

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE		
Bridgeville - Garberville 60 kV Line (BRDGVLE-FRUTLDJT)	P1-2:A1:5:_KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0]	P1	N-1	86	93	134	52	56	71	74	86	83	51	94	145	Garberville Area Reinforcement	
Bridgeville - Garberville 60 kV Line (BRDGVLE-FRUTLDJT)	P1-2:A1:5:_KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0]	P1	N-1	63	76	108	44	49	54	60	68	67	44	76	145	Garberville Area Reinforcement	
Bridgeville - Garberville 60 kV Line (BRDGVLE-FRUTLDJT)	P1-2:A1:5:_KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0]	P1	N-1	57	71	101	42	47	52	57	65	64	42	71	145	Garberville Area Reinforcement	
Bridgeville - Garberville 60 kV Line (BRDGVLE-FRUTLDJT)	KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0] & FAIRHAVN 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	N/A	Continue to monitor	
Bridgeville - Garberville 60 kV Line (BRDGVLE-FRUTLDJT)	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110] & P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P6	N-1-1	83	83	70	140	150	123	107	105	106	141	82	N/A	Generation Re-dispatch	
Bridgeville-Cottonwood 115 kV Line	HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & HMBOBAYPPB 13.80KV GEN UNIT 7	P3	G-1/N-1	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	N/A	Continue to monitor	
Bridgeville-Cottonwood 115 kV Line	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P6	N-1-1	72	75	106	10	13	28	37	38	38	14	76	N/A	Continue to monitor	
Garberville-Kekawaka 60 kV Line	P1-2:A1:24:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE FRUTLDJT	P1	N-1	107	110	101	53	47	76	79	76	109	52	110	106	Garberville Area Reinforcement	
Garberville-Kekawaka 60 kV Line	BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE FRUTLDJT & FAIRHAVN 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	111	101	<100	<100	<100	<100	<100	<100	<100	112.58	N/A	Garberville Area Reinforcement	
Garberville-Kekawaka 60 kV Line	BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE FRUTLDJT & HMBOBAYPPB 13.80KV GEN UNIT	P3	G-1/N-1	<100	112	101	<100	<100	<100	<100	<100	<100	<100	110.47	N/A	Garberville Area Reinforcement	
Garberville-Kekawaka 60 kV Line	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundent battery supply	107	110	101	53	48	76	79	76	108	53	111	106	Install redundant battery supply	
GRBRVLE-KEKAWAKAJCT 60 kV	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	20	22	NConv	88	88	44	29	25	21	89	24	N/A	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	88	94	103	86	74	68	68	75	83	91	94	125	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	81	87	111	94	86	72	70	77	86	98	87	127	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	81	87	110	94	86	72	70	77	86	98	87	127	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	81	87	110	94	86	72	70	77	86	98	87	127	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	BRDGVLE 115/60KV TB 1 & PAC.LUMB 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	98	129	<100	<100	<100	<100	<100	<100	<100	99	N/A	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	BRDGVLE 115/60KV TB 1 & PAC.LUMB 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	88	108	<100	<100	<100	<100	<100	<100	<100	89	N/A	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110] & P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]	P6	N-1-1	81	87	110	94	86	86	85	93	86	96	87	N/A	Garberville Area Reinforcement	
Humboldt Bay - Rio Dell Jct 60 kV Line	P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810] & P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P6	N-1-1	20	28	32	145	158	110	96	102	99	143	20	N/A	Generation Re-dispatch	
Humboldt-Trinity 115 kV Line	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	NConv	143	133	18	24	40	56	57	59	21	144	N/A	Existing RAS	
KEKAWAKAJCT-LYTNVLE 60 kV	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	21	22	NConv	88	88	43	28	25	20	89	25	N/A	Garberville Area Reinforcement	
Kekawaka-Laytonville 60 kV Line	P1-2:A1:24:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE FRUTLDJT	P1	N-1	108	110	101	54	49	89	89	86	109	54	109	106	Garberville Area Reinforcement	
Kekawaka-Laytonville 60 kV Line	BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE FRUTLDJT & FAIRHAVN 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	111	101	<100	<100	<100	<100	<100	<100	<100	110	N/A	Garberville Area Reinforcement	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE		
Kekawaka-Laytonville 60 kV Line	BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE_FRUTLDJT & HMBOBAYPPB 13.80KV GEN UNIT 4	P3	G-1/N-1	<100	109	102	<100	<100	<100	<100	<100	<100	<100	111	N/A	Garberville Area Reinforcement	
Kekawaka-Laytonville 60 kV Line	BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVLE_FRUTLDJT & HMBOBAYPPB 13.80KV GEN UNIT 4	P3	G-1/N-1	<100	110	101	<100	<100	<100	<100	<100	<100	<100	111	N/A	Garberville Area Reinforcement	
Kekawaka-Laytonville 60 kV Line	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	108	110	101	54	50	89	89	86	109	54	111	106	Install redundant battery supply	
Newburg-Rio Dell Tap 60 kV Line	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	126	128	112	87	86	29	17	7	9	84	129	122	Garberville Area Reinforcement	
Newburg-Rio Dell Tap 60 kV Line	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	NConv	NConv	121	92	95	29	16	10	7	89	NConv	129	Garberville Area Reinforcement	
Newburg-Rio Dell Tap 60 kV Line	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	81	86	78	97	82	71	68	69	91	102	84	N/A	Sensitivity only	
Newburg-Rio Dell Tap 60 kV Line	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	81	86	78	97	82	71	68	69	91	102	84	N/A	Sensitivity only	
Newburg-Rio Dell Tap 60 kV Line	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	126	128	112	87	86	29	17	7	9	84	129	122	Garberville Area Reinforcement	
Newburg-Rio Dell Tap 60 kV Line	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	81	86	78	97	82	71	68	69	91	102	84	N/A	Sensitivity only	
Newburg-Rio Dell Tap 60 kV Line	BRDGVLE 115/60KV TB 1 & PAC.LUMB 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	100	103	<100	<100	<100	<100	<100	<100	<100	100	N/A	Garberville Area Reinforcement	
Newburg-Rio Dell Tap 60 kV Line	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	126	128	112	87	86	29	17	7	9	84	129	122	Install redundant relay	
Newburg-Rio Dell Tap 60 kV Line	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	NConv	NConv	121	92	95	29	16	10	7	89	NConv	129	Install redundant battery supply	
Newburg-Rio Dell Tap 60 kV Line	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]	P6	N-1-1	17	19	54	164	179	123	102	105	109	160	19	N/A	Generation Re-dispatch	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	133	136	112	69	73	23	13	13	2	67	134	128	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	139	146	124	65	69	20	8	17	4	63	146	128	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	139	145	124	65	68	20	8	12	5	62	146	128	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	NConv	NConv	117	74	82	23	12	16	2	71	NConv	132	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	NConv	NConv	128	70	77	20	7	12	7	67	NConv	132	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	NConv	NConv	128	70	76	20	7	12	7	67	NConv	132	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	133	136	112	69	73	23	13	13	2	67	134	128	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	139	146	124	65	69	20	8	17	4	63	146	128	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	139	145	124	65	68	20	8	12	5	62	146	128	Garberville Area Reinforcement	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	133	136	112	69	73	23	13	13	2	67	134	128	Install redundant relay	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	139	146	124	65	69	20	8	17	4	63	146	128	Install redundant relay	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	139	145	124	65	68	20	8	12	5	62	146	128	Install redundant relay	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	NConv	NConv	117	74	82	23	12	16	2	71	NConv	132	Install redundant battery supply	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	NConv	NConv	128	70	77	20	7	12	7	67	NConv	132	Install redundant battery supply	
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCUMBER)	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	NConv	NConv	128	70	76	20	7	12	7	67	NConv	132	Install redundant battery supply	

2022-2023 ISO Reliability Assessment - Study Results

Study Area: **PG&E Humboldt**

Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE		
Rio Dell Jct - Bridgeville 60 kV Line (CARLOTTA-PCLUMBER)	P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810] & P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P6	N-1-1	26	23	89	134	151	106	86	83	88	131	34	N/A	Generation Re-dispatch	
Rio Dell Tap 60 kV Line(SCOTIATP-RIODLLTP)	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	38	105	63	35	23	21	17	34	16	36	105	N/A	Generation Re-dispatch	
Trinity-Maple Creek 60 kV Line	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	99	102	98	29	36	2	8	27	21	25	103	105	Generation Re-dispatch	
Trinity-Maple Creek 60 kV Line	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	99	103	98	29	36	3	8	27	21	26	102	105	Generation Re-dispatch	
Trinity-Maple Creek 60 kV Line	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	99	102	98	29	36	2	8	27	21	25	103	105	Generation Re-dispatch	
Trinity-Maple Creek 60 kV Line	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	99	103	98	29	36	3	8	27	21	26	102	105	Generation Re-dispatch	
Trinity-Maple Creek 60 kV Line	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	99	102	98	29	36	2	8	27	21	25	103	105	Install redundant relay	
Trinity-Maple Creek 60 kV Line	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	99	103	98	29	36	3	8	27	21	26	102	105	Install redundant relay	
Trinity-Maple Creek 60 kV Line	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	28	28	NConv	71	89	37	20	18	16	64	31	N/A	Continue to monitor	
Humboldt - Eureka 60 kV Line (HUMBOLDT-HARRIS)	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	114	Continue to monitor	
Humboldt - Eureka 60 kV Line (HUMBOLDT-HARRIS)	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	114	Continue to monitor	
Humboldt Bay - Humboldt No.1 60 kV Line (HUMBOLDT-HMBLT JT)	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	106	Continue to monitor	
Humboldt-Trinity 115 kV Line	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DTCL	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	Continue to monitor	

