

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
Clear Lake - Eagle Rock 60 kV (Clear Lake 60 kV sub to Konociti Sub 60 kV)	GEYSERS #3-CLOVERDALE 115KV [1650] (CLOVRDLE-AIDLINJCT)	P2-1	Line Section w/o Fault	92	99	102	56	64	70	67	50	72	64	96	Continue to monitor	
	MENDOCINO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	101	107	179	50	65	88	52	24	67	50	108	Review Existing Fort Bragg UVLS	
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	86	85	56	62	65	67	44	73	66	84	Redundant relay installation recommended in previous TPP cycles	
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	78	78	54	58	59	65	45	71	63	76	Install redundant relay	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	104	111	176	51	65	94	54	25	65	52	101	Redundant relay installation recommended in previous TPP cycles	
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	181	195	142	<100	<100	<100	<100	<100	<100	<100	<100	194	Operational Solution
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	96	99	123	47	59	77	53	27	66	52	99	Continue to monitor	
MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	83	86	104	43	53	69	48	27	59	47	86	Continue to monitor		
Clear Lake- Hopland 60 Kv(Clear Lake 60 KV sub to Granite Sub 60 KV)	EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	101	Diverge	46	59	Diverge	65	5	52	63	85	Project: Clear Lake 60 kV System Reinforcement; Middletown UVLS	
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & KONOCTI-EAGLE ROCK 60KV [6861]	P6	N-1-1	101	104	<100	<100	<100	<100	<100	<100	<100	<100	103	Project: Clear Lake 60 kV System Reinforcement	
Corona- Lakeville 115kV Line	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	109	46	59	64	30	35	53	7	63	54	46	Project: Santa Rosa 115 kV lines Reconductoring project	
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	114	43	56	56	27	35	42	9	37	41	44	Redundant relay installation recommended in previous TPP cycles	
	Station DC Battery Supply FULTON 230-115-60KV Batt	P5	Non-Redundent Battery Supply	109	NA	NA	64	NA	NA	54	NA	63	54	NA	Project: Santa Rosa 115 kV lines Reconductoring project	
	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project	
	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	110	46	59	64	30	35	54	7	63	54	45	Project: Santa Rosa 115 kV lines Reconductoring project	
Cortina - Mendocino 115 kV Line	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	96	78	Diverge	25	48	106	19	30	40	21	90	Continue to monitor	
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	96	78	137	25	48	105	19	30	40	21	90	Continue to monitor	
	EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	95	Diverge	31	59	Diverge	25	29	48	28	97	Middletown UVLS	
	GEYSERS34 115KV - RING R2 & R3	P2-3	Non-Bus-Tie-Breaker Fault	80	83	105	31	46	65	28	11	47	32	82	Continue to monitor	
	EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	95	77	Diverge	25	48	104	18	30	40	21	89	Continue to monitor	
	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundent Battery Supply	96	79	Diverge	25	49	106	19	30	41	21	90	Install redundant battery supply	
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	86	Diverge	NA	45	71	NA	28	NA	NA	89	Install redundant battery supply	
	EAGLE ROCK-REDBUD 115KV [1480] & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	132	125	118	<100	<100	<100	<100	<100	<100	<100	<100	120	Operational Solution
EAGLE ROCK-CORTINA & EAGLE ROCK-REDBUD LINES (2)	P7	DCTL	76	71	103	16	35	60	7	27	35	16	74	Continue to monitor		
Eagle Rock - Cortina 115 kV (Highland to Highland Jct2)	STATION DC BATTERY SUPPLY FULTON 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	27	18	NA	33	36	NA	101	NA	NA	17	Install redundant battery supply	
	Station DC Battery Supply LAKEVILLE 230-115-60KV Batt	P5	Non-Redundent Battery Supply	104	NA	NA	7	NA	NA	8	NA	32	7	NA	Install redundant battery supply	
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	96	Diverge	NA	41	76	NA	66	NA	NA	100	Install redundant battery supply	
	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	108	111	Diverge	<100	<100	<100	<100	<100	<100	<100	<100	113	Operational Solution

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				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
EAGLE ROCK 115/60 KV BANK NO.1	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	93	98	132	53	70	92	48	9	51	47	99	Continue to monitor	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	94	100	131	54	69	96	49	8	50	48	92	Redundant relay installation recommended in previous TPP cycles	
	EAGLE ROCK-REDBUD 115KV [1480] & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	135	112	112	<100	<100	<100	<100	<100	<100	<100	<100	Operational Solution	
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	88	90	111	51	66	84	49	15	51	48	90	Continue to monitor	
Eagle Rock- Fulton- Silverado 115 kv (Eagle rock sub to Ricon Jct Jct2 115 kv)	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	85	87	111	45	47	69	62	52	70	68	82	Redundant relay installation recommended in previous TPP cycles	
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundant Battery Supply	NA	108	Diverge	NA	56	80	NA	36	NA	NA	102	Install redundant battery supply	
	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
Eagle Rock- Redbud 115 kv (Eagle Rock - Highland Jct1)	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	133	144	124	<100	<100	<100	<100	<100	<100	<100	143	Operational Solution	
Eagle Rock- Redbud 115 kv (Eagle Rock 115kv to Lower Lake 115 Kv Jct)	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	158	171	147	<100	<100	<100	<100	<100	<100	<100	170	Operational Solution	
Fulton - Hopland 60 kv (Hopland Jct 60 kv to Cloverdale Jct 60 kv)	EGLE RCK-FULTON-SILVERDO 115KV [0]	P1	N-1	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor	
	SILVERDO-FULTON-EGLE RCK 115KV [0]	P1	N-1	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor	
	EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2-1	Line Section w/o Fault	65	76	103	48	44	73	68	88	88	85	67	Continue to monitor	
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	45	9	114	7	12	43	15	66	23	31	32	Continue to monitor	
	FULTON - 2D 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	64	75	102	48	44	72	68	88	88	84	66	Continue to monitor	
	SILVERDO - 1E 115KV & SILVERDO-FULTON-EGLE RCK LINE	P2-3	Non-Bus-Tie-Breaker Fault	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor	
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	241	235	183	166	177	235	72	233	239	237	Redundant relay installation recommended in previous TPP cycles	
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	234	226	184	163	173	235	75	231	238	230	Install redundant relay	
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundant Battery Supply	NA	87	Diverge	NA	45	67	NA	21	NA	NA	81	Install redundant battery supply	
	STATION DC BATTERY SUPPLY RINCON 115KV BATT	P5	Non-Redundant Battery Supply	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor	
	STATION DC BATTERY SUPPLY SILVERADO 115KV BATT	P5	Non-Redundant Battery Supply	65	75	103	48	44	73	68	88	88	85	67	Continue to monitor	
	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	173	178	Diverge	<100	<100	<100	<100	<100	<100	<100	180	Operational Solution	
	GEYSERS #17-FULTON & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	69	83	111	51	47	76	73	93	93	89	74	Continue to monitor	
	GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	76	87	116	56	52	81	79	100	100	96	78	Continue to monitor	
Fulton #1 60kv (Geyserville sub 60 kv to Geyserville Jct 60 kv)	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	75	77	100	45	46	55	61	63	67	61	76	Redundant relay installation recommended in previous TPP cycles	
FULTON 230/115 kv Bank # 4	FULTON 230/115KV TB 9 & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	Continue to monitor		
FULTON 230/115 kv Bank # 9	FULTON 230/115KV TB 4 & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	<100	<100	106	<100	<100	<100	<100	<100	<100	<100	Continue to monitor		
Fulton -Calistoga 60 kv (Fulton Sub 60 kv to St. Helena Jct 60 kv)	LAKEVILLE #1 60KV [7360]	P1	N-1	83	86	122	29	38	56	40	12	30	40	85	Continue to monitor	
	GEYSER78 13.80KV GEN UNIT 2 & LAKEVILLE #1 60KV [7360]	P3	G-1/ N-1	<100	<100	122	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundant Battery Supply	NA	86	Diverge	NA	38	56	NA	12	NA	NA	85	Install redundant battery supply	
	SONMA LF 9.11KV GEN UNIT 1 & LAKEVILLE #2 60KV [7340] MOAS OPENED ON PETLMA_A_LKVLJE_JT	P3	G-1/ N-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	247	236	4	176	172	17	28	6	10	249	Redundant relay installation recommended in previous TPP cycles	

