTA 70kV	P1-1:A13:2:_ORO LOMA_3 12.47KV GEN UNIT EW & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.88	0.88	>0.90	>0.90	0.86	>0.90	0.86	>0.90	0.88	Under Review
SNTA RTA 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.89	0.88	>0.90	>0.90	0.87	>0.90	0.87	>0.90	0.88	Under Review
SNTA RTA 70kV	P1-1:A14:47:_KERCKHOF 13.80KV GEN UNIT 1 & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.90	0.89	0.88	>0.90	>0.90	0.87	>0.90	0.87	>0.90	0.88	Under Review
YOSEMITE 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:38:_EXCHEQUER-LE GRAND 115KV [1560]	P3	G-1/N-1	<1.10	<1.10	<1.10	1.12	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
YOSEMITE 70kV	P1-1:A13:15:_EXCHQUER 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
YOSEMITE 70kV	P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.86	0.89	0.89	>0.90	>0.90	0.86	0.86	0.86	>0.90	0.89	Under Review
YOSEMITE 70kV	P1-1:A13:18:_MERCEDFL 9.11KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.89	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	>0.90	>0.90	Under Review
YOSEMITE 70kV	P1-1:A13:25:_ELNIDO 13.80KV GEN UNIT 1 & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P3	G-1/N-1	0.88	>0.90	>0.90	>0.90	>0.90	0.89	0.88	0.89	>0.90	>0.90	Under Review
ATWATER 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.90	0.82	0.82	>0.90	>0.90	0.77	0.90	0.77	>0.90	0.84	Scope Under Review: Wilson 115 kV Area Reinforcement Project
AUBERRY 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.59	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
BER VLLY 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1	P3	G-1/N-1	0.89	>0.90	>0.90	>0.90	>0.90	0.88	0.89	0.88	>0.90	>0.90	Under Review
BONITA 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.34	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
BORDEN 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.37	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
BORDEN 230kV	P1-2:A13:10:_WARNERVILLE-WILSON 230KV [5870] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90		0.89	>0.90	>0.90	Under Review
CAL AVE 115kV	P1-2:A14:64:_SANGER-CALIFORNIA AVE 115KV [9130] & P1-2:A14:66:_MCCALL-WEST FRESNO #2 115KV [2370]	P6	N-1-1	>0.90	>0.90	0.89	>0.90	>0.90	0.88	>0.90	0.88	>0.90	0.89	Under Review
CANAL 70kV	P1-2:A13:51:_VEGA-MERCYSPRNGSS #1 70KV [0] & P1-2:A13:60:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P6	N-1-1	0.88	0.89	0.88	>0.90	>0.90	0.88	0.88	0.86	>0.90	0.88	Under Review
CANANDGA 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.35	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
CASSIDY 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.45	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
CASTLE 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.90	0.83	0.82	>0.90	>0.90	0.77	0.90	0.77	>0.90	0.84	Scope Under Review: Wilson 115 kV Area Reinforcement Project
CERTTEED 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	0.90	>0.90	>0.90	0.86		0.86	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
CHWCGN 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.87	>0.90	0.87	>0.90	>0.90	Sensitivity Only
CHWCHLA2 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.87	>0.90	0.87	>0.90	>0.90	Sensitivity Only
CHWCHLASLR 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	0.88	0.88	>0.90	>0.90	0.85	>0.90	0.84	>0.90	0.89	Scope Under Review: Wilson 115 kV Area Reinforcement Project
CHWCHLLA 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	0.90	0.89	>0.90	>0.90	0.86	>0.90	0.85	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project



Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
COPPRMNE 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90		0.58	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
CORCORAN 70kV	P1-3:A14:11:_HENRIETA 230/115KV TB 3 & P1-3:A14:1:_GATES 500/230KV TB 11	P6	N-1-1	<1.10	<1.10	<1.10	1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
CORSGOLD 115kV	P1-2:A14:47:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT & P1-2:A13:39:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	0.89	0.89	0.89	>0.90	>0.90	0.87	0.89	0.87	>0.90	0.89	Under Review
CRESSEY 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.89	0.82	0.82	>0.90	>0.90	0.77	0.89	0.76	>0.90	0.83	Scope Under Review: Wilson 115 kV Area Reinforcement Project
DAIRYLND 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	0.89	0.88	>0.90	>0.90	0.85	>0.90	0.85	>0.90	0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
DANISHCM 115kV	P1-2:A14:64:_SANGER-CALIFORNIA AVE 115KV [9130] & P1-2:A14:66:_MCCALL-WEST FRESNO #2 115KV [2370]	P6	N-1-1	>0.90	>0.90	0.90	>0.90	>0.90	0.88	>0.90	0.88	>0.90	0.89	Under Review
DINUBA 70kV	P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	0.86	0.86	0.85	>0.90	>0.90	0.83	0.86	0.81	>0.90	0.83	Under Review
DNUBAEGY 70kV	P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER & P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	0.88	0.88	0.87	>0.90	>0.90	0.85	0.88	0.83	>0.90	0.85	Under Review
DOS PALS 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	0.87	0.86	>0.90	>0.90	0.85	>0.90	0.85	>0.90	0.86	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
DUNLAP 70kV	P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER & P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	0.84	0.84	0.82	>0.90	>0.90	0.80	0.84	0.79	>0.90	0.81	Under Review
EL CAPTN 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.90	0.83	0.83	>0.90	>0.90	0.78	0.90	0.77	>0.90	0.84	Scope Under Review: Wilson 115 kV Area Reinforcement Project
EL NIDO 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	0.87	0.87	>0.90	>0.90	0.83	>0.90	0.83	>0.90	0.88	Scope Under Review: Wilson 115 kV Area Reinforcement Project
EL PECO 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.34	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
ELNIDO 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:39:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
ELNIDO 70kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	0.90	>0.90	>0.90	0.86	>0.90	0.85	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
EXCHEQUR 70kV	P1-2:A13:39:_WILSON-LE GRAND 115KV [4170] & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P6	N-1-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
EXCHEQUR 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-1:A13:17:_MCSWAIN 4.16KV GEN UNIT 1	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	0.89	>0.90	>0.90	Sensitivity Only
FIREBAGH 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	0.89	0.84	0.83	>0.90	>0.90	0.82	0.89	0.81	>0.90	0.83	Under Review
FRANTDM 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.58	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
GALLO 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.89	0.82	0.82	>0.90	>0.90	0.76	0.89	0.76	>0.90	0.83	Scope Under Review: Wilson 115 kV Area Reinforcement Project
GATES 115kV	P1-2:A14:117:_GWF-HENRIETTA 70KV [8774] & P1-3:A14:12:_HENRIETA 230/70KV TB 4	P6	N-1-1	<1.10	<1.10	<1.10	<1.10	<1.10	1.10	<1.10	1.11	<1.10	<1.10	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
GILLRAN 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.90	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
GLASS 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.35	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
HENRIETA 230kV	P1-2:A14:10:_MUSTANG SW STA-GREGG 230KV [4700] & P1-2:A14:8:_MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	>0.90	0.90	0.90	0.87	0.87	0.90	>0.90	0.90	0.88	0.90	Under Review
INDN FLT 70kV	P1-2:A13:61:_EXCHEQUER-MARIPOSA 70KV [8640] & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P6	N-1-1	0.87	0.90	0.90	>0.90	>0.90	0.87	0.87	0.87	>0.90	0.90	Under Review
INDN FLT 70kV	P1-4:A14:19:_GATES11T SVD=V & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P6	N-1-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
