

Study Area: PG&E North Valley
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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
Glenn No.1 60 kV Line	P1-2:A3:99:_GLENN #5 60KV [8427]	P1	N-1	<100	100	103	48	12	101	27	48	Operating solution
	P1-1:A3:56:_CSC HYDR 9.11KV GEN UNIT 1 & P1-2:A3:99:_GLENN #5 60KV [8427]	P3	N-1/G-1	<100	111	119	<100	<100	<100	<100	<100	Operating solution
Cascade-Benton-Deschute 60 kV line	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2-4	Bus Tie Breaker Fault	<100	<100	116	<100	147	<100	<100	<100	Continue to monitor
	COTTONWOOD 230KV BUS SECTION E/G (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	<100	<100	Operating solution
	COTWD_E 230/60KV TB 3 & COTWD_E2 230/60KV TB 2	P6	N-1-1	146	149	241	<100	108	153	<100	<100	Operating solution
Caribou-Plumas Jct 60 kV Line (31677 31689) - CAISO to check	P2-1:A3:21:_CARIBOU-TABLE MTN 230KV [4440] (BELDENTP-TABLE MTN D)	P2-1	Line Section w/o Fault	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
	P2-2:A3:28:_TABLE MTN D 230KV SECTION 1D	P2-2	Bus	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
	P2-3:A3:27:_TABLE MTN D - 1D 230KV & LINE	P2-3	Non-Bus Tie Breaker Fault	NConv	<100	<100	NConv	<100	<100	NConv	NConv	Project: Table Mountain 500/230 kV transformer
	P2-4:A3:23:_TABLE MTN D SECTION 1D & TABLE MTN E SECTION 1E 230KV	P2-4	Bus Tie Breaker Fault	NConv	NConv	NConv	NConv	3	NConv	NConv	NConv	Existing RAS
	P2-4:A3:6:_TABLE MTN D 230KV - SECTION 1D & 2D	P2-4	Bus Tie Breaker Fault	NConv	N/A	N/A	NConv	N/A	N/A	NConv	NConv	Existing RAS
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	34	NConv	20	22	15	NConv	32	312	Under Review
Cascade-Cottonwood 115 kV Line (31459 31469)	P2-4: COTTONWD 60KV - SECTION 1D & 1E	P2-4	Bus Tie Breaker Fault	<100	<100	Nconv	<100	<100	<100	<100	<100	Continue to monitor
	COTWD_E 230/60KV TB 3 & COTWD_E2 230/60KV TB 2	P6	N-1-1	116	110	170	<100	<100	116	<100	<100	Operating solution
Cascade-Deschutes 60 kV Line (31578 31592)	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2-4	Bus Tie Breaker Fault	22	81	182	30	162	87	<100	<100	Continue to monitor
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	<100	<100	Operating solution
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	78	NConv	NConv	42	82	NConv	NConv	Operating solution
	P5-5(DC):A3:1:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	36	17	NConv	NConv	NConv	Install redundant battery supply
	P5-5(DC):A3:24:_Station	P5	Non-Redundant Battery Supply	65	67	NConv	51	42	71	40	53	Install redundant battery supply
	P5-5(DC):A3:3:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	NConv	NConv	NConv	41	94	Install redundant battery supply
	COTWD_E 230/60KV TB 3 & COTWD_E2 230/60KV TB 2	P6	N-1-1	223	228	366	108	172	233	<100	<100	Operating solution
Cottonwood-Benton No.1 60 kV Line (31570 31572)	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	<100	<100	Operating solution
	P5-5(DC):A3:3:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	NConv	NConv	NConv	18	43	Install redundant battery supply
	COTWD_E 230/60KV TB 3 & COTWD_E2 230/60KV TB 2	P6	N-1-1	<100	<100	148	<100	<100	<100	<100	<100	Continue to monitor
Keswick-Cascade 60 kV Line (31564	P2-4:A3:8:_COTWDPGE 115KV - SECTION 2D & 1D	P2-4	Bus Tie Breaker Fault	106	<100	<100	NConv	<100	<100	NConv	NConv	Project: Cottonwood 115 kV Bus Sectionalizing Breakers Project
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	82	NConv	NConv	79	90	NConv	NConv	Operating solution

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				2024 Summer Peak	2027 Summer Peak	2032 Summer Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
31566)	P5-5(DC):A3:24:_Station	P5	Non-Redundant Battery Supply	45	46	NConv	39	65	53	43	37	Install redundant battery supply
	P6: CASCADE-COTTONWOOD 115KV [1240] & CASCADE-BENTON-DESCHUTES 60KV [6310]	P6	N-1-1	163	161	<100	<100	<100	<100	<100	<100	Operating solution