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				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
Fulton- Molino- Cotati 60 kV(Molino sub 60 kV to Molino Jct 60 kV)	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	253	242	4	178	174	18	30	6	10	255	Install redundant relay	
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	59	80	103	25	40	48	14	22	6	20	84	Redundant relay installation recommended in previous TPP cycles	
	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	208	Diverge	NA	126	161	NA	18	NA	NA	205	Install redundant battery supply	
	FULTON 230/115KV TB 4 & FULTON 230/115KV TB 9	P6	N-1-1	<100	<100	112	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
Fulton- Santa Rosa No.1 115 kV (Fulton 115kv sub to Monoroe 1 115 kv Tap)	FULTON-SANTA ROSA #2 115KV [1630] & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	111	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project	
Fulton- Santa Rosa No.2 115 kV (Fulton 115kv sub to Monoroe 2 115 kv Tap)	FULTON-SANTA ROSA #1 115KV [1620] & CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project	
GEYSER # 3 - CLOVERDALE 115K (CLOVERDALE 115KV to MPE TAP115KV)	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	71	92	110	56	56	36	67	69	67	67	78	Continue to monitor	
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	94	101	119	47	57	73	52	30	62	52	100	ISO recommends a RAS	
	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	88	98	112	49	58	78	55	38	64	56	92	Continue to monitor	
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	91	94	55	61	70	65	45	69	65	87	Redundant relay installation recommended in previous TPP cycles	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	88	95	110	44	54	70	49	28	55	49	89	Redundant relay installation recommended in previous TPP cycles	
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & EAGLE ROCK-REDBUD 115KV [1480]	P6	N-1-1	109	115	112	<100	<100	<100	<100	<100	<100	<100	114	Operational Solution	
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	110	117	141	55	69	89	60	36	73	60	116	ISO recommends a RAS	
MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	97	103	123	51	62	80	54	34	65	54	101	ISO recommends a RAS		
Geyser56-MPE Tap 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	80	65	103	31	41	63	39	18	50	39	76	Continue to monitor	
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	98	80	127	39	51	77	48	25	60	47	93	Continue to monitor	
	MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	84	66	111	35	45	69	42	22	53	41	79	Continue to monitor	
Hartley - Clear Lake 60kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	82	89	145	33	47	62	40	10	42	36	91	Continue to monitor	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	88	96	145	37	49	70	46	18	45	43	84	Redundant relay installation recommended in previous TPP cycles	
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050] & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	103	108	Diverge	<100	<100	<100	<100	<100	<100	<100	107	Operational Solution	
	EGLE RCK 115/60KV TB 1	P1	N-1	91	99	106	68	80	90	63	39	67	65	94	Maintenance project to increase capacity of Hopland Bank#2	
	EGLE RCK-FULTON-SILVERDO 115KV [0]	P1	N-1	82	91	104	64	71	98	60	52	72	66	85	Maintenance project to increase capacity of Hopland Bank#2	
	KONOCTI-EAGLE ROCK 60KV [6861]	P1	N-1	91	98	106	68	80	90	63	39	67	65	94	Maintenance project to increase capacity of Hopland Bank#2	
	SILVERDO-FULTON-EGLE RCK 115KV [0]	P1	N-1	82	91	104	64	71	98	60	52	72	66	85	Maintenance project to increase capacity of Hopland Bank#2	
	EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2-1	Line Section w/o Fault	82	91	105	64	71	97	60	52	72	66	85	Maintenance project to increase capacity of Hopland Bank#2	
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050] (UKIAH-HPLND JT)	P2-1	Line Section w/o Fault	93	104	107	75	84	97	69	55	74	68	98	Maintenance project to increase capacity of Hopland Bank#2	
	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	79	104	Diverge	75	74	52	73	74	75	79	90	Maintenance project to increase capacity of Hopland Bank#2	
	UKIAH 115KV SECTION 1E	P2-2	Bus Fault	90	102	105	74	83	96	68	54	72	67	96	Maintenance project to increase capacity of Hopland Bank#2	
	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	80	104	53	75	74	52	73	74	75	79	90	Maintenance project to increase capacity of Hopland Bank#2	