JR WOOD 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.90	0.82	0.82	>0.90	>0.90	0.77	0.90	0.77	>0.90	0.84	Scope Under Review: Wilson 115 kV Area Reinforcement Project
LE GRAND 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	0.88	0.88	>0.90	>0.90	0.84	>0.90	0.83	>0.90	0.89	Scope Under Review: Wilson 115 kV Area Reinforcement Project
LIVNGSTN 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	0.89	0.82	0.82	>0.90	>0.90	0.76	0.89	0.76	>0.90	0.83	Scope Under Review: Wilson 115 kV Area Reinforcement Project
MADERA 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.36	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
MADERAPR 115kV	P1-2:A13:27:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND & P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	>0.90	>0.90	>0.90	0.87	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
MARIPOS2 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:61:_EXCHEQUER-MARIPOSA 70KV [8640]	P6	N-1-1	0.86	0.89	0.89	>0.90	>0.90	0.86	0.86	0.86	>0.90	0.89	Under Review
MARIPOS2 70kV	P1-2:A13:25:_WILSON-ORO LOMA 115KV [4200] & P1-3:A13:15:_EXCHEQUR 70/115KV TB 1	P6	N-1-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
MC SWAIN 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:39:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MC SWAIN 70kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.90	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
MENDOTA 115kV	P1-2:A13:27:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND & P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	>0.90	>0.90	>0.90	0.90	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
MENDOTA 115kV	P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A13:46:_DAIRYLAND-MENDOTA 115KV [1360]	P6	N-1-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MERCED 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:39:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MERCED 115kV	P1-3:A13:5:_WILSON 230/115KV TB 2 & P1-3:A13:4:_WILSON 230/115KV TB 1	P6	N-1-1	>0.90	0.85	0.85	>0.90	>0.90	0.80	>0.90	0.80	>0.90	0.85	Scope Under Review: Wilson 115 kV Area Reinforcement Project
MRCDFLLS 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:39:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
MRCDFLLS 70kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.89	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
NEWHALL 115kV	P1-2:A13:27:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND & P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	>0.90	>0.90	>0.90	0.87	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
NORTHSTAR 115kV	P1-2:A13:27:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND & P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	>0.90	>0.90	>0.90	0.90	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
NORTHSTAR 115kV	P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A13:46:_DAIRYLAND-MENDOTA 115KV [1360]	P6	N-1-1	<1.10	<1.10	<1.10	1.11	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
NRTHFORK 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.60	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
OAKHURST 115kV	P1-2:A13:39:_WILSON-LE GRAND 115KV [4170] & P1-2:A13:40:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P6	N-1-1	0.88	0.88	0.88	>0.90	>0.90	0.85	0.88	0.85	>0.90	0.88	Under Review
ORO LOMA 70kV	P1-2:A13:23:_BORDEN-GREGG 230KV [4400] & P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240]	P6	N-1-1	>0.90	0.88	0.88	>0.90	>0.90	0.87	>0.90	0.86	>0.90	0.88	Under Review
OROSI 70kV	P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER & P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	0.86	0.86	0.85	>0.90	>0.90	0.83	0.86	0.81	>0.90	0.83	Under Review
ORTIGA 70kV	P1-2:A13:60:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] & P1-1:A13:7:_VEGA 0.36KV GEN UNIT 1	P3	G-1/N-1	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	0.89	>0.90	>0.90	Sensitivity Only
PARLIER 115kV	P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER & P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	0.87	0.87	0.86	>0.90	>0.90	0.84	0.87	0.83	>0.90	0.85	Under Review
PMTFMPP 115kV	P1-2:A13:27:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND & P1-2:A13:49:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	>0.90	>0.90	>0.90	0.87	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review