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
HUMBOLDT 115 kV	Base Case	P0	Normal	High	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	1.07	0.97	0.97	NA	System adjustments or voltage support if needed
LOW GAP1 115 kV	Base Case	P0	Normal	High	1.01	1.01	0.99	1.00	1.01	1.01	1.00	1.00	1.07	1.00	1.01	NA	System adjustments or voltage support if needed
BRDGVLE 115 kV	Base Case	P0	Normal	High	1.00	1.00	0.98	1.00	1.00	1.00	0.99	0.99	1.07	1.00	1.00	NA	System adjustments or voltage support if needed
HMBOBAYPPB 115 kV	Base Case	P0	Normal	High	0.99	0.98	0.98	0.99	0.99	0.99	0.99	0.99	1.07	0.99	0.98	NA	System adjustments or voltage support if needed
LP_FLKBD 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
JANS CRK 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
ARCTAJT1 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
ARC_JTZX 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
ARCTA_J2 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
HUMBOLDT 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	NA	System adjustments or voltage support if needed
HARRIS 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
HARRISST 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
EUREKA 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.02	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
EUREKA A 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.02	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
HMBLT JT 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.03	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.03	NA	System adjustments or voltage support if needed
HMBLT BY 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.02	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	NA	System adjustments or voltage support if needed
HMBOBAYPPC 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.02	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	NA	System adjustments or voltage support if needed
HMBOBAYPPA 60 kV	Base Case	P0	Normal	High	1.03	1.03	1.02	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	NA	System adjustments or voltage support if needed
SCOTIATP 60 kV	Base Case	P0	Normal	High	1.03	1.03	0.99	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
RIO DELL 60 kV	Base Case	P0	Normal	High	1.03	1.03	0.99	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
SWNS FLT 60 kV	Base Case	P0	Normal	High	1.00	1.00	0.97	1.00	1.00	0.99	0.99	0.98	1.05	1.00	1.00	NA	System adjustments or voltage support if needed
SCTIATP2 60 kV	Base Case	P0	Normal	High	1.03	1.03	0.99	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	NA	System adjustments or voltage support if needed
BRDGVLE 60 kV	Base Case	P0	Normal	High	0.99	0.99	0.96	0.99	0.99	0.98	0.98	0.97	1.05	0.99	0.99	NA	System adjustments or voltage support if needed
FRUITLND 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.98	1.01	0.94	0.94	0.89	1.03	0.97	0.96	0.89	Continue to monitor
FRT SWRD 60 kV	Base Case	P0	Normal	Low	0.96	0.96	0.88	0.98	1.02	0.93	0.92	0.89	1.02	0.97	0.96	0.89	Continue to monitor
GRBRVLE 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.88	0.99	1.03	0.92	0.90	0.88	1.03	0.98	0.97	0.89	Continue to monitor
KEKAWAKA 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.99	1.03	0.93	0.92	0.90	1.02	0.98	0.97	0.90	Continue to monitor
FRUITLND 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.98	1.01	0.94	0.94	0.89	1.03	0.97	0.96	0.89	Continue to monitor
FRT SWRD 60 kV	Base Case	P0	Normal	Low	0.96	0.96	0.88	0.98	1.02	0.93	0.92	0.89	1.02	0.97	0.96	0.89	Continue to monitor
GRBRVLE 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.88	0.99	1.03	0.92	0.90	0.88	1.03	0.98	0.97	0.89	Continue to monitor
KEKAWAKA 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.99	1.03	0.93	0.92	0.90	1.02	0.98	0.97	0.90	Continue to monitor
FRUITLND 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.98	1.01	0.94	0.94	0.89	1.03	0.97	0.96	0.89	Continue to monitor
FRT SWRD 60 kV	Base Case	P0	Normal	Low	0.96	0.96	0.88	0.98	1.02	0.93	0.92	0.89	1.02	0.97	0.96	0.89	Continue to monitor
GRBRVLE 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.88	0.99	1.03	0.92	0.90	0.88	1.03	0.98	0.97	0.89	Continue to monitor
KEKAWAKA 60 kV	Base Case	P0	Normal	Low	Not Found	0.97	0.89	0.99	1.03	0.93	0.92	0.90	1.02	0.98	0.97	0.90	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
FRUITLND 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.98	1.01	0.94		0.89	1.03	0.97	0.96	0.89	Continue to monitor
FRT SWRD 60 kV	Base Case	P0	Normal	Low	0.96	0.96	0.88	0.98	1.02	0.93		0.89	1.02	0.97	0.96	0.89	Continue to monitor
GRBRVLE 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.88	0.99	1.03	0.92		0.88	1.03	0.98	0.97	0.89	Continue to monitor
KEKAWAKA 60 kV	Base Case	P0	Normal	Low	0.97	0.97	0.89	0.99	1.03	0.93		0.90	1.02	0.98	0.97	0.90	Continue to monitor
FRUITLND 60 kV	P1-1:A1:2:_PAC.LUMB 13.80KV GEN UNIT 1	P1	N-1	Low	0.97	0.97	0.88	0.98	1.01	0.94	0.94	0.89	1.03	0.97	0.96	0.88	Continue to monitor
FRT SWRD 60 kV	P1-1:A1:2:_PAC.LUMB 13.80KV GEN UNIT 1	P1	N-1	Low	0.96	0.96	0.88	0.98	1.02	0.93	0.92	0.89	1.02	0.97	0.96	0.87	Continue to monitor
GRBRVLE 60 kV	P1-1:A1:2:_PAC.LUMB 13.80KV GEN UNIT 1	P1	N-1	Low	0.97	0.97	0.87	0.99	1.03	0.92	0.90	0.88	1.03	0.98	0.97	0.87	Continue to monitor
KEKAWAKA 60 kV	P1-1:A1:2:_PAC.LUMB 13.80KV GEN UNIT 1	P1	N-1	Low	0.97	0.97	0.89	0.99	1.03	0.93	0.92	0.90	1.02	0.98	0.97	N/A	Continue to monitor
FRUITLND 60 kV	P1-1:A1:3:_PAC.LUMB 13.80KV GEN UNIT 2	P1	N-1	Low	0.97	0.97	0.88	0.98	1.01	0.94	0.94	0.89	1.03	0.97	0.96	0.88	Continue to monitor
FRT SWRD 60 kV	P1-1:A1:3:_PAC.LUMB 13.80KV GEN UNIT 2	P1	N-1	Low	0.96	0.96	0.88	0.98	1.02	0.93	0.92	0.89	1.02	0.97	0.96	0.87	Continue to monitor
GRBRVLE 60 kV	P1-1:A1:3:_PAC.LUMB 13.80KV GEN UNIT 2	P1	N-1	Low	0.97	0.97	0.87	0.99	1.03	0.92	0.90	0.88	1.03	0.98	0.97	0.87	Continue to monitor
KEKAWAKA 60 kV	P1-1:A1:3:_PAC.LUMB 13.80KV GEN UNIT 2	P1	N-1	Low	0.97	0.97	0.89	0.99	1.03	0.93	0.92	0.90	1.02	0.98	0.97	0.89	Continue to monitor
FRUITLND 60 kV	P1-1:A1:4:_HMBOBAYPPB 13.80KV GEN UNIT 5	P1	N-1	Low	0.97	0.97	0.88	0.99	1.01	0.94	0.94	0.89	1.03	0.98	0.96	0.88	Continue to monitor
KEKAWAKA 60 kV	P1-1:A1:4:_HMBOBAYPPB 13.80KV GEN UNIT 5	P1	N-1	Low	0.97	0.97	0.89	1.00	1.03	0.93	0.92	0.90	1.02	0.99	0.97	0.89	Continue to monitor
FRUITLND 60 kV	P1-1:A1:5:_HMBOBAYPPB 13.80KV GEN UNIT 6	P1	N-1	Low	0.97	0.97	0.88	0.99	1.01	0.94	0.94	0.89	1.03	0.98	0.96	0.88	Continue to monitor
FRT SWRD 60 kV	P1-1:A1:5:_HMBOBAYPPB 13.80KV GEN UNIT 6	P1	N-1	Low	0.96	0.96	0.88	0.99	1.02	0.93	0.92	0.89	1.02	0.98	0.96	0.88	Continue to monitor
GRBRVLE 60 kV	P1-1:A1:5:_HMBOBAYPPB 13.80KV GEN UNIT 6	P1	N-1	Low	0.97	0.97	0.87	1.00	1.03	0.92	0.90	0.88	1.03	0.99	0.97	0.88	Continue to monitor
KEKAWAKA 60 kV	P1-1:A1:5:_HMBOBAYPPB 13.80KV GEN UNIT 6	P1	N-1	Low	0.97	0.97	0.89	1.00	1.03	0.93	0.92	0.90	1.02	0.99	0.97	0.89	Continue to monitor
FRT SWRD 60 kV	P1-2:A1:1:_HUMBOLDT- BRIDGEVILLE 115KV [1810]	P1	N-1	Low	1.00	1.00	0.90	1.01	1.02	0.95	0.94	0.90	1.01	1.00	1.00	0.90	Continue to monitor
GRBRVLE 60 kV	P1-2:A1:1:_HUMBOLDT- BRIDGEVILLE 115KV [1810]	P1	N-1	Low	1.00	1.00	0.89	1.01	1.03	0.94	0.93	0.89	1.01	1.00	1.00	0.90	Continue to monitor
WILLWCRK 60 kV	P1-2:A1:14:_HUMBOLDT- MAPLE CREEK 60KV [7130] MOAS OPENED ON HUMBOLDT_MPLE CRK	P1	N-1	Low	0.88	1.03	1.03	0.93	0.98	0.98	0.99	1.03	0.95	0.97	1.03	N/A	Project: Willo Creek voltage support
HOOPA 60 kV	P1-2:A1:14:_HUMBOLDT- MAPLE CREEK 60KV [7130] MOAS OPENED ON HUMBOLDT_MPLE CRK	P1	N-1	Low	0.87	1.03	1.02	0.92	0.98	0.98	0.99	1.03	0.95	0.96	1.03	N/A	Project: Willo Creek voltage support
NEWBURG 60 kV	P1-2:A1:16:_HUMBOLDT BAY- RIO DELL JCT 60KV [7100] MOAS OPENED ON EEL RIVR_NEWBURG	P1	N-1	Low	1.01	1.00	0.89	1.00	1.01	1.00	0.99	0.95	1.05	1.00	1.00	0.87	Continue to monitor
KEKAWAKA 60 kV	P1-2:A1:2:_HUMBOLDT- TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P1	N-1	Low	0.97	0.97	0.89	0.98	1.03	0.92	0.92	0.90	1.02	0.96	0.97	N/A	Continue to monitor
FRT SWRD 60 kV	P1-2:A1:20:_ 60KV [9999] (2)	P1	N-1	Low	0.96	0.96	0.88	1.00	1.02	0.94	0.93	0.90	1.02	0.99	0.96	N/A	Continue to monitor
GRBRVLE 60 kV	P1-2:A1:20:_ 60KV [9999] (2)	P1	N-1	Low	0.97	0.97	0.88	1.01	1.03	0.93	0.92	0.89	1.03	1.00	0.97	N/A	Continue to monitor
FRUITLND 60 kV	P1-2:A1:21:_HUMBOLDT BAY- RIO DELL JCT 60KV [7100] MOAS OPENED ON NEWBURG_RIOLLTP	P1	N-1	Low	0.97	0.97	0.89	0.99	1.01	0.95	0.94	0.90	1.03	0.98	0.97	N/A	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
GRBRVLE 60 kV	P1-2:A1:22:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED ON CARLOTTA_SWNS FLT	P1	N-1	Low	0.96	0.96	0.87	0.98	1.03	0.91	0.90	0.87	1.03	0.98	0.96	0.87	Continue to monitor
KEKAWAKA 60 kV	P1-2:A1:22:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED ON CARLOTTA_SWNS FLT	P1	N-1	Low	0.96	0.96	0.88	0.99	1.03	0.93	0.91	0.89	1.02	0.98	0.96	0.88	Continue to monitor
GRBRVLE 60 kV	P1-2:A1:23:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED ON CARLOTTA_SWNS FLT (2)	P1	N-1	Low	0.96	0.96	0.87	0.99	1.03	0.92	0.90	0.87	1.03	0.98	0.96	0.87	Continue to monitor
KEKAWAKA 60 kV	P1-2:A1:23:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED ON CARLOTTA_SWNS FLT (2)	P1	N-1	Low	0.96	0.96	0.88	0.99	1.03	0.93	0.92	0.89	1.02	0.98	0.96	N/A	Continue to monitor
FRUITLND 60 kV	P1-2:A1:24:_BRIDGEVILLE-GARBerville 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDJT	P1	N-1	Low	0.50	0.49	0.41	1.03	1.03	0.49	0.47	0.41	0.53	1.03	0.48	0.39	Garberville Area Reinforcement
FRT SWRD 60 kV	P1-2:A1:24:_BRIDGEVILLE-GARBerville 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDJT	P1	N-1	Low	0.50	0.50	0.43	1.03	1.03	0.48	0.46	0.43	0.53	1.03	0.48	0.40	Garberville Area Reinforcement
GRBRVLE 60 kV	P1-2:A1:24:_BRIDGEVILLE-GARBerville 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDJT	P1	N-1	Low	0.51	0.51	0.45	1.03	1.03	0.48	0.47	0.45	0.54	1.03	0.49	0.42	Garberville Area Reinforcement
KEKAWAKA 60 kV	P1-2:A1:24:_BRIDGEVILLE-GARBerville 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDJT	P1	N-1	Low	0.55	0.54	0.50	1.03	1.03	0.53	0.52	0.50	0.58	1.03	0.54	0.48	Garberville Area Reinforcement
GRBRVLE 60 kV	P1-2:A1:25:_BRIDGEVILLE-GARBerville 60KV [6220] MOAS OPENED ON FTSWRDIT_GRBRVLE	P1	N-1	Low	0.78	0.74	0.54	1.03	1.03	0.54	0.54	0.54	0.90	1.03	0.73	0.51	Garberville Area Reinforcement
KEKAWAKA 60 kV	P1-2:A1:25:_BRIDGEVILLE-GARBerville 60KV [6220] MOAS OPENED ON FTSWRDIT_GRBRVLE	P1	N-1	Low	0.80	0.76	0.58	1.03	1.03	0.59	0.59	0.58	0.90	1.03	0.74	0.56	Garberville Area Reinforcement
FRUITLND 60 kV	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P1	N-1	Low	0.97	0.96	0.84	0.96	1.00	0.92	0.92	0.87	1.03	0.95	0.96	0.83	Continue to monitor
FRT SWRD 60 kV	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P1	N-1	Low	0.96	0.96	0.83	0.96	1.00	0.91	0.90	0.87	1.02	0.94	0.96	0.83	Continue to monitor
GRBRVLE 60 kV	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P1	N-1	Low	0.97	0.97	0.83	0.96	1.02	0.90	0.89	0.86	1.03	0.95	0.97	0.82	Continue to monitor
KEKAWAKA 60 kV	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P1	N-1	Low	0.97	0.97	0.84	0.96	1.02	0.91	0.91	0.88	1.02	0.95	0.97	0.84	Continue to monitor
HUMBOLDT 115 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.95	0.96	0.83	0.97	0.97	0.96	0.96	0.96	1.07	0.97	0.96	0.65	Continue to monitor
LOW GAP1 115 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.98	1.00	0.89	1.00	1.01	1.01	1.00	1.00	1.07	1.00	1.00	0.76	Continue to monitor
BRDGVLE 115 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.97	0.99	0.86	1.00	1.00	1.00	0.99	0.99	1.07	1.00	0.99	0.70	Continue to monitor
HUMBOLDT 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.69	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
HARRIS 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.69	Continue to monitor
EUREKA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.67	Continue to monitor
EUREKA A 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.67	Continue to monitor
HMBLT BY 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
HMBOBAYPPC 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
HOOPA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.97	1.03	0.89	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.64	Continue to monitor
HMBOBAYPPA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
EEL RIVR 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.02	1.01	1.05	1.02	1.01	0.64	Continue to monitor
NEWBURG 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.01	1.01	1.05	1.02	1.01	0.64	Continue to monitor
PCLUMBER 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.65	Continue to monitor
CARLOTTA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.65	Continue to monitor
RIO DELL 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.65	Continue to monitor
SWNS FLT 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.98	0.99	0.85	1.00	1.00	0.99	0.99	0.98	1.05	1.00	0.99	0.67	Continue to monitor
SCTIATP2 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.66	Continue to monitor
BRDGVLE 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.97	0.99	0.85	0.99	0.99	0.98	0.98	0.97	1.05	0.99	0.99	0.68	Continue to monitor
FRUITLND 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.96	0.97	0.78	1.00	1.01	0.96	0.94	0.90	1.04	0.99	0.96	0.59	Continue to monitor
FRT SWRD 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.96	0.96	0.78	1.00	1.02	0.94	0.93	0.90	1.03	0.99	0.96	0.59	Continue to monitor
GRBRVLE 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.97	0.97	0.78	1.01	1.03	0.93	0.91	0.89	1.03	1.00	0.97	0.59	Continue to monitor
KEKAWAKA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	Low	0.97	0.97	0.80	1.01	1.03	0.94	0.93	0.90	1.03	1.00	0.97	0.63	Continue to monitor
FRUITLND 60 kV	P1-2:A1:5:_KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0]	P1	N-1	Low	0.95	0.94	0.69	1.00	1.01	0.88	0.85	0.77	1.03	1.00	0.94	0.65	Continue to monitor
FRT SWRD 60 kV	P1-2:A1:5:_KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0]	P1	N-1	Low	0.94	0.93	0.65	1.01	1.02	0.84	0.81	0.75	1.03	1.00	0.93	0.61	Continue to monitor
GRBRVLE 60 kV	P1-2:A1:5:_KEKAWAKA-GRBRVLE-LYTNVLE 60KV [0]	P1	N-1	Low	0.94	0.93	0.59	1.02	1.03	0.81	0.77	0.71	1.03	1.01	0.93	0.56	Continue to monitor
FRUITLND 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P1	N-1	Low	0.97	0.97	0.89	0.99	1.01	0.95	0.94	0.90	1.03	0.98	0.96	N/A	Continue to monitor
FRUITLND 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P1	N-1	Low	0.97	0.97	0.89	0.99	1.01	0.95	0.94	0.90	1.03	0.98	0.97	N/A	Continue to monitor
SWNS FLT 60 kV	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	Low	1.00	0.99	0.86	1.02	1.02	0.97	0.96	0.90	1.02	1.01	0.99	0.76	Continue to monitor
BRDGVLE 60 kV	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	Low	0.99	0.99	0.84	1.02	1.02	0.96	0.95	0.88	1.01	1.01	0.99	0.74	Continue to monitor
FRUITLND 60 kV	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	Low	0.98	0.97	0.78	1.02	1.02	0.94	0.92	0.81	1.00	1.00	0.97	0.64	Continue to monitor
FRT SWRD 60 kV	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	Low	0.98	0.97	0.77	1.03	1.03	0.93	0.91	0.81	1.00	1.01	0.97	0.64	Continue to monitor
GRBRVLE 60 kV	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	Low	0.98	0.97	0.77	1.03	1.03	0.92	0.90	0.81	1.01	1.01	0.97	0.63	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
KEKAWAKA 60 kV	P1-3:A1:3:_BRDGVLE 115/60KV TB 1	P1	N-1	Low	0.98	0.97	0.79	1.03	1.03	0.93	0.91	0.83	1.01	1.01	0.97	0.66	Continue to monitor
HUMBOLDT 115 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.95	0.96	0.83	0.97	0.97	0.96	0.96	0.96	1.07	0.97	0.96	0.65	Continue to monitor
LOW GAP1 115 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.98	1.00	0.89	1.00	1.01	1.01	1.00	1.00	1.07	1.00	1.00	0.76	Continue to monitor
BRDGVLE 115 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.97	0.99	0.86	1.00	1.00	1.00	0.99	0.99	1.07	1.00	0.99	0.70	Continue to monitor
HUMBOLDT 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.69	Continue to monitor
HARRIS 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.69	Continue to monitor
EUREKA 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.67	Continue to monitor
EUREKA A 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.67	Continue to monitor
HMBLT BY 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
HMBOBAYPPC 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
HOOPA 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.97	1.03	0.89	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.64	Continue to monitor
HMBOBAYPPA 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
EEL RIVR 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.02	1.01	1.05	1.02	1.01	0.64	Continue to monitor
NEWBURG 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.01	1.01	1.05	1.02	1.01	0.64	Continue to monitor
PCLUMBER 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.65	Continue to monitor
CARLOTTA 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.65	Continue to monitor
RIO DELL 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.65	Continue to monitor
SWNS FLT 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.98	0.99	0.85	1.00	1.00	0.99	0.99	0.98	1.05	1.00	0.99	0.67	Continue to monitor
SCTIATP2 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.66	Continue to monitor
BRDGVLE 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.97	0.99	0.85	0.99	0.99	0.98	0.98	0.97	1.05	0.99	0.99	0.68	Continue to monitor
FRUITLND 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.96	0.97	0.78	1.00	1.01	0.96	0.94	0.90	1.04	0.99	0.96	0.59	Continue to monitor
FRT SWRD 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.96	0.96	0.78	1.00	1.02	0.94	0.93	0.90	1.03	0.99	0.96	0.59	Continue to monitor
GRBRVLE 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.97	0.97	0.78	1.01	1.03	0.93	0.91	0.89	1.03	1.00	0.97	0.59	Continue to monitor
KEKAWAKA 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	Low	0.97	0.97	0.80	1.01	1.03	0.94	0.93	0.90	1.03	1.00	0.97	0.63	Continue to monitor
FRT SWRD 60 kV	P1-3:A1:7:_HMBOBAYPPA 60/13.8KV TB 1	P1	N-1	Low	0.96	0.96	0.88	1.00	1.02	0.94	0.93	0.90	1.02	0.99	0.96	N/A	Continue to monitor
GRBRVLE 60 kV	P1-3:A1:7:_HMBOBAYPPA 60/13.8KV TB 1	P1	N-1	Low	0.97	0.97	0.88	1.01	1.03	0.93	0.92	0.89	1.03	1.00	0.97	N/A	Continue to monitor
FRUITLND 60 kV	P1-4:A1:4:_HUMBOLDT 60.00KV ID=7H & HUMBOLDT 60.00KV ID=5H & HUMBOLDT 60.00KV ID=1H & HUMBOLDT 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.99	0.99	0.90	1.00	1.02	0.98	0.97	0.91	1.02	1.00	0.99	N/A	Continue to monitor