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				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
HOPLAND BANK 115/60.00 BANK NO.2	EGLE RCK - MA 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	79	104	Diverge	75	74	49	73	75	75	79	90	Maintenance project to increase capacity of Hopland Bank#2	
	MENDOCINO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	101	115	137	70	89	115	56	33	64	55	112	Maintenance project to increase capacity of Hopland Bank#2	
	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	92	108	117	65	77	102	58	39	70	65	100	Maintenance project to increase capacity of Hopland Bank#2	
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	163	155	154	151	164	143	45	147	142	160	Redundant relay installation recommended in previous TPP cycles	
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	156	141	153	151	165	141	46	146	140	152	Install redundant relay	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	118	132	151	81	99	130	67	48	75	66	119	Redundant relay installation recommended in previous TPP cycles	
	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundent Battery Supply	80	105	Diverge	75	75	50	74	75	75	80	90	Install redundant battery supply	
	STATION DC BATTERY SUPPLY RINCON 115KV BATT	P5	Non-Redundent Battery Supply	82	91	104	64	71	98	60	52	72	66	85	Continue to monitor	
	EAGLE ROCK-FULTON-SILVERADO & FULTON-PUEBLO LINES	P7	DCTL	80	88	101	63	69	94	59	52	71	65	82	Maintenance project to increase capacity of Hopland Bank#2	
	GEYSERS #17-FULTON & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	84	94	108	66	72	99	62	54	74	68	88	Maintenance project to increase capacity of Hopland Bank#2	
	GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	87	95	110	69	75	103	65	56	77	71	89	Maintenance project to increase capacity of Hopland Bank#2	
	SILVERADO-FULTON JCT & FULTON-PUEBLO LINES	P7	DCTL	80	88	101	63	69	94	59	52	71	65	82	Maintenance project to increase capacity of Hopland Bank#2	
	GEYSER14 13.80KV GEN UNIT 1 & KONOCTI-EAGLE ROCK 60KV [6861]	P3	G-1/ N-1	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
	MENDOCINO-UKIAH 115KV [2420] MOAS OPENED ON MENDOCNO_CALPELLA & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1	178	178	133	113	136	<100	124	<100	143	124	178	Operational Solution	
Ignacio - San Rafael Jct 60 kV Line	IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	116	57	77	79	54	84	51	6	52	50	57	Project: Ignacio Area Upgrade	
Konocti - Eagle Rock 60KV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P1	N-1	97	98	110	55	66	78	62	30	60	60	98	Continue to monitor	
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050]	P1	N-1	92	97	106	54	64	75	61	30	59	60	94	Continue to monitor	
	GEYSERS #3-CLOVERDALE 115KV [1650] (CLOVRDLE-AIDLINJCT)	P2-1	Line Section w/o Fault	98	103	112	56	67	77	64	32	61	62	100	Potential line reconductor project	
	CLOVRDLE 115KV SECTION 1D	P2-2	Bus Fault	93	98	107	54	65	75	62	31	59	60	96	Continue to monitor	
	AIDLINGYSR - 1D 115KV & MISSION POWER TAP LINE	P2-3	Non-Bus-Tie-Breaker Fault	97	98	110	55	66	78	62	30	60	60	98	Continue to monitor	
	CLOVRDLE - 1D 115KV & UKIAH-HOPLAND-CLOVERDALE LINE	P2-3	Non-Bus-Tie-Breaker Fault	94	98	107	54	65	76	62	31	59	61	96	Continue to monitor	
	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	105	110	148	52	68	89	55	10	59	54	111	Review Existing Fort Bragg UVLS	
	CLOVRDLE1-25 25.00KV GEN UNIT VG & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
	CLOVERDALE 115 KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	92	93	106	53	63	76	60	29	57	59	93	Redundant relay installation recommended in previous TPP cycles	
	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	97	102	56	66	74	65	27	63	64	95	Redundant relay installation recommended in previous TPP cycles	
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	92	97	55	64	70	63	28	61	62	90	Install redundant relay	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	106	112	146	52	68	94	55	10	57	54	105	Redundant relay installation recommended in previous TPP cycles	
	STATION DC BATTERY SUPPLY CLOVRDLE 115KV BATT	P5	Non-Redundent Battery Supply	92	94	106	53	64	76	60	29	58	59	93	Continue to monitor	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P6	N-1-1		133	144	138	<100	<100	<100	<100	<100	<100	<100	143	Operational Solution	
	P7	DCTL		100	102	125	50	64	83	55	18	57	55	102	Potential line reconductor project	
	P7	DCTL		91	94	113	47	60	77	52	18	53	52	94	Continue to monitor	
LAKEVILLE #2 60KV	P5	Non-Redundant Relay	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	NA	354	347	NA	244	258	NA	47	NA	NA	355	Redundant relay installation recommended in previous TPP cycles	
	P5	Non-Redundant Relay	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	NA	360	353	NA	247	262	NA	50	NA	NA	362	Install redundant relay	
	P5	Non-Redundant Relay	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	NA	145	190	NA	80	105	NA	46	NA	NA	149	Redundant relay installation recommended in previous TPP cycles	
	P5	Non-Redundant Relay	FULTON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDANT RELAY)	NA	84	110	NA	48	62	NA	36	NA	NA	85	Continue to monitor	
	P5	Non-Redundant Battery Supply	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	NA	137	Diverge	NA	81	101	NA	14	NA	NA	135	Install redundant battery supply	
	P6	N-1-1	FULTON 230/115KV TB 4 & FULTON 230/115KV TB 9	<100	145	189	<100	<100	103	<100	<100	<100	<100	<100	145	Operational Solution
LAKEVILLE #2 60 KV (Petaluma Jct 60 KV to Petaluma A)	P1	N-1	LAKEVILLE-PETALUMA C 60KV [7350]	74	89	111	37	55	68	38	29	31	38	89	Continue to monitor	
	P3	G-1/N-1	SONMA LF 9.11KV GEN UNIT 1 & LAKEVILLE-PETALUMA C 60KV [7350]	<100	<100	113	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
	P5	Non-Redundant Relay	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	NA	239	233	NA	162	172	NA	32	NA	NA	239	Redundant relay installation recommended in previous TPP cycles	
	P5	Non-Redundant Relay	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	NA	243	238	NA	164	174	NA	33	NA	NA	244	Install redundant relay	
	P5	Non-Redundant Relay	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	NA	98	128	NA	53	70	NA	31	NA	NA	100	Redundant relay installation recommended in previous TPP cycles	
LAKEVILLE 230/60 kV Bank # 3	P1	N-1	LAKEVILLE 230/60KV TB 5	18	80	99	38	65	78	52	88	128	133	70	Sensitivity only	
	P2-2	Bus Fault	LAKEVILLE 230KV SECTION 1D	18	81	100	38	67	79	48	88	128	133	72	Continue to monitor	
	P2-4	Bus-Tie-Breaker Fault	LAKEVILLE 230KV - SECTION 1D & 1E	17	83	102	38	68	82	48	89	128	133	73	Continue to monitor	
	P2-4	Bus-Tie-Breaker Fault	LAKEVILLE 230KV - SECTION 2D & 1D	17	81	100	38	66	79	48	90	128	133	71	Sensitivity only	
	P3	G-1/N-1	SONMA LF 9.11KV GEN UNIT 1 & LAKEVILLE 230/60KV TB 5	<100	<100	100	<100	<100	<100	<100	<100	128	133	<100	Sensitivity only	
	P5	Non-Redundant Relay	LAKEVILLE 230 KV BUS 1&2 SECTION E(FAILURE OF NON-REDUNDANT RELAY)	32	81	101	38	66	79	49	81	128	133	77	Redundant relay installation recommended in previous TPP cycles	
	P2-4	Bus-Tie-Breaker Fault	MENDOCNO 115KV - SECTION 1D & 2D	100	112	199	58	87	114	38	16	54	32	115	Review Existing Fort Bragg UVLS	
Mendocino - Philo Jct - Hopland 60 kV(Mendocino Sub 60KV to UKIAH JT 60kV)	P5	Non-Redundant Relay	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	Diverge	61	69	35	42	51	41	9	42	42	62	Redundant relay installation recommended in previous TPP cycles	
	P5	Non-Redundant Relay	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	Diverge	65	74	37	43	52	42	9	43	44	66	Install redundant relay	
	P5	Non-Redundant Relay	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	114	128	204	65	92	139	48	23	60	42	107	Redundant relay installation recommended in previous TPP cycles	
	P6	N-1-1	MENDOCINO-UKIAH 115KV [2420] MOAS OPENED ON MENDOCNO_CALPELLA & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	142	146	140	<100	<100	<100	<100	<100	<100	<100	146	Operational Solution	
MENDOCINO - REDBUD 115 KV (MENDOCINO SUB TO LUCERN JCT2 115KV)	P6	N-1-1	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	142	154	135	<100	<100	<100	<100	<100	<100	<100	153	Operational Solution	
MENDOCINO 115/60 KV BANK NO.1	P3	G-1/N-1	GEYSR5-6 13.80KV GEN UNIT 2 & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	105	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Generation redispatch	
	P6	N-1-1	FULTON-PUEBLO 115KV [1600] & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	116	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Operational Solution	
EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	EGLE RCK 115KV SECTION MA	55	55	Diverge	26	38	69	35	9	26	37	55	Continue to monitor	
	P2-3	Non-Bus-Tie-Breaker Fault	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	55	55	102	26	38	69	35	9	26	37	55	Continue to monitor	