Cottonwood-Round Mountain 230 kV Line	P5-5(DC):A3:2:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	2	61	NConv	NConv	NConv	Install redundant battery supply
	ROUND MOUNTAIN 230KV BUS 1 & 2 SEC. E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Operating solution
Sycamore Creek-Notre Dame-Table Mountain 115 kV Line (31497 31498)	P2-3:A3:47:_BUTTE - MD 115KV & TABLE MTN-BUTTE #1 LINE	P2-3	Non-Bus Tie Breaker Fault	115	117	132	<100	<100	118	<100	<100	Table Mountain SPS recommended in 2017-2018 TPP
	P2-2:A3:49:_TBLE MTN 115KV SECTION 1D	P2-2	Bus	86	89	104	51	9	89	41	51	Table Mountain SPS recommended in 2017-2018 TPP
	P2-1:A3:68:_BUTTE-SYCAMORE CREEK 115KV [1190] (CHICOTP2-BUTTE)	P2-1	Line Section w/o Fault	90	93	104	58	15	93	39	58	Continue to monitor
	P2-2:A3:45:_BUTTE 115KV SECTION MD	P2-2	Bus	90	93	104	58	15	93	39	58	Continue to monitor
	P2-4:A3:12:_BUTTE 115KV - SECTION MD & ME	P2-4	Bus Tie Breaker Fault	93	96	108	58	15	96	39	58	Continue to monitor
	TABLE MTN-BUTTE #2 115KV [3920] & TABLE MTN-BUTTE #1 115KV [3910]	P6	N-1-1	<100	<100	103	<100	<100	<100	<100	<100	Table Mountain SPS recommended in 2017-2018 TPP
Table Mountain No.3 230/115 kV Transformer	P2-3:A3:26:_TABLE MTN D - 1D 230KV & CARIBOU-TABLE MTN LINE	P2-3	Non-Bus Tie Breaker Fault	79	NConv	NConv	8	69	NConv	31	26	Existing RAS
	P2-3:A3:27:_TABLE MTN D - 1D 230KV & LINE	P2-3	Non-Bus Tie Breaker Fault	NConv	<100	<100	NConv	<100	<100	NConv	NConv	Project: Table Mountain 500/230 kV transformer
	P2-2:A3:28:_TABLE MTN D 230KV SECTION 1D	P2-2	Bus	NConv	NConv	NConv	NConv	69	NConv	NConv	NConv	Existing RAS
	P2-3:A3:27:_TABLE MTN D - 1D 230KV & LINE	P2-3	Non-Bus Tie Breaker Fault	NConv	<100	<100	NConv	<100	<100	NConv	NConv	Project: Table Mountain 500/230 kV transformer
Table Mountain-Butte No.1 115 kV Line (31500 31501)	TABLE MTN-BUTTE #2 115KV [3920] & SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314]	P6	N-1-1	117	121	140	<100	<100	122	<100	<100	Table Mountain SPS recommended in 2017-2018 TPP
	P7-1:A3:4_Sycamore Creek-Notre Dame-Table Mountain and Table Mountain-Butte No.2 115 kV Lines	P7	DCTL	117	121	140	<100	<100	122	<100	<100	Table Mountain SPS recommended in 2017-2018 TPP
Table Mountain-Paradise 115 kV Line (31478 31494)	P2-2:A3:49:_TBLE MTN 115KV SECTION 1D	P2-2	Bus	89	93	109	51	9	93	45	51	Continue to monitor
	P2-3:A3:51:_TBLE MTN - 1D 115KV & TABLE MTN-BUTTE #1 LINE	P2-3	Non-Bus Tie Breaker Fault	89	93	108	51	8	93	45	51	Continue to monitor
	TABLE MTN-BUTTE #1 115KV [3910] & TABLE MTN-BUTTE #2 115KV [3920]	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	Continue to monitor
Trinity-Keswick 60 kV Line (31556 31564)	P1-2:A3:70:_CASCADE-BENTON-DESCHUTES 60KV [6310]	P6	N-1-1	158	160	<100	<100	<100	<100	<100	<100	Operating solution
	P5-5(DC):A3:24:_Station	P5	Non-Redundant Battery Supply	14	75	NConv	19	70	82	24	17	Install redundant battery supply
Caribou No.11 230/115/60 kV Transformer	P2-1:A3:21:_CARIBOU-TABLE MTN 230KV [4440] (BELDENTP-TABLE MTN D)	P2-1	Line Section w/o Fault	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
	P2-2:A3:28:_TABLE MTN D 230KV SECTION 1D	P2-2	Bus	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
	P2-3:A3:27:_TABLE MTN D - 1D 230KV & LINE	P2-3	Non-Bus Tie Breaker Fault	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
	P2-4:A3:23:_TABLE MTN D SECTION 1D & TABLE MTN E SECTION 1E 230KV	P2-4	Bus Tie Breaker Fault	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
	P2-4:A3:6:_TABLE MTN D 230KV - SECTION 1D & 2D	P2-4	Bus Tie Breaker Fault	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS



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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Existing RAS
31522 COTWD_2D 115 31466 JESSUPJ1 115 1 1	COTWD_E 230/60KV TB 3 & COTWD_E2 230/60KV TB 2	P6	N-1-1	<100	111	166	<100	<100	115	<100	<100	Operating solution