Study Area: **PG&E Central Coast/Los Padres**

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
FRT SWRD 60 kV	P1-4:A1:4:_HUMBOLDT 60.00KV ID=7H & HUMBOLDT 60.00KV ID=5H & HUMBOLDT 60.00KV ID=1H & HUMBOLDT 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.99	0.99	0.89	1.00	1.03	0.96	0.95	0.90	1.01	0.99	0.98	N/A	Continue to monitor
GRBRVLE 60 kV	P1-4:A1:4:_HUMBOLDT 60.00KV ID=7H & HUMBOLDT 60.00KV ID=5H & HUMBOLDT 60.00KV ID=1H & HUMBOLDT 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.99	0.99	0.89	1.01	1.03	0.95	0.93	0.90	1.02	1.00	0.99	N/A	Continue to monitor
FRUITLND 60 kV	P1-4:A1:5:_GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.91	0.91	0.83	0.92	0.96	0.88	0.87	0.83	0.97	0.91	0.91	0.80	Continue to monitor
FRT SWRD 60 kV	P1-4:A1:5:_GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.89	0.89	0.81	0.91	0.96	0.85	0.83	0.82	0.95	0.90	0.89	0.78	Garberville Area Reinforcement
GRBRVLE 60 kV	P1-4:A1:5:_GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.87	0.88	0.79	0.89	0.95	0.81	0.80	0.79	0.93	0.88	0.87	0.75	Garberville Area Reinforcement
KEKAWAKA 60 kV	P1-4:A1:5:_GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	Low	0.89	0.89	0.81	0.91	0.96	0.84	0.83	0.82	0.94	0.90	0.89	0.78	Garberville Area Reinforcement
FRUITLND 60 kV	P2-1:A1:2:_BRIDGEVILLE-COTTONWOOD 115KV [1110] (FRSTGLEN-LOW GAP1)	P2	Bus/Breaker	Low	0.97	0.97	0.84	0.96	1.00	0.93	0.92	0.87	1.03	0.95	0.96	0.82	Continue to monitor
FRT SWRD 60 kV	P2-1:A1:2:_BRIDGEVILLE-COTTONWOOD 115KV [1110] (FRSTGLEN-LOW GAP1)	P2	Bus/Breaker	Low	0.96	0.96	0.83	0.96	1.01	0.91	0.90	0.87	1.03	0.95	0.96	0.81	Continue to monitor
GRBRVLE 60 kV	P2-1:A1:2:_BRIDGEVILLE-COTTONWOOD 115KV [1110] (FRSTGLEN-LOW GAP1)	P2	Bus/Breaker	Low	0.97	0.97	0.83	0.97	1.02	0.90	0.89	0.86	1.03	0.95	0.97	0.81	Continue to monitor
KEKAWAKA 60 kV	P2-1:A1:2:_BRIDGEVILLE-COTTONWOOD 115KV [1110] (FRSTGLEN-LOW GAP1)	P2	Bus/Breaker	Low	0.97	0.97	0.84	0.97	1.02	0.91	0.91	0.88	1.02	0.96	0.97	0.83	Continue to monitor
HUMBOLDT 115 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.95	0.96	0.83	0.97	0.97	0.96	0.96	0.96	1.07	0.97	0.96	0.65	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
LOW GAP1 115 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.98	1.00	0.89	1.00	1.01	1.01	1.00	1.00	1.07	1.00	1.00	0.76	Continue to monitor
BRDGVLE 115 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.97	0.99	0.86	1.00	1.00	1.00	0.99	0.99	1.07	1.00	0.99	0.70	Continue to monitor
HUMBOLDT 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.69	Continue to monitor
HARRIS 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.69	Continue to monitor
EUREKA 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.67	Continue to monitor
EUREKA A 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.67	Continue to monitor
HMBLT BY 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
HMBOBAYPPC 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
HOOPA 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.97	1.03	0.89	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.64	Continue to monitor
HMBOBAYPPA 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.01	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.67	Continue to monitor
EEL RIVR 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.02	1.01	1.05	1.02	1.01	0.64	Continue to monitor
SCOTIATP 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.65	Continue to monitor
NEWBURG 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.01	1.01	1.05	1.02	1.01	0.64	Continue to monitor
PCLUMBER 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.65	Continue to monitor
CARLOTTA 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.65	Continue to monitor