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
Mendocino - Clearlake 60 kV (Mendocino Sub 60 kV to Upper Lake Sub 60 kV)	EGLE RCK - MA 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	55	55	Diverge	26	38	70	35	9	26	37	55	Continue to monitor	
	EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	52	Diverge	25	35	Diverge	34	9	25	36	46	Middletown UVLS	
	EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	55	55	Diverge	26	38	69	35	8	26	37	55	Continue to monitor	
	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundant Battery Supply	55	55	Diverge	26	38	70	35	9	26	37	56	Install redundant battery supply	
	UKIAH-HOPLAND-CLOVERDALE 115KV [4050] & KONOCTI-EAGLE ROCK 60KV [6861]	P6	N-1-1	<100	<100	114	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
Monte Rio- Fulton 60 kV(Molino Back Tie)	FULTON-MOLINO-COTATI 60KV [6910] MOAS OPENED ON SNMA TAP_SNMALDFL	P1	N-1	NA	NA	117	NA	NA	NA	NA	NA	NA	NA	NA	Continue to monitor	
	GEYSER14 13.80KV GEN UNIT 1 & FULTON-MOLINO-COTATI 60KV [6910] MOAS OPENED ON SNMA TAP_SNMALDFL	P3	G-1/ N-1	<100	<100	117	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor	
	FULTON-SANTA ROSA #1 & FULTON-MOLINO-COTATI LINES	P7	DCTL	NA	NA	116	NA	NA	NA	NA	NA	NA	NA	NA	Continue to monitor	
Oleum - North Tower-Christie 115 kV (North tower sub to North Tower J12)	NRTH TWR 115KV SECTION 1E	P2-2	Bus Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV SECTION 1F	P2-2	Bus Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV SECTION 1G	P2-2	Bus Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV - SECTION 1E & 1F	P2-4	Bus-Tie-Breaker Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV - SECTION 1F & 1G	P2-4	Bus-Tie-Breaker Fault	71	13	21	12	10	8	20	15	116	30	13	Project: North tower 115 kV Loop-in project	
San Rafael Jct-Greenbre 60 kV Line	IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	116	57	77	79	54	84	51	6	52	50	57	Project: Ignacio Area Upgrade	
Santa Rosa- Corona 115 kv (Santa Rosa 115kv sub to Pennygrove Sub 115 kv)	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	117	43	55	61	28	32	57	7	69	57	43	Project: Santa Rosa 115 kV lines Reconductoring project	
	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	43	56	61	28	32	57	7	69	57	42	Install redundant relay	
	Station DC Battery Supply FULTON 230-115-60kV Batt	P5	Non-Redundant Battery Supply	117	NA	NA	60	NA	NA	57	NA	69	57	NA	Project: Santa Rosa 115 kV lines Reconductoring project	
	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	123	40	53	52	25	32	44	9	40	42	41	Redundant relay installation recommended in previous TPP cycles	
	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	118	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Santa Rosa 115 kV lines Reconductoring project	
	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	118	43	56	61	28	32	57	7	69	57	42	Project: Santa Rosa 115 kV lines Reconductoring project	
Sonoma - Pueblo 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	108	94	87	41	52	87	40	18	36	39	94	Redundant relay installation recommended in previous TPP cycles	
	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	103	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Operational Solution	
Tulucay - Vaca 230 kV Line	LAKEVILLE 230KV - SECTION 2E & 1E	P2-4	Bus-Tie-Breaker Fault	110	98	NA	34	50	85	38	9	90	53	97	Project: Vaca Dixon-Lakeville 230 kV Corridor Series Compensation	
	LAKEVILLE 230 KV BUS 1&2 SECTION E(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	110	98	NA	34	50	85	38	9	89	53	97	Redundant relay installation recommended in previous TPP cycles	
Tulucay - Vaca Dixon 230 kV Series Reactor S5	GEYSR18-LAKEVILLE-GEYSR20-GEYSR13 230KV [0] MOAS OPENED ON G13TT1_8_SANTAFE & VACA-LAKEVILLE #1 230KV [5840]	P6	N-1-1	NA	<100	104	NA	<100	<100	NA	<100	NA	NA	<100	Continue to monitor	
Ukiah-Hopland-Cloverdale 115 kV (Ukiah sub 115kv to Hopland Jct 115kv)	MENDOCINO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	82	88	112	36	45	57	46	29	56	46	87	Continue to monitor	
	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	76	86	101	38	45	62	49	37	58	50	80	Continue to monitor	
	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	76	82	102	34	42	54	43	27	49	43	77	Redundant relay installation recommended in previous TPP cycles	
	CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & EAGLE ROCK-REDBUD 115KV [1480]	P6	N-1-1	<100	102	121	<100	<100	<100	<100	<100	<100	<100	101	Operational Solution	
	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	99	105	130	44	55	71	54	35	67	54	104	ISO recommends a RAS	
MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	86	92	112	40	49	63	49	32	60	48	89	Continue to monitor		