Oroville-Thermalito-Table Mountain No.3 230 kV Line	P2-1:A3:29:_TABLE MTN E-THM JCT 230KV [1] NO FAULT	P2-1	Line Section w/o Fault	89	89	103	114	92	121	91	116	Continue to monitor
Delevan-Cortina 230 kV Line	P7-1:A3:4_Sycamore Creek-Notre Dame-Table Mountain and Table Mountain-Butte No.2 115 kV Lines	P7	DCTL	102	106	123	59	12	107	47	59	Operating solution
Delevan-Cortina 230 kV Line	P5-5(DC):A3:2:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	58	6	NConv	NConv	NConv	Install redundant battery supply
Round Mountain 500/230 kV Bank	P5-5(DC):A3:2:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	64	117	NConv	NConv	NConv	Install redundant battery supply
Cascade-Craig View 115 kV Line (Path 25)	P5-5(DC):A3:1:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	60	N/A	NConv	NConv	NConv	Install redundant battery supply
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	N/A	NConv	43	84	Operating solution
	P5-5(DC):A3:3:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	NConv	N/A	NConv	42	85	Install redundant battery supply
Benton-Deschutes 60 kV Line	P5-5(DC):A3:3:_Station	P5	Non-Redundant Battery Supply	NConv	NConv	NConv	NConv	NConv	NConv	20	74	Install redundant battery supply
	P2-4:A3:22:_COTWD_F2 SECTION 2F & COTWD_E2 SECTION 2E 230KV	P2-4	Bus Tie Breaker Fault	38	48	116	12	147	54	72	56	Continue to monitor
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	20	76	Install Redundant Relay



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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
AMERESCO 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
AMERESCOTAP 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
ANITA 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BCKS CRK 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BELDEN 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BELDENTP 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BIG BAR 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
BIGBENTP 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BTTE CRK 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BUTTE 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
BUTTVLLY 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CANAL TP 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
CARBOU M 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CARIBOU 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CARIBOU 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CEDR CRK 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
CHALLNGE 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.06	1.09	<1.05	<1.05	1.05	System adjustments or voltage support if needed
CHICOTP2 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CLARK RD 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CLOV TAP 60 kV	Basecase	P0	Normal Condition	High	1.05	<1.05	1.05	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
CNTRVLE 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
CORNING 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	1.06	System adjustments or voltage support if needed
COWCK TP 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	System adjustments or voltage support if needed
CR CANAL 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
CRESTA 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
DE SABLA 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
DRHM JCA 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
DRHMSW45 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
ELKCREEK 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	1.05	System adjustments or voltage support if needed
FORBSTWN 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.07	1.05	1.06	<1.05	1.07	<1.05	System adjustments or voltage support if needed
FRBSTNTP 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.07	1.05	1.06	<1.05	1.07	<1.05	System adjustments or voltage support if needed
FRSTGLEN 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	System adjustments or voltage support if needed