Study Area: **PG&E Central Coast/Los Padres**

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
RIO DELL 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.65	Continue to monitor
SWNS FLT 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.98	0.99	0.85	1.00	1.00	0.99	0.99	0.98	1.05	1.00	0.99	0.67	Continue to monitor
SCTIATP2 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.66	Continue to monitor
BRDGVLE 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.97	0.99	0.85	0.99	0.99	0.98	0.98	0.97	1.05	0.99	0.99	0.68	Continue to monitor
FRUITLND 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.96	0.97	0.78	1.00	1.01	0.96	0.94	0.90	1.04	0.99	0.96	0.59	Continue to monitor
FRT SWRD 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.96	0.96	0.78	1.00	1.02	0.94	0.93	0.90	1.03	0.99	0.96	0.59	Continue to monitor
GRBRVLE 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.97	0.97	0.78	1.01	1.03	0.93	0.91	0.89	1.03	1.00	0.97	0.59	Continue to monitor
KEKAWAKA 60 kV	P2-1:A1:3:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] (HMBOBAYPPB-HUMBOLDT)	P2	Bus/Breaker	Low	0.97	0.97	0.80	1.01	1.03	0.94	0.93	0.90	1.03	1.00	0.97	0.63	Continue to monitor
FRUITLND 60 kV	P2-1:A1:50:_PACIFIC LUMBER (SCOTIA) TAP 60KV [7852] (SCTIATP2-SCOTIATP)	P2	Bus/Breaker	Low	0.97	0.97	0.88	0.98	1.01	0.94	0.93	0.88	1.03	0.97	0.96	0.87	Continue to monitor
FRT SWRD 60 kV	P2-1:A1:50:_PACIFIC LUMBER (SCOTIA) TAP 60KV [7852] (SCTIATP2-SCOTIATP)	P2	Bus/Breaker	Low	0.96	0.96	0.87	0.98	1.02	0.93	0.91	0.88	1.02	0.97	0.96	0.86	Continue to monitor
GRBRVLE 60 kV	P2-1:A1:50:_PACIFIC LUMBER (SCOTIA) TAP 60KV [7852] (SCTIATP2-SCOTIATP)	P2	Bus/Breaker	Low	0.97	0.97	0.87	0.99	1.03	0.92	0.90	0.87	1.03	0.98	0.97	0.86	Continue to monitor
KEKAWAKA 60 kV	P2-1:A1:50:_PACIFIC LUMBER (SCOTIA) TAP 60KV [7852] (SCTIATP2-SCOTIATP)	P2	Bus/Breaker	Low	0.97	0.97	0.88	0.99	1.03	0.93	0.92	0.89	1.02	0.98	0.97	0.88	Continue to monitor
LOW GAP1 115 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.86	0.87	0.79	1.04	1.05	1.05	1.04	1.02	1.07	1.04	0.86	0.78	Garberville Area Reinforcement
BRDGVLE 115 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.83	0.83	0.73	1.04	1.04	1.04	1.03	1.02	1.07	1.04	0.82	0.71	Garberville Area Reinforcement
HUMBOLDT 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.03	1.03	1.03	1.03	1.03	1.08	1.03	0.52	0.35	Garberville Area Reinforcement
HARRIS 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.03	1.03	1.03	1.03	1.03	1.08	1.03	0.52	0.35	Garberville Area Reinforcement
EUREKA 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.54	0.54	0.39	1.03	1.04	1.03	1.03	1.03	1.08	1.03	0.52	0.34	Garberville Area Reinforcement
EUREKA A 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.54	0.54	0.39	1.03	1.04	1.03	1.03	1.03	1.08	1.03	0.52	0.34	Garberville Area Reinforcement

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
HMBLT BY 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Garberville Area Reinforcement
RDGE CBN 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.61	0.62	0.55	1.02	1.02	1.04	1.04	1.04	1.06	1.02	0.61	0.51	Garberville Area Reinforcement
MPLE CRK 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.55	0.56	0.44	1.02	1.03	1.03	1.03	1.03	1.06	1.02	0.54	0.39	Garberville Area Reinforcement
RUSS RCH 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.54	0.55	0.43	1.02	1.02	1.03	1.03	1.03	1.06	1.02	0.53	0.39	Garberville Area Reinforcement
WILLWCRK 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.51	0.55	0.42	1.01	1.02	1.02	1.02	1.03	1.04	1.01	0.52	0.37	Garberville Area Reinforcement
HMBOBAYPPC 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Garberville Area Reinforcement
HOOPA 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.50	0.53	0.41	1.00	1.01	1.01	1.01	1.03	1.04	1.00	0.51	0.35	Garberville Area Reinforcement
HMBOBAYPPA 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Garberville Area Reinforcement
EEL RIVR 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.58	0.58	0.43	1.02	1.03	1.03	1.02	1.01	1.06	1.02	0.56	0.39	Garberville Area Reinforcement
SCOTIATP 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Garberville Area Reinforcement
NEWBURG 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.61	0.60	0.45	1.02	1.03	1.03	1.02	1.01	1.06	1.02	0.58	0.42	Garberville Area Reinforcement
PCLUMBER 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.66	0.65	0.50	1.03	1.02	1.03	1.02	1.01	1.06	1.03	0.63	0.47	Garberville Area Reinforcement
CARLOTTA 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.66	0.65	0.50	1.03	1.02	1.03	1.02	1.01	1.06	1.03	0.63	0.47	Garberville Area Reinforcement
RIO DELL 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Garberville Area Reinforcement
SWNS FLT 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.77	0.76	0.64	1.02	1.02	1.03	1.02	1.00	1.05	1.02	0.75	0.61	Garberville Area Reinforcement
SCTIATP2 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Garberville Area Reinforcement
BRDGVLE 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.81	0.81	0.69	1.02	1.02	1.03	1.02	0.99	1.05	1.02	0.80	0.67	Garberville Area Reinforcement
FRUITLND 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.81	0.81	0.60	1.02	1.02	0.99	0.98	0.92	1.03	1.01	0.80	0.58	Garberville Area Reinforcement
FRT SWRD 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.82	0.81	0.60	1.02	1.03	0.98	0.96	0.92	1.03	1.01	0.80	0.58	Garberville Area Reinforcement
GRBRVLE 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.83	0.82	0.60	1.03	1.03	0.96	0.95	0.91	1.03	1.02	0.82	0.58	Garberville Area Reinforcement
KEKAWAKA 60 kV	P2-2:A1:1:_HUMBOLDT 115KV SECTION MA	P2	Bus/Breaker	Low	0.85	0.84	0.64	1.02	1.03	0.97	0.95	0.92	1.03	1.02	0.83	0.63	Garberville Area Reinforcement
HUMBOLDT 115 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.95	0.96	0.83	0.97	0.97	0.96	0.96	0.96	1.07	0.97	0.96	0.64	Continue to monitor
LOW GAP1 115 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.98	1.00	0.89	1.00	1.01	1.01	1.00	1.00	1.07	1.00	1.00	0.75	Continue to monitor
BRDGVLE 115 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.98	0.99	0.86	1.00	1.00	1.00	0.99	0.99	1.07	1.00	0.99	0.69	Continue to monitor
HMBOBAYPPB 115 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.95	0.96	0.83	0.97	0.97	0.96	0.96	0.96	1.07	0.97	0.96	0.64	Continue to monitor
HUMBOLDT 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.03	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.68	Continue to monitor
HARRIS 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.89	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.68	Continue to monitor
EUREKA 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.66	Continue to monitor
EUREKA A 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.66	Continue to monitor
HMBLT BY 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.66	Continue to monitor

Study Area: **PG&E Central Coast/Los Padres**

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
HMBOBAYPPC 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.66	Continue to monitor
HOOPA 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.97	1.03	0.90	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.62	Continue to monitor
HMBOBAYPPA 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.66	Continue to monitor
EEL RIVR 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.02	1.01	1.05	1.02	1.01	0.63	Continue to monitor
SCOTIATP 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.64	Continue to monitor
NEWBURG 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.00	1.01	0.85	1.02	1.03	1.02	1.01	1.01	1.05	1.02	1.01	0.62	Continue to monitor
PCLUMBER 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.63	Continue to monitor
CARLOTTA 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.01	1.02	0.85	1.02	1.02	1.01	1.01	1.00	1.05	1.02	1.02	0.63	Continue to monitor
RIO DELL 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.64	Continue to monitor
SWNS FLT 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.98	0.99	0.85	1.00	1.00	0.99	0.99	0.98	1.05	1.00	0.99	0.66	Continue to monitor
SCTIATP2 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.03	1.03	1.02	1.01	1.01	1.05	1.03	1.03	0.64	Continue to monitor
BRDGVLE 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.98	0.99	0.85	0.99	0.99	0.98	0.98	0.97	1.05	0.99	0.99	0.67	Continue to monitor
FRUITLND 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.96	0.97	0.78	1.00	1.01	0.96	0.94	0.90	1.04	0.99	0.96	0.58	Continue to monitor
FRT SWRD 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.96	0.96	0.78	1.00	1.02	0.94	0.93	0.90	1.03	0.99	0.96	0.58	Continue to monitor
GRBRVLE 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.97	0.97	0.78	1.01	1.03	0.93	0.91	0.89	1.03	1.00	0.97	0.58	Continue to monitor
KEKAWAKA 60 kV	P2-2:A1:11:_HMBOBAYPPB 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.97	0.97	0.80	1.01	1.03	0.94	0.93	0.90	1.03	1.00	0.97	0.63	Continue to monitor
FRT SWRD 60 kV	P2-2:A1:12:_HMBOBAYPPA 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.96	0.96	0.88	1.00	1.02	0.94	0.93	0.90	1.02	0.99	0.96	N/A	Continue to monitor
GRBRVLE 60 kV	P2-2:A1:12:_HMBOBAYPPA 13.8KV SECTION 1D	P2	Bus/Breaker	Low	0.97	0.97	0.88	1.01	1.03	0.93	0.92	0.89	1.03	1.00	0.97	N/A	Continue to monitor
FRUITLND 60 kV	P2-2:A1:2:_LOW GAP1 115KV SECTION 1D	P2	Bus/Breaker	Low	0.97	0.96	0.84	0.96	1.00	0.92	0.92	0.87	1.03	0.95	0.96	0.83	Continue to monitor
FRT SWRD 60 kV	P2-2:A1:2:_LOW GAP1 115KV SECTION 1D	P2	Bus/Breaker	Low	0.96	0.96	0.84	0.96	1.00	0.91	0.90	0.87	1.02	0.94	0.96	0.83	Continue to monitor
GRBRVLE 60 kV	P2-2:A1:2:_LOW GAP1 115KV SECTION 1D	P2	Bus/Breaker	Low	0.97	0.97	0.83	0.96	1.02	0.90	0.89	0.86	1.03	0.95	0.97	0.82	Continue to monitor
KEKAWAKA 60 kV	P2-2:A1:2:_LOW GAP1 115KV SECTION 1D	P2	Bus/Breaker	Low	0.97	0.97	0.84	0.96	1.02	0.91	0.91	0.88	1.02	0.95	0.97	0.84	Continue to monitor
LOW GAP1 115 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.78	1.04	1.04	1.05	1.04	1.02	1.07	1.04	NConv	0.77	Garberville Area Reinforcement
BRDGVLE 115 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.72	1.04	1.04	1.04	1.03	1.02	1.07	1.04	NConv	0.70	Garberville Area Reinforcement
HUMBOLDT 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.03	1.03	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Garberville Area Reinforcement
HARRIS 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.03	1.03	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Garberville Area Reinforcement
EUREKA 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.03	1.04	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Garberville Area Reinforcement