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
Vaca - Lakeville 230 kV Line No. 1	LAKEVILLE 230KV - SECTION 2E & 2D	P2-4	Bus-Tie-Breaker Fault	108	98	NA	33	53	87	31	8	78	50	97	Project: Vaca Dixon-Lakeville 230 kV Corridor Series Compensation	
Vaca-Vacaville-Jameson-North Tower 115 kV Line	NRTH TWR 115KV SECTION 1E	P2-2	Bus Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV SECTION 1F	P2-2	Bus Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV SECTION 1G	P2-2	Bus Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV - SECTION 1E & 1F	P2-4	Bus-Tie-Breaker Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project	
	NRTH TWR 115KV - SECTION 1F & 1G	P2-4	Bus-Tie-Breaker Fault	133	99	105	37	34	57	60	60	153	70	98	Project: North tower 115 kV Loop-in project	

2024-2025 ISO Reliability Assessment - Study Results

Study Area: **PG&E North Coast & North Bay**

Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
LYTNVLE 60 kV	Base Case	P0	Base Case	0.95	0.96	0.94	1.02	1.01	0.97	1.03	1.03	0.97	1.02	0.94	Project: Covelo 60 kV Voltage Support; switch it in-service.
KONOCTI6 60 kV	EGLE RCK 115/60KV TB 1	P1	N-1	0.93	0.93	0.89	0.98	0.95	0.93	1.00	1.05	0.98	0.99	0.93	Continue to monitor
EGLE RCK 60 kV	EGLE RCK 115/60KV TB 1	P1	N-1	0.93	0.93	0.89	0.98	0.95	0.93	1.00	1.05	0.98	0.99	0.93	Continue to monitor
KONOCTI6 60 kV	KONOCTI-EAGLE ROCK 60KV [6861]	P1	N-1	0.93	0.93	0.89	0.98	0.95	0.92	1.00	1.05	0.98	0.99	0.93	Continue to monitor
LYTNVLE 60 kV	LAYTONVILLE-WILLITS 60KV [8360]	P1	N-1	0.80	0.83	NA	1.02	0.95	NA	1.05	1.04	0.91	1.05	0.79	Project: Covelo 60 kV Voltage Support
LYTNVLE 60 kV	MENDOCINO-WILLITS-FORT BRAGG 60KV [7550] MOAS OPENED ON FRT BRGG_BIG RIVR	P1	N-1	0.93	0.95	0.89	1.01	1.00	0.95	1.03	1.03	0.95	1.02	0.93	Project: Covelo 60 kV Voltage Support; switch it in-service.
REDBUD 115 kV	EGLE RCK 115KV SECTION MA	P2-2	Bus Fault	0.94	1.01	Diverge	1.06	1.01	1.05	1.02	1.11	1.04	1.02	0.99	Continue to monitor
LYTNVLE 60 kV	MENDOCNO 115KV SECTION 2D	P2-2	Bus Fault	0.93	0.94	0.90	1.02	1.01	0.97	1.03	1.03	0.96	1.02	0.93	Project: Covelo 60 kV Voltage Support; switch it in-service.
MENDOCNO 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.97	1.03	0.57	1.06	1.01	1.05	1.03	1.10	1.05	1.03	1.01	Continue to monitor
UKIAH 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.96	1.01	0.56	1.05	1.01	1.04	1.03	1.09	1.03	1.02	0.99	Continue to monitor
HPLND JT 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.96	1.00	0.57	1.04	1.01	1.03	1.03	1.08	1.03	1.02	0.99	Continue to monitor
CLOVRDLE 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.98	1.01	0.61	1.04	1.02	1.03	1.03	1.06	1.03	1.03	1.00	Continue to monitor
GEYSERS34 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	1.01	1.03	0.64	1.04	1.03	1.04	1.03	1.05	1.04	1.03	1.02	Continue to monitor
LUCERNE 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	1.00	0.72	1.06	1.02	1.00	1.04	1.08	1.02	1.03	0.98	Continue to monitor
REDBUD 115 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.95	1.01	0.55	1.06	1.01	1.04	1.02	1.10	1.03	1.01	0.99	Continue to monitor
MENDOCNO 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	1.02	1.01	0.61	1.02	1.02	1.01	1.01	1.01	1.02	1.01	1.02	Continue to monitor
WILLITS 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.99	0.99	0.54	1.01	1.00	0.99	1.02	1.02	1.00	1.01	0.99	Continue to monitor
LYTNVLE 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.92	0.94	0.49	1.02	1.00	0.97	1.03	1.03	0.96	1.02	0.92	Project: Covelo 60 kV Voltage Support; switch it in-service.
HARTLEY 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.97	0.97	0.44	0.99	0.97	0.95	1.01	1.04	0.99	1.01	0.97	Continue to monitor
HPLND JT 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	1.02	1.02	0.64	1.02	1.01	1.01	1.01	1.03	1.02	1.01	1.02	Continue to monitor
KONOCTI6 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.93	0.37	0.98	0.94	0.94	0.99	1.05	0.97	0.99	0.94	Continue to monitor
EGLE RCK 60 kV	EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.93	0.37	0.98	0.94	0.94	0.99	1.05	0.97	0.99	0.94	Continue to monitor
REDBUD 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-FULTON-SILVERDO LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	1.01	Diverge	1.06	1.01	1.04	1.02	1.11	1.04	1.02	0.99	Continue to monitor
MENDOCNO 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	0.97	Diverge	1.05	1.05	Diverge	1.02	1.10	1.03	1.01	0.99	Existing Middletown UVLS
REDBUD 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	0.93	Diverge	1.05	1.03	Diverge	0.99	1.11	1.00	0.99	0.95	Existing Middletown UVLS
HIGHLAND 115 kV	EGLE RCK - MA 115KV & EAGLE RCK-HOMSTKTP-CORTINA LINE	P2-3	Non-Bus-Tie-Breaker Fault	Diverge	0.93	Diverge	1.05	1.03	Diverge	0.99	1.11	1.00	0.98	0.95	Existing Middletown UVLS
MENDOCNO 115 kV	MENDOCNO - 2D 115KV & CORTINA-MENDOCINO #1 LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.94	0.90	1.06	1.05	1.00	1.05	1.10	0.99	1.04	0.94	Continue to monitor
UKIAH 115 kV	MENDOCNO - 2D 115KV & CORTINA-MENDOCINO #1 LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.94	0.95	0.90	1.05	1.04	1.00	1.04	1.09	0.99	1.04	0.94	Continue to monitor