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High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
REEDLEY 115kV	P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	0.88	0.88	0.86	>0.90	>0.90	0.85	0.88	0.83	>0.90	0.85	Under Review (Being reviewed as part of REEDLEY-OROSO 70 kV line reconductor-20 MVar shunts caps at Dinuba)
RIVERROC 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.52	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
SANDCRK 70kV	P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	0.85	0.84	0.83	>0.90	>0.90	0.81	0.85	0.79	>0.90	0.81	Under Review
SAXONCRK 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:61:_EXCHEQUER-MARIPOSA 70KV [8640]	P6	N-1-1	0.88	>0.90	>0.90	>0.90	>0.90	0.88	0.88	0.88	>0.90	>0.90	Under Review
SAXONCRK 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:39:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<1.10	<1.10	<1.10	1.13	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	Under Review
SHARON 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.87	>0.90	0.87	>0.90	>0.90	Scope Under Review: Wilson 115 kV Area Reinforcement Project
SJNO2 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.60	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
SJNO3 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.59	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
SNTA RTA 70kV	P1-2:A13:50:_PANOCHE-ORO LOMA 115KV [3240] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	0.86	0.85	>0.90	>0.90	0.84	>0.90	0.84	>0.90	0.85	Under Review
STONCRRL 70kV	P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	0.85	0.85	0.84	>0.90	>0.90	0.82	0.85	0.80	>0.90	0.82	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
STOREY 2 230kV	P1-2:A13:10:_WARNERVILLE-WILSON 230KV [5870] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	>0.90	>0.90	0.90	>0.90	0.90	>0.90	>0.90	Under Review
TRIGO 70kV	P1-2:A13:21:_WILSON-BORDEN 230KV [9001] & P1-2:A13:23:_BORDEN-GREGG 230KV [4400]	P6	N-1-1	>0.90	>0.90	>0.90	0.35	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
TVY VLLY 70kV	P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	0.87	0.87	0.86	>0.90	>0.90	0.84	0.87	0.82	>0.90	0.84	Under Review (Being reviewed as part of REEDLEY-OROSO 70 kV line reconductor-20 MVAR shunts caps at Dinuba)
WAHTOKE 115kV	P1-2:A14:58:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:57:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON POMWDFLJT_PARLIER	P6	N-1-1	0.87	0.87	0.86	>0.90	>0.90	0.84	0.87	0.82	>0.90	0.84	Under Review
WILSON A 115kV	P1-3:A13:4:_WILSON 230/115KV TB 1 & P1-3:A13:5:_WILSON 230/115KV TB 2	P6	N-1-1	>0.90	0.84	0.84	>0.90	>0.90	0.79	>0.90	0.79	>0.90	0.85	Scope Under Review: Wilson 115 kV Area Reinforcement Project
WISHON 70kV	P1-2:A14:15:_BORDEN-GREGG 230KV [4400] & P1-2:A13:21:_WILSON-BORDEN 230KV [9001]	P6	N-1-1	>0.90	>0.90	>0.90	0.60	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	Under Review
WST FRSO 115kV	P1-2:A14:64:_SANGER-CALIFORNIA AVE 115KV [9130] & P1-2:A14:66:_MCCALL-WEST FRESNO #2 115KV [2370]	P6	N-1-1	0.89	0.89	0.88	>0.90	>0.90	0.87	0.89	0.87	>0.90	0.88	Under Review
YOSEMITE 70kV	P1-3:A13:15:_EXCHEQUR 70/115KV TB 1 & P1-2:A13:61:_EXCHEQUER-MARIPOSA 70KV [8640]	P6	N-1-1	0.86	0.90	0.89	>0.90	>0.90	0.87	0.86	0.87	>0.90	0.89	Under Review
DOS PALS 70kV	P7-1:A13:7:_LOS BANOS-PANOCHÉ #1 230KV [5030] & PANOCHÉ-ORO LOMA 115KV [3240]	P7	N-2	0.94	0.90	0.89	1.05	1.05	0.88	0.94	0.88	0.96	0.89	Under Review
FIREBAGH 70kV	P7-1:A13:7:_LOS BANOS-PANOCHÉ #1 230KV [5030] & PANOCHÉ-ORO LOMA 115KV [3240]	P7	N-2	0.91	0.87	0.86	1.05	1.05	0.85	0.91	0.85	0.94	0.86	Under Review
GATES 115kV	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	N-2	1.10	1.10	1.10	1.10	1.10	1.11	1.10	1.10	1.10	1.10	Under Review