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
EUREKA A 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.35	1.03	1.04	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Garberville Area Reinforcement
HMBLT BY 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.04	1.04	1.03	1.03	1.03	1.07	1.04	NConv	0.32	Garberville Area Reinforcement
RDGE CBN 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.45	1.02	1.02	1.03	1.03	1.03	1.06	1.03	NConv	0.41	Garberville Area Reinforcement
MPLE CRK 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.38	1.02	1.03	1.03	1.03	1.03	1.06	1.02	NConv	0.33	Garberville Area Reinforcement
RUSS RCH 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.38	1.02	1.02	1.02	1.03	1.03	1.06	1.02	NConv	0.32	Garberville Area Reinforcement
WILLWCRK 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.01	1.02	1.01	1.02	1.03	1.04	1.01	NConv	0.31	Garberville Area Reinforcement
HMBOBAYPPC 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.04	1.04	1.03	1.03	1.03	1.07	1.04	NConv	0.32	Garberville Area Reinforcement
HOOPA 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.35	1.00	1.01	1.01	1.01	1.03	1.03	1.00	NConv	0.30	Garberville Area Reinforcement
HMBOBAYPPA 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.36	1.04	1.04	1.03	1.03	1.03	1.07	1.04	NConv	0.32	Garberville Area Reinforcement
EEL RIVR 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.40	1.02	1.03	1.03	1.02	1.01	1.06	1.02	NConv	0.36	Garberville Area Reinforcement
SCOTIATP 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.49	1.03	1.03	1.03	1.02	1.02	1.06	1.03	NConv	0.46	Garberville Area Reinforcement
NEWBURG 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.43	1.02	1.03	1.03	1.02	1.01	1.06	1.02	NConv	0.39	Garberville Area Reinforcement
PCLUMBER 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.48	1.02	1.02	1.03	1.02	1.01	1.06	1.02	NConv	0.44	Garberville Area Reinforcement
CARLOTTA 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.48	1.02	1.02	1.03	1.02	1.01	1.06	1.02	NConv	0.44	Garberville Area Reinforcement
RIO DELL 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.49	1.03	1.03	1.03	1.02	1.02	1.06	1.03	NConv	0.46	Garberville Area Reinforcement
SWNS FLT 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.62	1.02	1.01	1.03	1.02	1.00	1.05	1.02	NConv	0.60	Garberville Area Reinforcement
SCTIATP2 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.49	1.03	1.03	1.03	1.02	1.02	1.06	1.03	NConv	0.46	Garberville Area Reinforcement
BRDGVLE 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.68	1.02	1.01	1.03	1.02	0.99	1.05	1.02	NConv	0.66	Garberville Area Reinforcement
FRUITLND 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.60	1.01	1.02	0.99	0.98	0.92	1.03	1.01	NConv	0.57	Garberville Area Reinforcement
FRT SWRD 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.59	1.01	1.03	0.98	0.96	0.92	1.03	1.01	NConv	0.57	Garberville Area Reinforcement

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
GRBRVLE 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.59	1.02	1.03	0.96	0.95	0.91	1.03	1.02	NConv	0.57	Garberville Area Reinforcement
KEKAWAKA 60 kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY LINE	P2	Bus/Breaker	Low	NConv	NConv	0.64	1.02	1.03	0.97	0.95	0.92	1.03	1.01	NConv	0.62	Garberville Area Reinforcement
HUMBOLDT 115 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.96	0.96	0.79	0.97	0.97	0.97	0.97	0.97	1.07	0.97	0.96	0.78	Continue to monitor
HMBOBAYPPB 115 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.81	0.99	0.99	0.99	0.99	0.99	1.07	0.99	0.98	0.80	Continue to monitor
HUMBOLDT 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.84	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.83	Continue to monitor
HARRIS 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.84	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.82	Continue to monitor
EUREKA 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.82	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.80	Continue to monitor
EUREKA A 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.82	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.80	Continue to monitor
HMBLT BY 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.81	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.79	Continue to monitor
RDGE CBN 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.02	1.03	0.87	1.01	1.01	1.03	1.03	1.03	1.05	1.01	1.03	0.85	Continue to monitor
MPLE CRK 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.02	1.03	0.85	1.02	1.02	1.03	1.03	1.03	1.04	1.02	1.03	0.83	Continue to monitor
RUSS RCH 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.01	1.03	0.85	1.02	1.02	1.02	1.03	1.03	1.04	1.02	1.03	0.82	Continue to monitor
WILLWCRK 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.99	1.03	0.85	1.00	1.01	1.01	1.02	1.03	1.02	1.01	1.03	0.81	Continue to monitor
HMBOBAYPPC 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.81	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.79	Continue to monitor
HOOPA 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.99	1.03	0.84	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.80	Continue to monitor
HMBOBAYPPA 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.81	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.79	Continue to monitor
EEL RIVR 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.01	1.01	0.75	1.02	1.03	1.01	1.01	0.99	1.03	1.02	1.01	0.72	Continue to monitor
SCOTIATP 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.73	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.69	Continue to monitor
NEWBURG 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.01	1.01	0.73	1.02	1.03	1.01	1.00	0.98	1.03	1.02	1.01	0.70	Continue to monitor
PCLUMBER 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.02	1.02	0.72	1.02	1.02	1.00	0.99	0.96	1.03	1.01	1.02	0.68	Continue to monitor
CARLOTTA 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.02	1.02	0.72	1.02	1.02	1.00	0.99	0.96	1.03	1.01	1.02	0.68	Continue to monitor
RIO DELL 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.73	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.69	Continue to monitor
SWNS FLT 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.00	1.00	0.65	1.00	1.01	0.96	0.95	0.89	1.01	1.00	1.00	0.62	Continue to monitor
SCTIATP2 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.73	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.69	Continue to monitor
BRDGVLE 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	1.00	0.99	0.63	1.00	1.01	0.95	0.94	0.87	1.01	0.99	0.99	0.60	Continue to monitor
FRUITLND 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.56	0.99	1.02	0.93	0.91	0.81	1.00	0.98	0.98	0.53	Continue to monitor
FRT SWRD 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.56	1.00	1.02	0.91	0.89	0.81	1.00	0.98	0.97	0.53	Continue to monitor
GRBRVLE 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.56	1.01	1.03	0.90	0.88	0.80	1.00	0.99	0.97	0.53	Continue to monitor
KEKAWAKA 60 kV	P2-3:A1:18:_BRDGVLE 115KV - RING R3 & R2	P2	Bus/Breaker	Low	0.98	0.97	0.60	1.01	1.03	0.92	0.90	0.83	1.00	0.99	0.97	0.57	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
HUMBOLDT 115 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.96	0.96	0.80	0.97	0.97	0.97	0.97	0.97	1.07	0.97	0.96	0.79	Continue to monitor
BRDGVLE 115 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.97	0.97	0.80	0.97	0.97	0.97	0.97	0.97	1.08	0.97	0.97	0.79	Continue to monitor
HMBOBAYPPB 115 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.99	0.98	0.82	0.99	0.99	0.99	0.99	0.99	1.07	0.99	0.98	0.81	Continue to monitor
HUMBOLDT 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.86	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.84	Continue to monitor
HARRIS 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.85	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.84	Continue to monitor
EUREKA 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.84	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.82	Continue to monitor
EUREKA A 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.84	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.82	Continue to monitor
HMBLT BY 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.83	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.80	Continue to monitor
RDGE CBN 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.02	1.03	0.88	1.01	1.01	1.03	1.03	1.03	1.05	1.01	1.03	0.86	Continue to monitor
MPLE CRK 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.02	1.03	0.86	1.02	1.02	1.03	1.03	1.03	1.04	1.02	1.03	0.84	Continue to monitor
RUSS RCH 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.01	1.03	0.86	1.02	1.02	1.02	1.03	1.03	1.04	1.02	1.03	0.83	Continue to monitor
WILLWCRK 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.99	1.03	0.86	1.00	1.01	1.01	1.02	1.03	1.02	1.01	1.03	0.83	Continue to monitor
HMBOBAYPPC 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.83	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.80	Continue to monitor
HOOPA 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.99	1.03	0.85	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.81	Continue to monitor
HMBOBAYPPA 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.83	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.80	Continue to monitor
EEL RIVR 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.01	1.01	0.76	1.02	1.03	1.01	1.01	0.99	1.03	1.02	1.01	0.73	Continue to monitor
SCOTIATP 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.74	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.70	Continue to monitor
NEWBURG 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.01	1.01	0.75	1.02	1.03	1.01	1.00	0.98	1.03	1.02	1.01	0.71	Continue to monitor
PCLUMBER 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.02	1.02	0.73	1.02	1.02	1.00	0.99	0.96	1.03	1.01	1.02	0.69	Continue to monitor
CARLOTTA 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.02	1.02	0.73	1.02	1.02	1.00	0.99	0.96	1.03	1.01	1.02	0.69	Continue to monitor
RIO DELL 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.74	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.70	Continue to monitor
SWNS FLT 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.00	1.00	0.66	1.00	1.01	0.96	0.95	0.89	1.01	1.00	1.00	0.62	Continue to monitor
SCTIATP2 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.03	1.03	0.74	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.70	Continue to monitor
BRDGVLE 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	1.00	0.99	0.64	1.00	1.01	0.95	0.95	0.87	1.01	0.99	0.99	0.60	Continue to monitor
FRUITLND 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.57	0.99	1.02	0.93	0.91	0.81	0.99	0.98	0.98	0.53	Continue to monitor
FRT SWRD 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.57	1.00	1.02	0.91	0.90	0.81	1.00	0.98	0.97	0.53	Continue to monitor
GRBRVLE 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.98	0.98	0.56	1.01	1.03	0.90	0.89	0.80	1.00	0.99	0.97	0.53	Continue to monitor
KEKAWAKA 60 kV	P2-3:A1:19:_BRDGVLE 115KV - RING R1 & R2	P2	Bus/Breaker	Low	0.98	0.97	0.60	1.01	1.03	0.92	0.90	0.83	1.00	0.99	0.97	0.57	Continue to monitor
LOW GAP1 115 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY- HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.86	0.87	0.79	1.04	1.05	1.05	1.04	1.02	1.07	1.04	0.86	0.78	Garberville Area Reinforcement