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Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast	
LYTNVLE 60 kV	MENDOCNO - 2D 115KV & CORTINA-MENDOCINO #1 LINE	P2-3	Non-Bus-Tie-Breaker Fault	0.92	0.94	0.88	1.02	1.00	0.97	1.03	1.03	0.96	1.02	0.92	Project: Covelo 60 kV Voltage Support; switch it in-service.
SNTA RSA 115 kV	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	0.88	0.93	0.86	0.96	0.99	0.98	0.97	1.01	0.92	0.96	0.93	Project: Ignacio Area Upgrade; continue to monitor in long term
BELLVUE 115 kV	FULTON 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	0.89	0.94	0.88	0.97	0.99	0.98	0.97	1.01	0.93	0.97	0.94	Project: Ignacio Area Upgrade; continue to monitor in long term
SONOMA 115 kV	LAKEVILLE 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.95	0.95	0.89	1.07	1.05	0.92	1.06	1.10	1.02	1.06	0.95	Continue to monitor
UKIAH 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.90	0.90	0.78	1.02	1.00	0.95	1.01	1.05	0.97	1.00	0.89	Continue to monitor
HPLND JT 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.92	0.92	0.81	1.03	1.01	0.96	1.02	1.05	0.99	1.02	0.91	Continue to monitor
CLOVRDLE 115 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.96	0.97	0.90	1.03	1.02	0.99	1.03	1.05	1.01	1.03	0.97	Continue to monitor
MENDOCNO 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.89	0.87	0.56	1.02	0.99	0.97	1.02	1.05	0.97	1.01	0.85	Middletown and Fort Braggs UVLS
WILLITS 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.87	0.84	0.51	1.01	0.98	0.96	1.02	1.05	0.96	1.01	0.82	Middletown and Fort Braggs UVLS
LYTNVLE 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.81	0.80	0.46	1.01	0.98	0.93	1.03	1.05	0.92	1.02	0.76	Project: Covelo 60 kV Voltage Support; switch it in-service.
HARTLEY 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.93	0.92	0.69	1.01	0.99	0.98	1.02	1.04	0.99	1.02	0.91	Continue to monitor
HPLND JT 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.98	0.97	0.80	1.02	1.01	1.03	1.01	1.03	1.00	1.01	0.96	Continue to monitor
KONOCTI6 60 kV	MENDOCNO 115KV - SECTION 1D & 2D	P2-4	Bus-Tie-Breaker Fault	0.99	0.98	0.89	1.03	1.01	1.02	1.03	1.04	1.01	1.03	0.98	Continue to monitor
EGLE RCK 60 kV	AIDLINGYSR1 13.80KV GEN UNIT 1 & EGLE RCK 115/60KV TB 1	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
CLOVRDLE 115 kV	CLOVRDLE1-25 25.00KV GEN UNIT VG & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
HPLND JT 115 kV	CLOVRDLE1-25 25.00KV GEN UNIT VG & GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
KONOCTI6 60 kV	FULTON 1-25 25.00KV GEN UNIT VG & KONOCTI-EAGLE ROCK 60KV [6861]	P3	G-1/ N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
LYTNVLE 60 kV	GEYSER11 13.80KV GEN UNIT 1 & LAYTONVILLE-WILLITS 60KV [8360]	P3	G-1/ N-1	0.71	0.79	NA	>0.9	>0.9	NA	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Covelo 60 kV Voltage Support; switch it in-service.
KONOCTI6 60 kV	NO BF RELAY EAGLE ROCK 115KV CB 142	P4	No Bus Fault Relay	0.93	0.94	0.89	0.98	0.94	0.93	0.99	1.05	0.97	0.99	0.93	Continue to monitor
GYSRVLE 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.32	0.33	0.47	0.39	0.39	0.99	0.45	0.37	0.41	Redundant relay installation recommended in previous TPP cycle
WINDSOR 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.33	0.32	0.48	0.40	0.38	0.99	0.45	0.36	0.42	Redundant relay installation recommended in previous TPP cycle
FULTON 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.42	0.34	0.31	0.48	0.40	0.38	1.00	0.45	0.36	0.43	Redundant relay installation recommended in previous TPP cycle
FTCH MTN 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.41	0.33	0.33	0.48	0.40	0.39	0.99	0.45	0.37	0.42	Redundant relay installation recommended in previous TPP cycle
COTATI 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.59	0.53	0.31	0.63	0.58	0.39	1.01	0.45	0.36	0.59	Redundant relay installation recommended in previous TPP cycle
PETLMA A 60 kV	FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	Diverge	0.74	0.71	1.02	0.77	0.73	1.03	1.01	1.01	1.02	0.74	Redundant relay installation recommended in previous TPP cycle

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Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
SNTA RSA 115 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.93	0.85	0.96	0.99	0.97	0.96	1.01	0.92	0.96	0.94	Install redundant relay	
BELLVUE 115 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.94	0.87	0.97	0.99	0.97	0.97	1.01	0.93	0.96	0.94	Install redundant relay	
GYSRVILLE 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.41	0.33	0.33	0.47	0.40	0.39	0.99	0.45	0.37	0.41	Install redundant relay	
WINDSOR 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.42	0.33	0.32	0.48	0.40	0.38	0.99	0.45	0.36	0.42	Install redundant relay	
FULTON 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.43	0.34	0.31	0.48	0.41	0.38	1.00	0.45	0.36	0.43	Install redundant relay	
FTCH MTN 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.42	0.34	0.33	0.48	0.40	0.39	0.99	0.45	0.37	0.42	Install redundant relay	
COTATI 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.59	0.53	0.30	0.63	0.57	0.39	1.01	0.45	0.36	0.59	Install redundant relay	
PETLMA A 60 kV	FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	Diverge	0.74	0.71	1.02	0.77	0.73	1.03	1.01	1.01	1.02	0.73	Install redundant relay	
SONOMA 115 kV	LAKEVILLE 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.95	0.95	0.89	1.07	1.05	0.92	1.06	1.10	1.02	1.06	0.95	Continue to monitor	
UKIAH 115 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.91	0.91	0.82	1.02	1.01	0.96	1.02	1.05	1.00	1.02	0.92	Redundant relay installation recommended in previous TPP cycle	
HPLND JT 115 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.93	0.93	0.84	1.03	1.02	0.97	1.03	1.06	1.01	1.03	0.94	Redundant relay installation recommended in previous TPP cycle	
MENDOCNO 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.92	0.88	0.60	1.05	1.03	0.96	1.06	1.07	1.01	1.05	0.94	Redundant relay installation recommended in previous TPP cycle	
WILLITS 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.89	0.85	0.54	1.04	1.02	0.95	1.05	1.06	0.99	1.05	0.91	Redundant relay installation recommended in previous TPP cycle	
LYTNVLE 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.83	0.80	0.48	1.03	1.01	0.92	1.05	1.06	0.95	1.05	0.84	Redundant relay installation recommended in previous TPP cycle	
HARTLEY 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.94	0.92	0.71	1.03	1.01	0.96	1.04	1.05	1.01	1.04	0.96	Redundant relay installation recommended in previous TPP cycle	
HPLND JT 60 kV	MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Relay	0.99	0.98	0.83	1.03	1.03	1.00	1.03	1.03	1.01	1.03	1.01	Redundant relay installation recommended in previous TPP cycle	
SNTA RSA 115 kV	Station DC Battery Supply FULTON 230-115-60kV Batt	P5	Non-Redundant Battery Supply	0.88	NA	NA	0.97	NA	NA	0.96	NA	0.93	0.96	NA	Install redundant battery supply	
BELLVUE 115 kV	Station DC Battery Supply FULTON 230-115-60kV Batt	P5	Non-Redundant Battery Supply	0.89	NA	NA	0.97	NA	NA	0.97	NA	0.94	0.97	NA	Install redundant battery supply	