GPH-BC 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
GRIZZLY1 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
GRIZZLYT4-2 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
GROUSCRK 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
HONC JT1 115 kV	Basecase	P0	Normal Condition	High	1.05	1.05	<1.05	1.06	1.06	<1.05	1.06	1.06	System adjustments or voltage support if needed
HONC JT3 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.05	1.06	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
HONCUT 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.05	1.06	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
HYAMPOM 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
HYMPOMJT 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
JACINTO 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
KANAKAJT 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.07	1.05	1.06	<1.05	1.07	<1.05	System adjustments or voltage support if needed
KILARC 60 kV	Basecase	P0	Normal Condition	High	1.05	<1.05	1.05	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
MALACHA1 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.08	<1.05	System adjustments or voltage support if needed



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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
MALACHA2 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	System adjustments or voltage support if needed
MCNE JCT 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
NDAME J 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
NEO REDT 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
NORD 1 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
NOTRDAME 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
OLSEN JCT 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.05	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
OLSENHYDRO 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.05	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
OWID 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.07	1.05	1.06	<1.05	1.07	<1.05	System adjustments or voltage support if needed
PALERMO 115 kV	Basecase	P0	Normal Condition	High	1.05	1.05	1.06	1.06	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed
PALERMO 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
PARADSE 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
POE 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
RASN JNT 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
RED B JT 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
RED BLFF 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
RK C JT1 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
RK C JT2 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
ROCKCK 1 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
ROCKCK 2 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
SLYCREEK 115 kV	Basecase	P0	Normal Condition	High	1.05	1.05	1.08	1.05	1.06	<1.05	1.08	1.05	System adjustments or voltage support if needed
SYCAMORE 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
TABLE MTN D 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
TABLE MTN E 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
TAP 65 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
TBL MT2M 230 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
TBLE MTN 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
TKO TAP 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.05	<1.05	System adjustments or voltage support if needed
TRINITY 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
TRINITY 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.06	<1.05	System adjustments or voltage support if needed
TYLER 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.05	<1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
WHITMORE 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	1.06	1.06	<1.05	1.07	1.05	System adjustments or voltage support if needed