Study Area: **PG&E Central Coast/Los Padres**

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
BRDGVLE 115 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.83	0.83	0.73	1.04	1.04	1.04	1.03	1.02	1.07	1.04	0.82	0.71	Garberville Area Reinforcement
HUMBOLDT 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.03	1.03	1.03	1.03	1.03	1.08	1.03	0.52	0.35	Garberville Area Reinforcement
HARRIS 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.03	1.03	1.03	1.03	1.03	1.08	1.03	0.52	0.35	Garberville Area Reinforcement
EUREKA 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.54	0.54	0.39	1.03	1.04	1.03	1.03	1.03	1.08	1.03	0.52	0.34	Garberville Area Reinforcement
EUREKA A 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.54	0.54	0.39	1.03	1.04	1.03	1.03	1.03	1.08	1.03	0.52	0.34	Garberville Area Reinforcement
HMBLT BY 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Garberville Area Reinforcement
RDGE CBN 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.61	0.62	0.55	1.02	1.02	1.04	1.04	1.04	1.06	1.02	0.61	0.51	Garberville Area Reinforcement
MPLE CRK 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.55	0.56	0.44	1.02	1.03	1.03	1.03	1.03	1.06	1.02	0.54	0.39	Garberville Area Reinforcement
RUSS RCH 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.54	0.55	0.43	1.02	1.02	1.03	1.03	1.03	1.06	1.02	0.53	0.39	Garberville Area Reinforcement
WILLWCRK 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.51	0.55	0.42	1.01	1.02	1.02	1.02	1.03	1.04	1.01	0.52	0.37	Garberville Area Reinforcement
HMBOBAYPPC 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Garberville Area Reinforcement
HOOPA 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.50	0.53	0.41	1.00	1.01	1.01	1.01	1.03	1.04	1.00	0.51	0.35	Garberville Area Reinforcement
HMBOBAYPPA 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Garberville Area Reinforcement
EEL RIVR 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.58	0.58	0.43	1.02	1.03	1.03	1.02	1.01	1.06	1.02	0.56	0.39	Garberville Area Reinforcement
SCOTIATP 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Garberville Area Reinforcement
NEWBURG 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.61	0.60	0.45	1.02	1.03	1.03	1.02	1.01	1.06	1.02	0.58	0.42	Garberville Area Reinforcement
PCLUMBER 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.66	0.65	0.50	1.03	1.02	1.03	1.02	1.01	1.06	1.03	0.63	0.47	Garberville Area Reinforcement
CARLOTTA 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.66	0.65	0.50	1.03	1.02	1.03	1.02	1.01	1.06	1.03	0.63	0.47	Garberville Area Reinforcement
RIO DELL 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Garberville Area Reinforcement
SWNS FLT 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.77	0.76	0.64	1.02	1.02	1.03	1.02	1.00	1.05	1.02	0.75	0.61	Garberville Area Reinforcement

Study Area: **PG&E Central Coast/Los Padres**

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
SCTIATP2 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Garberville Area Reinforcement
BRDGVLE 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.81	0.81	0.69	1.02	1.02	1.03	1.02	0.99	1.05	1.02	0.80	0.67	Garberville Area Reinforcement
FRUITLND 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.81	0.81	0.60	1.02	1.02	0.99	0.98	0.92	1.03	1.01	0.80	0.58	Garberville Area Reinforcement
FRT SWRD 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.82	0.81	0.60	1.02	1.03	0.98	0.96	0.92	1.03	1.01	0.80	0.58	Garberville Area Reinforcement
GRBRVLE 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.83	0.82	0.60	1.03	1.03	0.96	0.95	0.91	1.03	1.02	0.82	0.58	Garberville Area Reinforcement
KEKAWAKA 60 kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 LINE	P2	Bus/Breaker	Low	0.85	0.84	0.64	1.02	1.03	0.97	0.95	0.92	1.03	1.02	0.83	0.63	Garberville Area Reinforcement
HUMBOLDT 115 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.96	0.96	0.79	0.97	0.97	0.97	0.97	0.97	1.07	0.97	0.96	0.77	Continue to monitor
BRDGVLE 115 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.02	1.02	0.65	1.02	1.03	0.97	0.96	0.89	1.03	1.01	1.02	0.61	Continue to monitor
HMBOBAYPPB 115 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.98	0.98	0.81	0.99	0.99	0.99	0.99	0.99	1.07	0.99	0.98	0.80	Continue to monitor
HUMBOLDT 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.85	1.03	1.03	1.03	1.03	1.03	1.06	1.03	1.03	0.83	Continue to monitor
HARRIS 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.84	1.03	1.03	1.03	1.03	1.03	1.05	1.03	1.03	0.82	Continue to monitor
EUREKA 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.83	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.80	Continue to monitor
EUREKA A 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.83	1.03	1.04	1.03	1.03	1.03	1.05	1.03	1.03	0.80	Continue to monitor
HMBLT BY 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.82	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.79	Continue to monitor
RDGE CBN 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.02	1.03	0.87	1.01	1.01	1.03	1.03	1.03	1.05	1.01	1.03	0.84	Continue to monitor
MPLE CRK 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.02	1.03	0.85	1.02	1.02	1.03	1.03	1.03	1.04	1.02	1.03	0.82	Continue to monitor
RUSS RCH 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.01	1.03	0.85	1.02	1.02	1.02	1.03	1.03	1.04	1.02	1.03	0.82	Continue to monitor
WILLWCRK 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.99	1.03	0.85	1.00	1.01	1.01	1.02	1.03	1.02	1.01	1.03	0.81	Continue to monitor
HMBOBAYPPC 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.82	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.79	Continue to monitor
HOOPA 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.99	1.03	0.84	1.00	1.01	1.01	1.01	1.03	1.02	1.00	1.03	0.79	Continue to monitor
HMBOBAYPPA 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.82	1.04	1.04	1.03	1.03	1.03	1.05	1.04	1.02	0.79	Continue to monitor
EEL RIVR 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.01	1.01	0.75	1.02	1.03	1.01	1.01	0.99	1.03	1.02	1.01	0.72	Continue to monitor
SCOTIATP 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.73	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.69	Continue to monitor
NEWBURG 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.01	1.01	0.74	1.02	1.03	1.01	1.00	0.98	1.03	1.02	1.01	0.70	Continue to monitor
PCLUMBER 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.02	1.02	0.72	1.02	1.02	1.00	0.99	0.96	1.03	1.01	1.02	0.68	Continue to monitor
CARLOTTA 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.02	1.02	0.72	1.02	1.02	1.00	0.99	0.96	1.03	1.01	1.02	0.68	Continue to monitor
RIO DELL 60 kV	P2-3:A1:20:_BRDGVLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.73	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.69	Continue to monitor

Study Area: **PG&E Central Coast/Los Padres**

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
SWNS FLT 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.00	1.00	0.66	1.00	1.01	0.96	0.95	0.89	1.01	1.00	1.00	0.61	Continue to monitor
SCTIATP2 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.03	1.03	0.74	1.03	1.03	1.01	1.00	0.97	1.04	1.03	1.03	0.69	Continue to monitor
BRDGVILLE 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	1.00	0.99	0.64	1.00	1.01	0.95	0.94	0.87	1.01	0.99	0.99	0.59	Continue to monitor
FRUITLND 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.98	0.98	0.56	0.99	1.02	0.93	0.91	0.81	1.00	0.98	0.98	0.53	Continue to monitor
FRT SWRD 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.98	0.98	0.56	1.00	1.02	0.91	0.89	0.81	1.00	0.98	0.97	0.52	Continue to monitor
GRBRVILLE 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.98	0.98	0.56	1.01	1.03	0.90	0.88	0.80	1.00	0.99	0.97	0.53	Continue to monitor
KEKAWAKA 60 kV	P2-3:A1:20:_BRDGVILLE 115KV - RING R1 & R3	P2	Bus/Breaker	Low	0.98	0.97	0.60	1.01	1.03	0.92	0.90	0.83	1.00	0.99	0.97	0.57	Continue to monitor
LOW GAP1 115 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.86	0.87	0.79	1.04	1.05	1.05	1.04	1.02	1.07	1.04	0.86	0.78	Install redundant relay
BRDGVILLE 115 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.83	0.83	0.73	1.04	1.04	1.04	1.03	1.02	1.07	1.04	0.82	0.71	Install redundant relay
HUMBOLDT 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.55	0.54	0.39	1.03	1.03	1.03	1.03	1.03	1.08	1.03	0.52	0.35	Install redundant relay
HARRIS 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.55	0.54	0.39	1.03	1.03	1.03	1.03	1.03	1.08	1.03	0.52	0.35	Install redundant relay
EUREKA 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.54	0.54	0.39	1.03	1.04	1.03	1.03	1.03	1.08	1.03	0.52	0.34	Install redundant relay
EUREKA A 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.54	0.54	0.39	1.03	1.04	1.03	1.03	1.03	1.08	1.03	0.52	0.34	Install redundant relay
HMBLT BY 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Install redundant relay
RDGE CBN 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.61	0.62	0.55	1.02	1.02	1.04	1.04	1.04	1.06	1.02	0.61	0.51	Install redundant relay
MPLE CRK 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.55	0.56	0.44	1.02	1.03	1.03	1.03	1.03	1.06	1.02	0.54	0.39	Install redundant relay
RUSS RCH 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.54	0.55	0.43	1.02	1.02	1.03	1.03	1.03	1.06	1.02	0.53	0.39	Install redundant relay
WILLWCRK 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.51	0.55	0.42	1.01	1.02	1.02	1.02	1.03	1.04	1.01	0.52	0.37	Install redundant relay
HMBOBAYPPC 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Install redundant relay
HOOPA 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.50	0.53	0.41	1.00	1.01	1.01	1.01	1.03	1.04	1.00	0.51	0.35	Install redundant relay
HMBOBAYPPA 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.55	0.54	0.39	1.04	1.04	1.03	1.03	1.03	1.07	1.04	0.52	0.35	Install redundant relay
EEL RIVR 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Low	0.58	0.58	0.43	1.02	1.03	1.03	1.02	1.01	1.06	1.02	0.56	0.39	Install redundant relay

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
SCOTIATP 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Install redundant relay
NEWBURG 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.61	0.60	0.45	1.02	1.03	1.03	1.02	1.01	1.06	1.02	0.58	0.42	Install redundant relay
PCLUMBER 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.66	0.65	0.50	1.03	1.02	1.03	1.02	1.01	1.06	1.03	0.63	0.47	Install redundant relay
CARLOTTA 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.66	0.65	0.50	1.03	1.02	1.03	1.02	1.01	1.06	1.03	0.63	0.47	Install redundant relay
RIO DELL 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Install redundant relay
SWNS FLT 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.77	0.76	0.64	1.02	1.02	1.03	1.02	1.00	1.05	1.02	0.75	0.61	Install redundant relay
SCTIATP2 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.68	0.68	0.51	1.03	1.03	1.03	1.02	1.02	1.06	1.03	0.66	0.48	Install redundant relay
BRDGVLE 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.81	0.81	0.69	1.02	1.02	1.03	1.02	0.99	1.05	1.02	0.80	0.67	Install redundant relay
FRUITLND 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.81	0.81	0.60	1.02	1.02	0.99	0.98	0.92	1.03	1.01	0.80	0.58	Install redundant relay
FRT SWRD 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.82	0.81	0.60	1.02	1.03	0.98	0.96	0.92	1.03	1.01	0.80	0.58	Install redundant relay
GRBRVLE 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.83	0.82	0.60	1.03	1.03	0.96	0.95	0.91	1.03	1.02	0.82	0.58	Install redundant relay
KEKAWAKA 60 kV	P5-5:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Low	0.85	0.84	0.64	1.02	1.03	0.97	0.95	0.92	1.03	1.02	0.83	0.63	Install redundant relay
LOW GAP1 115 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.78	1.04	1.04	1.05	1.04	1.02	1.07	1.04	NConv	0.77	Install redundant battery supply
BRDGVLE 115 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.72	1.04	1.04	1.04	1.03	1.02	1.07	1.04	NConv	0.70	Install redundant battery supply
HUMBOLDT 60 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.36	1.03	1.03	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Install redundant battery supply
HARRIS 60 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.36	1.03	1.03	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Install redundant battery supply
EUREKA 60 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.36	1.03	1.04	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Install redundant battery supply
EUREKA A 60 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.35	1.03	1.04	1.03	1.03	1.03	1.08	1.03	NConv	0.31	Install redundant battery supply
HMBLT BY 60 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.36	1.04	1.04	1.03	1.03	1.03	1.07	1.04	NConv	0.32	Install redundant battery supply
RDGE CBN 60 kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundent battery supply	Low	NConv	NConv	0.45	1.02	1.02	1.03	1.03	1.03	1.06	1.03	NConv	0.41	Install redundant battery supply