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Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
REDBUD 115 kV	EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.94	1.01	Diverge	1.06	1.01	1.05	1.02	1.10	1.03	1.01	0.99	Continue to monitor	
FULTON 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.88	0.92	0.82	0.98	0.97	0.92	0.97	1.02	0.96	0.96	0.93	Redundant relay installation recommended in previous TPP cycle	
SNTA RSA 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.88	0.93	0.83	0.98	0.98	0.93	0.97	1.02	0.96	0.96	0.93	Redundant relay installation recommended in previous TPP cycle	
BELLVUE 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.90	0.93	0.86	0.98	0.98	0.94	0.97	1.01	0.96	0.97	0.94	Redundant relay installation recommended in previous TPP cycle	
GYSRVILLE 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.92	0.95	0.81	1.03	1.01	0.95	1.01	1.03	1.01	1.00	0.96	Redundant relay installation recommended in previous TPP cycle	
WINDSOR 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.93	0.96	0.83	1.03	1.02	0.96	1.02	1.03	1.02	1.01	0.97	Redundant relay installation recommended in previous TPP cycle	
FULTON 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.94	0.98	0.87	1.04	1.04	0.97	1.03	1.04	1.03	1.02	0.99	Redundant relay installation recommended in previous TPP cycle	
FTCH MTN 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.92	0.96	0.83	1.03	1.01	0.95	1.01	1.03	1.01	1.00	0.96	Redundant relay installation recommended in previous TPP cycle	
COTATI 60 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.91	0.97	0.88	1.03	1.01	0.96	1.03	1.03	1.03	1.02	0.98	Redundant relay installation recommended in previous TPP cycle	
SILVERDO 115 kV	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.90	0.93	0.83	1.00	0.99	0.92	0.98	1.04	0.98	0.98	0.94	Redundant relay installation recommended in previous TPP cycle	
FULTON 230 kV	FULTON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundent Relay	0.97	0.97	0.90	1.01	1.00	0.96	1.00	1.01	0.99	1.00	0.98	Continue to monitor	
REDBUD 115 kV	STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundent Battery Supply	0.95	1.01	Diverge	1.06	1.01	1.04	1.02	1.10	1.03	1.01	0.99	Continue to monitor	
SNTA RSA 115 kV	STATION DC BATTERY SUPPLY FULTON 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.93	0.86	NA	0.99	0.97	NA	1.01	NA	NA	0.93	Install redundant battery supply	
BELLVUE 115 kV	STATION DC BATTERY SUPPLY FULTON 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.94	0.88	NA	0.99	0.98	NA	1.01	NA	NA	0.94	Install redundant battery supply	
SONOMA 115 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.93	Diverge	NA	1.03	0.98	NA	1.12	NA	NA	0.93	Install redundant battery supply	
COTATI 60 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.91	Diverge	NA	0.95	0.90	NA	1.08	NA	NA	0.91	Install redundant battery supply	
PETLMA C 60 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.87	Diverge	NA	0.93	0.87	NA	1.09	NA	NA	0.87	Install redundant battery supply	
PETLMA A 60 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.87	Diverge	NA	0.93	0.87	NA	1.09	NA	NA	0.87	Install redundant battery supply	
PUEBLO 115 kV	STATION DC BATTERY SUPPLY LAKEVILLE 230-115-60KV BATT	P5	Non-Redundent Battery Supply	NA	0.95	Diverge	NA	1.04	0.99	NA	1.11	NA	NA	0.95	Install redundant battery supply	
WILLITS 60 kV	STATION DC BATTERY SUPPLY MENDOCINO 115-60KV BATT	P5	Non-Redundent Battery Supply	0.24	0.24	NA	0.86	0.45	NA	0.95	1.10	0.31	0.95	0.24	Install redundant battery supply	
LYTNVILLE 60 kV	STATION DC BATTERY SUPPLY MENDOCINO 115-60KV BATT	P5	Non-Redundent Battery Supply	0.32	0.31	NA	0.87	0.49	NA	0.97	1.08	0.38	0.97	0.31	Install redundant battery supply	

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
COTATI 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
FTCH MTN 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
FULTON 115 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	0.89	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Ignacio Area Upgrade; continue to monitor in long term
FULTON 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
GYSRVLL 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
SILVERDO 115 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
WINDSOR 60 kV	FULTON 230/115KV TB 9 & FULTON 230/115KV TB 4	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
BELLVUE 115 kV	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	0.89	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Ignacio Area Upgrade; continue to monitor in long term
SNTA RSA 115 kV	FULTON-SANTA ROSA #1 115KV [1620] & FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	0.87	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Ignacio Area Upgrade; continue to monitor in long term
CLOVRDL 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.52	0.52	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.51	Operational Solutions
EGLE RCK 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.83	0.85	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	Operational Solutions
EGLE RCK 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.86	0.88	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	Operational Solutions
GEYSERS34 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.84	0.85	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	Operational Solutions
HARTLEY 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.62	0.62	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.60	Operational Solutions
HIGHLAND 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.86	0.89	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Operational Solutions