WILDWOOD 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.07	<1.05	System adjustments or voltage support if needed
WILLOWS 60 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed
WOODLEAFJCT 115 kV	Basecase	P0	Normal Condition	High	<1.05	<1.05	1.08	1.05	1.06	<1.05	1.08	1.05	System adjustments or voltage support if needed
WYANDJT3 115 kV	Basecase	P0	Normal Condition	High	1.05	1.05	1.06	1.06	1.06	<1.05	1.06	1.06	System adjustments or voltage support if needed
WYANDTTE 115 kV	Basecase	P0	Normal Condition	High	1.05	1.05	1.06	1.06	1.06	<1.05	1.06	1.06	System adjustments or voltage support if needed
CANAL TP 60 kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1	P1	N-1	Low	0.90	1.00	1.01	1.00	1.05	0.99	0.93	1.00	Project: Tyler 60kV capacitor
CR CANAL 60 kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1	P1	N-1	Low	0.89	1.00	1.01	1.00	1.05	0.99	0.93	1.00	Project: Tyler 60kV capacitor
NEO REDT 60 kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1	P1	N-1	Low	0.90	1.00	1.01	1.00	1.05	0.99	0.93	1.00	Project: Tyler 60kV capacitor
RASN JNT 60 kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1	P1	N-1	Low	0.90	1.00	1.01	1.00	1.05	0.99	0.93	1.00	Project: Tyler 60kV capacitor
TYLER 60 kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1	P1	N-1	Low	0.90	1.00	1.01	1.00	1.05	1.00	0.93	1.00	Project: Tyler 60kV capacitor
CHESTER 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	Low	0.85	NConv	NConv	0.91	0.90	NConv	0.85	0.91	Existing RAS
COLLINSPINE 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	Low	0.84	NConv	NConv	0.91	0.90	NConv	0.84	0.91	Existing RAS
COLLINSPNJCT 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	Low	0.85	NConv	NConv	0.91	0.90	NConv	0.85	0.91	Existing RAS

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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
HMLTN BR 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	Low	0.89	NConv	NConv	0.95	0.94	NConv	0.89	0.94	Existing RAS
ULTR WSD 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	Low	0.89	NConv	NConv	0.95	0.94	NConv	0.89	0.94	Existing RAS
WESTWOOD 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	Low	0.89	NConv	NConv	0.94	0.94	NConv	0.89	0.94	Existing RAS
KESWICK 60 kV	P1-2:A3:71:_KESWICK-CASCADE 60KV [7260] MOAS OPENED ON CASCADE_STLLWATR	P1	N-1	Low	0.97	0.96	0.89	0.98	1.02	0.95	1.05	0.98	Continue to monitor
STLLWATR 60 kV	P1-2:A3:71:_KESWICK-CASCADE 60KV [7260] MOAS OPENED ON CASCADE_STLLWATR	P1	N-1	Low	0.96	0.95	0.88	0.98	1.02	0.94	1.04	0.97	Continue to monitor
ANTLER 60 kV	P2-2:A3:37:_CASCADE 115KV SECTION MA	P2-2	Bus Section	Low	0.93	0.92	0.90	0.94	1.01	0.92	0.99	0.94	Continue to monitor
BIG MDWS 60 kV	P2-3:A3:21:_CARIBOU - 1D 230KV & CARIBOU-TABLE MTN LINE	P2-3	Non-Bus Tie Breaker Fault	Low	0.90	NConv	NConv	0.95	0.95	NConv	0.90	0.95	Existing RAS
CHESTER 60 kV	P2-1:A3:19:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2-1	Line Section w/o Fault	Low	0.85	NConv	NConv	>0.9	>0.9	NConv	0.85	>0.9	Existing RAS
COLLINSPINE 60 kV	P2-1:A3:19:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2-1	Line Section w/o Fault	Low	0.84	NConv	NConv	>0.9	0.90	NConv	0.84	>0.9	Existing RAS
HMLTN BR 60 kV	P2-1:A3:19:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2-1	Line Section w/o Fault	Low	0.89	NConv	NConv	>0.9	>0.9	NConv	0.89	>0.9	Existing RAS
PPL 60 kV	P2-2:A3:37:_CASCADE 115KV SECTION MA	P2-2	Bus Section	Low	0.93	0.92	0.90	0.94	1.01	0.92	0.99	0.94	Continue to monitor
ULTR WSD 60 kV	P2-1:A3:19:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2-1	Line Section w/o Fault	Low	0.89	NConv	NConv	>0.9	>0.9	NConv	0.89	>0.9	Existing RAS
WESTWOOD 60 kV	P2-1:A3:19:_CARIBOU-TABLE MTN 230KV [4440] (CARIBOU-BELDENTP)	P2-1	Line Section w/o Fault	Low	0.89	NConv	NConv	0.94	0.94	NConv	0.89	0.94	Existing RAS