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
MPLE CRK 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.38	1.02	1.03	1.03	1.03	1.03	1.06	1.02	NConv	0.33	Install redundant battery supply
RUSS RCH 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.38	1.02	1.02	1.02	1.03	1.03	1.06	1.02	NConv	0.32	Install redundant battery supply
WILLWCRK 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.36	1.01	1.02	1.01	1.02	1.03	1.04	1.01	NConv	0.31	Install redundant battery supply
HMBOBAYPPC 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.36	1.04	1.04	1.03	1.03	1.03	1.07	1.04	NConv	0.32	Install redundant battery supply
HOOPA 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.35	1.00	1.01	1.01	1.01	1.03	1.03	1.00	NConv	0.30	Install redundant battery supply
HMBOBAYPPA 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.36	1.04	1.04	1.03	1.03	1.03	1.07	1.04	NConv	0.32	Install redundant battery supply
EEL RIVR 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.40	1.02	1.03	1.03	1.02	1.01	1.06	1.02	NConv	0.36	Install redundant battery supply
SCOTIATP 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.49	1.03	1.03	1.03	1.02	1.02	1.06	1.03	NConv	0.46	Install redundant battery supply
NEWBURG 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.43	1.02	1.03	1.03	1.02	1.01	1.06	1.02	NConv	0.39	Install redundant battery supply
PCLUMBER 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.48	1.02	1.02	1.03	1.02	1.01	1.06	1.02	NConv	0.44	Install redundant battery supply
CARLOTTA 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.48	1.02	1.02	1.03	1.02	1.01	1.06	1.02	NConv	0.44	Install redundant battery supply
RIO DELL 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.49	1.03	1.03	1.03	1.02	1.02	1.06	1.03	NConv	0.46	Install redundant battery supply
SWNS FLT 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.62	1.02	1.01	1.03	1.02	1.00	1.05	1.02	NConv	0.60	Install redundant battery supply
SCTIATP2 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.49	1.03	1.03	1.03	1.02	1.02	1.06	1.03	NConv	0.46	Install redundant battery supply
BRDGVLE 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.68	1.02	1.01	1.03	1.02	0.99	1.05	1.02	NConv	0.66	Install redundant battery supply
FRUITLND 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.60	1.01	1.02	0.99	0.98	0.92	1.03	1.01	NConv	0.57	Install redundant battery supply
FRT SWRD 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.59	1.01	1.03	0.98	0.96	0.92	1.03	1.01	NConv	0.57	Install redundant battery supply
GRBRVLE 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.59	1.02	1.03	0.96	0.95	0.91	1.03	1.02	NConv	0.57	Install redundant battery supply
KEKAWAKA 60 kV	P5-5C:A1:1: HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	NConv	NConv	0.64	1.02	1.03	0.97	0.95	0.92	1.03	1.01	NConv	0.62	Install redundant battery supply
FRUITLND 60 kV	P5-5C:A1:2: BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	0.50	0.49	0.42	1.03	1.03	0.49	0.47	0.41	0.53	1.03	0.49	0.39	Install redundant battery supply

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
FRT SWRD 60 kV	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	0.50	0.50	0.43	1.03	1.03	0.48	0.46	0.43	0.53	1.03	0.50	0.40	Install redundant battery supply
GRBRVLE 60 kV	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	0.51	0.51	0.45	1.03	1.03	0.48	0.47	0.45	0.54	1.03	0.51	0.42	Install redundant battery supply
KEKAWAKA 60 kV	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant battery supply	Low	0.55	0.54	0.50	1.03	1.03	0.53	0.52	0.50	0.57	1.03	0.54	0.48	Install redundant battery supply
FRUITLND 60 kV	P7-1:A1:1:_ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.97	0.97	0.89	0.97	1.01	0.94		0.89	1.03	0.96	0.96	N/A	Continue to monitor
FRT SWRD 60 kV	P7-1:A1:1:_ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.96	0.96	0.88	0.97	1.02	0.93		0.88	1.02	0.96	0.96	N/A	Continue to monitor
GRBRVLE 60 kV	P7-1:A1:1:_ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.97	0.97	0.88	0.98	1.03	0.92		0.88	1.03	0.97	0.97	N/A	Continue to monitor
KEKAWAKA 60 kV	P7-1:A1:1:_ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.97	0.97	0.89	0.98	1.03	0.93		0.89	1.02	0.97	0.97	N/A	Continue to monitor
HUMBOLDT 115 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.95	0.96	0.82	0.97	0.97	0.96		0.96	1.07	0.97	0.96	0.89	Continue to monitor
LOW GAP1 115 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.98	1.00	0.89	Not Found	1.01	1.01		1.00	1.07	1.00	1.00	N/A	Continue to monitor
BRDGVLE 115 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.97	0.99	0.86	1.00	1.00	1.00		0.99	1.07	1.00	0.99	N/A	Continue to monitor
HUMBOLDT 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.03	1.03	0.89	1.03	1.03	1.03		1.03	1.06	1.03	1.03	N/A	Continue to monitor
HARRIS 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.02	1.03	0.88	1.03	1.03	1.03		1.03	1.05	1.03	1.03	N/A	Continue to monitor
EUREKA 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.01	1.03	0.87	1.03	1.04	1.03		1.03	1.05	1.03	1.03	N/A	Continue to monitor
EUREKA A 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.01	1.03	0.86	1.03	1.04	1.03		1.03	1.05	1.03	1.03	N/A	Continue to monitor
HMBLT BY 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.01	1.02	0.86	1.04	1.04	1.03		1.03	1.05	1.04	1.02	N/A	Continue to monitor
MPLE CRK 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.00	1.03	0.89	1.02	1.03	1.03		1.03	1.04	1.02	1.03	N/A	Continue to monitor
RUSS RCH 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.00	1.03	0.90	1.02	1.02	1.02		1.03	1.04	1.02	1.03	N/A	Continue to monitor
WILLWCRK 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.98	1.03	0.90	1.01	1.02	1.01		1.03	1.02	1.01	1.03	N/A	Continue to monitor
HMBOBAYPPC 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.01	1.02	0.86	1.04	1.04	1.03		1.03	1.05	1.04	1.02	N/A	Continue to monitor
HOOPA 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.97	1.03	0.89	1.00	1.01	1.01		1.03	1.02	1.00	1.03	N/A	Continue to monitor
HMBOBAYPPA 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.01	1.02	0.86	1.04	1.04	1.03		1.03	1.05	1.04	1.02	N/A	Continue to monitor
EEL RIVR 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.00	1.01	0.83	1.02	1.03	1.02		1.01	1.05	1.02	1.01	N/A	Continue to monitor
SCOTIATP 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.02	1.03	0.84	1.03	1.03	1.02		1.01	1.05	1.03	1.03	N/A	Continue to monitor
NEWBURG 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.00	1.01	0.83	1.02	1.03	1.02		1.01	1.05	1.02	1.01	N/A	Continue to monitor
PCLUMBER 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.00	1.01	0.83	1.02	1.02	1.01		1.00	1.05	1.02	1.01	N/A	Continue to monitor
CARLOTTA 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.00	1.01	0.83	1.02	1.02	1.01		1.00	1.05	1.02	1.01	N/A	Continue to monitor
RIO DELL 60 kV	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.02	1.03	0.84	1.03	1.03	1.02		1.01	1.05	1.03	1.03	N/A	Continue to monitor

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
SWNS FLT 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.98	0.99	0.84	1.00	1.00	0.99		0.98	1.05	1.00	0.99	N/A	Continue to monitor
SCTIATP2 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	1.02	1.03	0.84	1.03	1.03	1.02		1.01	1.05	1.03	1.03	N/A	Continue to monitor
BRDGVLE 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.97	0.99	0.84	0.99	0.99	0.98		0.97	1.05	0.99	0.99	N/A	Continue to monitor
FRUITLND 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.96	0.97	0.77	1.00	1.01	0.95		0.90	1.04	0.99	0.96	0.84	Continue to monitor
FRT SWRD 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.96	0.96	0.77	1.00	1.02	0.94		0.90	1.03	0.99	0.96	0.84	Continue to monitor
GRBRVLE 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.97	0.97	0.77	1.01	1.03	0.93		0.89	1.03	1.00	0.97	0.85	Continue to monitor
KEKAWAKA 60 kV	P7-1:A1:2_ HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DCTL	Low	0.97	0.97	0.79	1.01	1.03	0.94		0.90	1.03	1.00	0.97	0.86	Continue to monitor
FRUITLND 60 kV	P7-1:A1:5_ ESSEX JCT-ARCATA-FAIRHAVEN & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.97	0.97	0.88	0.98	1.01	0.94		0.89	1.03	0.97	0.96	N/A	Continue to monitor
FRT SWRD 60 kV	P7-1:A1:5_ ESSEX JCT-ARCATA-FAIRHAVEN & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.96	0.96	0.88	0.98	1.02	0.93		0.89	1.02	0.97	0.96	0.90	Continue to monitor
GRBRVLE 60 kV	P7-1:A1:5_ ESSEX JCT-ARCATA-FAIRHAVEN & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.97	0.97	0.87	0.99	1.03	0.92		0.88	1.03	0.98	0.97	0.90	Continue to monitor
KEKAWAKA 60 kV	P7-1:A1:5_ ESSEX JCT-ARCATA-FAIRHAVEN & FAIRHAVEN-HUMBOLDT LINES	P7	DCTL	Low	0.97	0.97	0.89	0.99	1.03	0.93		0.90	1.02	0.98	0.97	N/A	Continue to monitor
FRUITLND 60 kV	P7-1:A1:6_ ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT & HUMBOLDT #1 LINES	P7	DCTL	Low	0.97	0.97	0.89	0.97	1.01	0.94		0.88	1.03	0.96	0.96	N/A	Continue to monitor
FRT SWRD 60 kV	P7-1:A1:6_ ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT & HUMBOLDT #1 LINES	P7	DCTL	Low	0.96	0.96	0.88	0.97	1.02	0.93		0.88	1.02	0.96	0.96	N/A	Continue to monitor
GRBRVLE 60 kV	P7-1:A1:6_ ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT & HUMBOLDT #1 LINES	P7	DCTL	Low	0.96	0.97	0.88	0.98	1.03	0.92		0.87	1.03	0.97	0.97	N/A	Continue to monitor
KEKAWAKA 60 kV	P7-1:A1:6_ ARCATA-HUMBOLDT & FAIRHAVEN-HUMBOLDT & HUMBOLDT #1 LINES	P7	DCTL	Low	0.97	0.97	0.89	0.98	1.03	0.93		0.89	1.02	0.97	0.97	N/A	Continue to monitor
BRDGVLE 115 kV	P1-2:A1:4_ HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3_ BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.55	0.46	0.98	0.99	0.98	0.97	0.96	1.07	0.98	0.54	N/A	Generation redispatch
BRDGVLE 60 kV	P1-2:A1:4_ HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3_ BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.55	0.46	0.98	0.99	0.97	0.97	0.95	1.06	0.98	0.55	N/A	Generation redispatch
CARLOTTA 60 kV	P1-2:A1:4_ HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3_ BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.59	0.47	1.02	1.02	1.01	1.00	1.00	1.05	1.02	0.58	N/A	Generation redispatch