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
KONOCTI6 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.77	0.78	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	Operational Solutions	
LUCERNE 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.61	0.62	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.60	Operational Solutions	
LYTNVLE 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.46	0.47	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	0.46	Operational Solutions	
MENDOCNO 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.54	0.54	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.53	Operational Solutions	
MENDOCNO 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.59	0.58	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.57	Operational Solutions	
REDBUD 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.68	0.68	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.66	Operational Solutions	
UKIAH 115 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.53	0.53	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.51	Operational Solutions	
WILLITS 60 kV	GEYSERS #3-CLOVERDALE 115KV [1650] MOAS OPENED ON AIDLINJCT_AIDLINGYSR & CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE	P6	N-1-1	0.54	0.53	Diverge	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.52	Operational Solutions	
CARQUINZ 115 kV	JAMESON CANYON PUMPING PLANT TAP 115KV [1833] MOAS OPENED ON SKGGS J1_HGHWY J1 & FULTON SVD=V	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor	
UKIAH 115 kV	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	1.00	1.00	0.90	1.05	1.02	1.00	1.02	1.11	1.05	1.01	0.99	Continue to monitor	
LUCERNE 115 kV	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	0.98	0.98	0.89	1.06	1.02	1.01	1.02	1.13	1.03	1.01	0.96	Continue to monitor	
REDBUD 115 kV	EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	0.97	0.97	0.88	1.06	1.02	1.00	1.01	1.13	1.02	1.00	0.96	Continue to monitor	

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity	2029 SP High CEC Forecast		
SNTA RSA 115 kV	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	0.87	0.93	0.85	0.97	0.98	0.97	0.96	1.01	0.93	0.96	0.94	Project: Ignacio Area Upgrade; continue to monitor in long term	
BELLVUE 115 kV	FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	0.89	0.94	0.87	0.97	0.98	0.97	0.96	1.01	0.94	0.97	0.94	Project: Ignacio Area Upgrade; continue to monitor in long term	
ALTO 60 kV	IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	0.91	0.94	0.86	1.01	1.00	0.81	1.01	1.07	0.97	1.01	0.94	Continue to monitor	

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions		
				2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen		2026 Spring OP Sensitivity	2029 SP High CEC Forecast
KONOCTI6 60 kV	EGLERCK 115/60KV TB 1	P1	N-1	8	8	10	5	7	9	3	-1	4	3	8	Continue to monitor
	KONOCTI-EAGLE ROCK 60KV [6861]	P1	N-1	8	8	10	5	7	10	3	-1	1	3	8	Continue to monitor
LYTONVILLE 60 kV	LAYTONVILLE-WILLITS 60KV [8360]	P1	N-1	16	14	NA	0	6	NA	-2	-1	6	-2	16	Project: Covelo 60 kV Voltage Support

Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Spring Off-Peak	2029 Summer Peak	2034 Summer Peak	2026 OP Sensitivity	2029 SP High CEC Forecast	
SVD MENDOCNO 115kV id v	P1	N-1	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Tran FULTON 230-115kV bk 9	P1	N-1	No Issues	No Issues	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Line CR2T3_18 to LAKEVILLE 230kV ckt 1	P2-1	Line Section w/o Fault	No Issues	No Issues	Consequential Generation Loss	No Issues	No Issues	Consequential Generation Loss.
Bus Fault at LAKEVILLE 230kV Bus E	P2-2	Bus Fault	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Internal fault at Bus-tie Breaker 202 at LAKEVILLE 230kV	P2-4	Bus-Tie-Breaker	No Issues	Non-BES Under Voltage	No Issues	No Issues	No Issues	Non-BES Under Voltage.
Gen GEYSER17 13.8kV unit 1 and SVD MENDOCNO 115kV id v	P3	G-1/ N-1	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage. Project: Covelo 60 kV Voltage Support, switch in 2034
Gen GEYSER18 13.8kV unit 1 and SVD MENDOCNO 115kV id v	P3	G-1/ N-1	No Issues	No Issues	No Issues	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Gen GEYSER17 13.8kV unit 1 and Line LAKEVILLE to VACALKVLRCTR to VACA-DIX 230kV ckt 1	P3	G-1/ N-1	No Issues	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage.
Stuck Breaker 152 protecting SVD MENDOCNO 115kV id v	P4	Stuck Breaker	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	Non-BES Under Voltage	Non-BES Under Voltage. Project: Covelo 60 kV Voltage Support, switch in 2034
Stuck Bus-tie Breaker 402 protecting Substation Bus LAKEVILLE 230kV Bus #1	P4	Stuck Breaker	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Stuck Breaker Fulton CB 512 protecting Tran FULTON 230/115kV bk 4	P4	Stuck Breaker	No Issues	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage.
Failure of Eagle Rock 115 kV CB 142 non-redundant DC CB control circuit (with no Breaker Fail relay) for Line EGGLE RCK to HGLNDJ1 115 kV ckt 1 (ALL 115 kV clears remotely)	P5	Non-redundant Relay	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Install Redundant Relay.
Failure of non-redundant bus differential relay protecting Substation Bus LAKEVILLE 230 kV (ALL 230 kV elements clear remotely)	P5	Non-redundant Relay	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Install Redundant Relay.
Fault on Tran Fulton 230/115 kV bk 9 with Loss of Line GYSR78TP to EGGLE RCK 115kV ckt 1	P6	N-1-1	No Issues	Non-BES Under Voltage	Non-BES Under Voltage	No Issues	Non-BES Under Voltage	Non-BES Under Voltage.
Fault on Tran Lakeville 230/115kV bk 1 with Loss of Tran Lakeville 230/115kV bk 2	P6	N-1-1	No Issues	Delayed Voltage Recovery	Non-BES Under Voltage	No Issues	No Issues	Delayed Voltage Recovery in 2029 Summer Peak Non-BES Under Voltage Violation in 2034 Summer Peak.
Fault on Tran IGNACIO 230/115kV bk 6 with Loss of SVD IGNACIO 230kV id r	P6	N-1-1	No Issues	No Issues	Non-BES Under Voltage	No Issues	No Issues	Non-BES Under Voltage.



Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions	
			2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity		2029 SP High CEC Forecast

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

Substation	Load Served (MW)											Potential Mitigation Solutions	
	2026 Summer Peak	2026 Summer Peak	2029 Summer Peak	2034 Summer Peak	2026 Winter Peak	2029 Winter Peak	2034 Winter Peak	2026 Spring Off-Peak	2029 Spring Off-Peak	2026 SP Heavy Renewable & Min Gas Gen	2026 Spring OP Sensitivity		2029 SP High CEC Forecast

No single source substation with more than 100 MW