Study Area: PG&E Greater Fresno

High/Low Voltages



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
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
GATES 115kV	P7-1:A14:4:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] (2)	P7	N-2	1.10	1.11	1.10	1.10	1.10	1.11	1.10	1.10	1.10	1.10	Under Review
ORO LOMA 70kV	P7-1:A13:7:_LOS BANOS-PANOCHÉ #1 230KV [5030] & PANOCHÉ-ORO LOMA 115KV [3240]	P7	N-2	0.95	0.91	0.91	1.06	1.06	0.90	0.95	0.89	0.97	0.91	Under Review
ORO LOMA 115kV	P7-1:A13:7:_LOS BANOS-PANOCHÉ #1 230KV [5030] & PANOCHÉ-ORO LOMA 115KV [3240]	P7	N-2	0.95	0.91	0.91	1.05	1.05	0.90	0.95	0.90	0.97	0.91	Under Review
POSO J1 70kV	P7-1:A13:7:_LOS BANOS-PANOCHÉ #1 230KV [5030] & PANOCHÉ-ORO LOMA 115KV [3240]	P7	N-2	0.92	0.88	0.87	1.05	1.05	0.86	0.92	0.86	0.95	0.87	Under Review
SNTA RTA 70kV	P7-1:A13:7:_LOS BANOS-PANOCHÉ #1 230KV [5030] & PANOCHÉ-ORO LOMA 115KV [3240]	P7	N-2	0.93	0.89	0.89	1.05	1.05	0.87	0.93	0.87	0.95	0.89	Under Review

Study Area: PG&E Greater Fresno

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	2022 SP High CEC Forecast	2019 SP Peak-Shift	2027 SP Peak-Shift	2022 SP Heavy Renewable & Min Gas Gen	2027 Retirement of QF Generations	
DOS PALS 70 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	7.5	11.0	11.2	-0.4	-0.1	7.4	6.4	12.6	11.3	12.5	Under Review
FIREBAGH 70 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	7.7	11.3	11.6	-0.1	-0.1	7.7	6.6	13.1	11.7	13.0	Under Review
OAKHURST 115 kV	CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P1	N-1	8.3	8.4	8.4	-0.3	1.0	8.3	5.5	9.6	8.2	9.7	Under Review
ORO LOMA 70 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	7.4	10.8	11.0	-0.4	-0.1	7.3	6.3	12.4	11.1	12.3	Under Review
ORO LOMA 115 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	7.2	10.6	10.8	-0.6	-0.1	7.2	6.2	12.1	10.8	12.0	Under Review
SNTA RTA 70 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	7.5	11.1	11.3	-0.4	-0.1	7.5	6.5	12.7	11.4	12.6	Under Review

Study Area: PG&E Greater Fresno

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance (Number of voltage and frequency violations)										Potential Mitigation Solutions
			2019 Summer Peak	2022 Summer Peak	2027 Summer Peak	2019 Spring Light Load	2022 Spring Off-Peak	Select..	Select..	Select..	Select..	Select..	
HELMS PP 1 3Ø fault with normal clearing.	P1-1		0	0	0	0	0						No violation
Line LOSBANOS 230.0 to SN LS PP 230.0 Circuit 1 3Ø fault with normal clearing.	P1-2		0	0	0	0	0						No violation
Line MUSTANGSS 230.0 to GATES 230.0 Circuit 2 1 3Ø fault with normal clearing.	P1-2		0	0	0	0	0						No violation
Line Q877PH12 230.0 to CALFLATSSS 230.0 Circuit 1 3Ø fault with normal clearing.	P1-2		NCONV	NCONV	NCONV	0	NCONV						Under review
BORDEN 230 kV Bus Section SLG fault with normal clearing	P2-2		0	0	0	0	0						No violation
PANOCHÉ 230 kV Bus Section SLG fault with normal clearing	P2-2		0	0	0	0	0						No violation
3Ø fault on MCCALL 230 kV Transformers with HELMS PP 1 Out of service.	P3-3		0	0	0	0	0						No violation
Helms - Gregg #1 & #2 230 kV Lines SLG fault with normal clearing	P7-1		0	0	0	0	0						No violation



Study Area: PG&E Greater Fresno



Single Contingency Load Drop

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

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

Study Area: PG&E Greater Fresno



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..	