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
EEL RIVR 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.46	1.02	1.03	1.02	1.01	1.01	1.04	1.02	0.56	N/A	Generation redispatch
EUREKA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.48	1.03	1.04	1.03	1.03	1.03	1.05	1.03	0.56	N/A	Generation redispatch
EUREKA A 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.48	1.03	1.04	1.03	1.03	1.03	1.05	1.03	0.56	N/A	Generation redispatch
FRT SWRD 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.46	0.96	1.00	0.91	0.90	0.87	1.03	0.94	0.56	N/A	Generation redispatch
FRUITLND 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.55	0.45	0.96	1.00	0.92	0.92	0.87	1.04	0.95	0.55	N/A	Generation redispatch
GRBRVLE 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.57	0.48	0.96	1.02	0.90	0.89	0.86	1.03	0.95	0.57	N/A	Generation redispatch
HARRIS 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.57	0.49	1.03	1.03	1.03	1.03	1.03	1.05	1.03	0.57	N/A	Generation redispatch
HMBLT BY 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.48	1.04	1.04	1.03	1.03	1.03	1.05	1.04	0.56	N/A	Generation redispatch
HMBOBAYPPA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.48	1.04	1.04	1.03	1.03	1.03	1.05	1.04	0.56	N/A	Generation redispatch
HMBOBAYPPC 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.48	1.04	1.04	1.03	1.03	1.03	1.05	1.04	0.56	N/A	Generation redispatch
HOOPA 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.48	1.00	1.01	1.01	1.01	1.03	1.02	1.00	0.55	N/A	Generation redispatch
HUMBOLDT 115 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.53	0.46	0.97	0.97	0.96	0.96	0.97	1.07	0.97	0.53	N/A	Generation redispatch

Study Area: PG&E Central Coast/Los Padres

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
					2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE	
HUMBOLDT 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.57	0.49	1.03	1.03	1.03	1.03	1.03	1.05	1.03	0.57	N/A	Generation redispatch
KEKAWAKA 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.61	0.54	0.96	1.02	0.91	0.91	0.88	1.03	0.95	0.61	N/A	Generation redispatch
LOW GAP1 115 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP	P6	N-1-1	Low	NConv	NConv	0.67	1.00	1.00	1.00	1.00	1.00	1.06	1.00	NConv	N/A	Generation redispatch
MPLE CRK 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.58	0.52	1.02	1.02	1.03	1.03	1.03	1.04	1.02	0.58	N/A	Generation redispatch
NEWBURG 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.57	0.46	1.02	1.03	1.01	1.01	1.00	1.05	1.02	0.57	N/A	Generation redispatch
PCLUMBER 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.59	0.47	1.02	1.02	1.01	1.00	1.00	1.05	1.02	0.58	N/A	Generation redispatch
RDGE CBN 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.62	0.58	1.01	1.01	1.03	1.03	1.03	1.05	1.01	0.62	N/A	Generation redispatch
RIO DELL 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.62	0.49	1.03	1.03	1.02	1.01	1.01	1.05	1.03	0.61	N/A	Generation redispatch
RIODLLTP 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.59	0.47	1.02	1.02	1.01	1.01	1.00	1.05	1.02	0.58	N/A	Generation redispatch
RUSS RCH 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.58	0.51	1.01	1.02	1.02	1.03	1.03	1.04	1.02	0.58	N/A	Generation redispatch
SWNS FLT 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.56	0.46	0.99	1.00	0.98	0.97	0.96	1.06	0.99	0.56	N/A	Generation redispatch
WILLWCRK 60 kV	P1-2:A1:4-_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800] & P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Low	NConv	0.57	0.49	1.00	1.01	1.01	1.02	1.03	1.02	1.00	0.57	N/A	Generation redispatch

2022-2023 ISO Reliability Assessment - Study Results

Study Area: **PG&E Humboldt**

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)									Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE		
HOOPA 60 kV	P1-2:A1:14;_HUMBOLDT-MAPLE CREEK 60KV [7130] MOAS OPENED ON HUMBOLDT_MPLE CRK	P1	N-1	12	<8	<8	<8	4	<8	<8	<8	<8	<8	<8	N/A	Project: Willo Creek voltage support	
WILLWCRK 60 kV	P1-2:A1:14;_HUMBOLDT-MAPLE CREEK 60KV [7130] MOAS OPENED ON HUMBOLDT_MPLE CRK	P1	N-1	11	<8	<8	<8	4	<8	<8	<8	<8	<8	<8	N/A	Project: Willo Creek voltage support	
NEWBURG 60 kV	P1-2:A1:16;_HUMBOLDT BAY-RIO DELL JCT 60KV [7100] MOAS OPENED ON EEL RIVR_NEWBURG	P1	N-1	<8	<8	10	<8	2	<8	<8	<8	<8	<8	<8	11	Continue to monitor	
FRT SWRD 60 kV	P1-2:A1:24;_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDT	P1	N-1	48	48	52	<8	-1	48	49	52	48	<8	50	48	Garberville Area Reinforcement	
FRUITLND 60 kV	P1-2:A1:24;_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDT	P1	N-1	48	49	53	<8	-2	48	49	54	48	<8	50	50	Garberville Area Reinforcement	
GRBRVILLE 60 kV	P1-2:A1:24;_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDT	P1	N-1	47	48	49	<8	0	47	48	49	47	<8	49	46	Garberville Area Reinforcement	
KEKAWAKA 60 kV	P1-2:A1:24;_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON BRDGVILLE_FRUTLDT	P1	N-1	43	44	44	<8	0	43	43	44	44	<8	45	N/A	Garberville Area Reinforcement	
GRBRVILLE 60 kV	P1-2:A1:25;_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON FTSWRDJT_GRBRVILLE	P1	N-1	19	24	39	<8	0	41	41	39	13	<8	25	37	Garberville Area Reinforcement	
KEKAWAKA 60 kV	P1-2:A1:25;_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED ON FTSWRDJT_GRBRVILLE	P1	N-1	18	22	35	<8	0	36	36	35	12	<8	23	N/A	Garberville Area Reinforcement	
BRDGVILLE 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	12	<8	0	<8	<8	<8	<8	<8	<8	28	Continue to monitor	
BRDGVILLE 115 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	12	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
CARLOTTA 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	33	Continue to monitor	
EEL RIVR 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
EUREKA 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
EUREKA A 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
FRT SWRD 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	12	<8	0	<8	<8	<8	<8	<8	<8	30	Continue to monitor	
FRUITLND 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	12	<8	0	<8	<8	<8	<8	<8	<8	30	Continue to monitor	
GRBRVILLE 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	12	<8	0	<8	<8	<8	<8	<8	<8	29	Continue to monitor	
HARRIS 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	34	Continue to monitor	
HMBLT BY 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
HMBOBAYPPA 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
HMBOBAYPPC 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
HOOPA 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	13	<8	0	<8	<8	<8	<8	<8	<8	38	Continue to monitor	
HUMBOLDT 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
HUMBOLDT 115 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	1	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
KEKAWAKA 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	10	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
LOW GAP1 115 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	10	<8	-1	<8	<8	<8	<8	<8	<8	22	Continue to monitor	
NEWBURG 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	34	Continue to monitor	
PCLUMBER 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
RIO DELL 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	33	Continue to monitor	
SCOTIATP 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
SCTIATP2 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	14	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
SWNS FLT 60 kV	P1-2:A1:4;_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]	P1	N-1	<8	<8	12	<8	0	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
FRT SWRD 60 kV	P1-2:A1:5;_KEKAWAKA-GRBRVILLE-LYTNVILLE 60KV [0]	P1	N-1	<8	<8	27	<8	0	9	12	16	<8	<8	<8	27	Continue to monitor	
FRUITLND 60 kV	P1-2:A1:5;_KEKAWAKA-GRBRVILLE-LYTNVILLE 60KV [0]	P1	N-1	<8	<8	23	<8	0	<8	9	13	<8	<8	<8	24	Continue to monitor	
GRBRVILLE 60 kV	P1-2:A1:5;_KEKAWAKA-GRBRVILLE-LYTNVILLE 60KV [0]	P1	N-1	<8	<8	33	<8	<8	12	15	20	<8	<8	<8	32	Continue to monitor	
BRDGVILLE 60 kV	P1-3:A1:3;_BRDGVILLE 115/60KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	9	<8	<8	<8	22	Continue to monitor	
FRT SWRD 60 kV	P1-3:A1:3;_BRDGVILLE 115/60KV TB 1	P1	N-1	<8	<8	13	<8	<8	<8	<8	8	<8	<8	<8	25	Continue to monitor	
FRUITLND 60 kV	P1-3:A1:3;_BRDGVILLE 115/60KV TB 1	P1	N-1	<8	<8	13	<8	<8	<8	<8	9	<8	<8	<8	25	Continue to monitor	
GRBRVILLE 60 kV	P1-3:A1:3;_BRDGVILLE 115/60KV TB 1	P1	N-1	<8	<8	13	<8	<8	<8	<8	<8	<8	<8	<8	0	Continue to monitor	
KEKAWAKA 60 kV	P1-3:A1:3;_BRDGVILLE 115/60KV TB 1	P1	N-1	<8	<8	11	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
SWNS FLT 60 kV	P1-3:A1:3;_BRDGVILLE 115/60KV TB 1	P1	N-1	<8	<8	11	<8	<8	<8	<8	8	<8	<8	<8	N/A	Continue to monitor	
BRDGVILLE 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	28	Continue to monitor	
BRDGVILLE 115 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
CARLOTTA 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	33	Continue to monitor	
EEL RIVR 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
EUREKA 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
EUREKA A 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
FRT SWRD 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	30	Continue to monitor	
FRUITLND 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	30	Continue to monitor	
GRBRVILLE 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	29	Continue to monitor	
HARRIS 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	34	Continue to monitor	
HMBLT BY 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	35	Continue to monitor	
HMBOBAYPPA 60 kV	P1-3:A1:4;_HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	

Study Area: PG&E Humboldt

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)									Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	2035 ATE		
HMBOBAYPPC 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
HOOPA 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	13	<8	<8	<8	<8	<8	<8	<8	<8	38	Continue to monitor	
HUMBOLDT 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
HUMBOLDT 115 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
KEKAWAKA 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	10	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
LOW GAP1 115 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	10	<8	<8	<8	<8	<8	<8	<8	<8	22	Continue to monitor	
NEWBURG 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	34	Continue to monitor	
PCLUMBER 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
RIO DELL 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	33	Continue to monitor	
SCOTIATP 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
SCTIATP2 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
SWNS FLT 60 kV	P1-3:A1:4: HMBOBAYPPB 115/13.8KV TB 1	P1	N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	N/A	Continue to monitor	
FRT SWRD 60 kV	P1-4:A1:5: GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	<8	<8	8	<8	<8	9	9	8	<8	<8	<8	0	Continue to monitor	
GRBRVLE 60 kV	P1-4:A1:5: GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	10	10	11	10	<8	11	12	10	10	10	10	0	Garberville Area Reinforcement	
KEKAWAKA 60 kV	P1-4:A1:5: GRBRVLE 60.00KV ID=8H & GRBRVLE 60.00KV ID=7H & GRBRVLE 60.00KV ID=5H & GRBRVLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	9	8	9	8	<8	10	10	9	8	9	8	N/A	Garberville Area Reinforcement	

Study Area: PG&E Humboldt

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2024 Spring Off-Peak	2027 Summer Peak	2032 Summer Peak	2032 Spring Off-Peak	2024 SP Heavy Renewable & Min Gas Gen	2027 SP High CEC Forecast	

In accordance with TPL-001-4- Requirement R2.6, this area relies on the past studies from the 2020-21 Transmission Planning Process.

<http://www.caiso.com/Documents/BoardApproved2020-2021TransmissionPlan.pdf>

Study Area: PG&E Humboldt



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2027 SP High CEC Forecast	

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

Study Area: PG&E Humboldt



Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)										Potential Mitigation Solutions	
	2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2024 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity		2027 SP High CEC Forecast

No single source substation with more than 100 MW