CASCADE 115kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1 & P1-2:A3:42:_CASCADE-COTTONWOOD 115KV [1240]	P3	N-1/G-1	Low	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install reactive support or SPS (Cascade 115kV Area)
NEO REDT 60kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1 & P1-3:A3:13:_COTWD_E 230/60KV TB 3	P3	N-1/G-1	Low	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Tyler 60kV capacitor
RASN JNT 60kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1 & P1-3:A3:13:_COTWD_E 230/60KV TB 3	P3	N-1/G-1	Low	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Tyler 60kV capacitor
TYLER 60kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1 & P1-3:A3:13:_COTWD_E 230/60KV TB 3	P3	N-1/G-1	Low	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Tyler 60kV capacitor
CASCADE 115kV	P1-1:A3:47:_VOLTA1-2 9.11KV GEN UNIT 1 & P1-2:A3:42:_CASCADE-COTTONWOOD 115KV [1240]	P3	N-1/G-1	Low	>0.9	0.89	>0.9	>0.9	>0.9	0.88	>0.9	>0.9	Install reactive support or SPS (Cascade 115kV Area)
LS ML JT 60kV	P1-1:A3:47:_VOLTA1-2 9.11KV GEN UNIT 1 & P1-2:A3:81:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P3	N-1/G-1	Low	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
VINA 60kV	P1-1:A3:47:_VOLTA1-2 9.11KV GEN UNIT 1 & P1-2:A3:81:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P3	N-1/G-1	Low	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
RED BLFF 60kV	P1-1:A3:49:_SOUTH G 4.16KV GEN UNIT 1 & P1-2:A3:81:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P3	N-1/G-1	Low	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
LS MLNSJ 60kV	P1-1:A3:79:_COLEMAN 6.60KV GEN UNIT 1 & P1-2:A3:81:_COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P3	N-1/G-1	Low	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
KESWICK 60 kV	P5-5(DC):A3:15:_Station	P5	Non-Redundant Battery Supply	Low	0.97	0.96	0.89	0.99	1.02	0.95	1.05	0.98	Install station back-up battery
STLLWATR 60 kV	P5-5(DC):A3:15:_Station	P5	Non-Redundant Battery Supply	Low	0.96	0.95	0.88	0.98	1.02	0.94	1.05	0.97	Install station back-up battery
COLLINSPINE 60 kV	P5-5(DC):A3:2:_Station	P5	Non-Redundant Battery Supply	Low	NConv	NConv	NConv	>0.9	0.90	NConv	NConv	NConv	Install station back-up battery

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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
ANTLER 60 kV	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	NConv	0.89	NConv	NConv	>0.9	0.88	NConv	NConv	Operating solution
CASCADE 115 kV	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	NConv	0.86	NConv	NConv	>0.9	0.85	NConv	NConv	Operating solution
MTN GATE 60 kV	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	NConv	0.89	NConv	NConv	>0.9	0.88	NConv	NConv	Operating solution
PPL 60 kV	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	NConv	0.89	NConv	NConv	>0.9	0.88	NConv	NConv	Operating solution
CHESTER 60 kV	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	0.85	NConv	0.90	>0.9	>0.9	NConv	0.84	>0.9	Install Redundant Relay
COLLINSPINE 60 kV	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	0.84	NConv	0.90	>0.9	>0.9	NConv	0.84	>0.9	Install Redundant Relay
HMLTN BR 60 kV	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	0.89	NConv	0.95	>0.9	>0.9	NConv	0.89	>0.9	Install Redundant Relay
ULTR WSD 60 kV	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	0.89	NConv	>0.9	>0.9	>0.9	NConv	0.88	>0.9	Install Redundant Relay
WESTWOOD 60 kV	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	0.89	NConv	>0.9	>0.9	>0.9	NConv	0.88	>0.9	Install Redundant Relay
BIG MDWS 60 kV	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Low	0.90	NConv	0.95	>0.9	>0.9	NConv	0.90	>0.9	Install Redundant Relay
CASCADE 115kV	P1-2:A3:42:_CASCADE-COTTONWOOD 115KV [1240] & P1-3:A3:39:_TRINITY 115/60KV TB 1	P6	N-1-1	Low	0.89	0.88	>0.9	>0.9	>0.9	0.88	>0.9	>0.9	Operating solution
DIRYVLE 60kV	P1-3:A3:12:_COTWD_E2 230/60KV TB 2 & P1-3:A3:13:_COTWD_E230/60KV TB 3	P6	N-1-1	Low	0.86	0.90	0.56	>0.9	>0.9	0.89	>0.9	>0.9	Operating solution
GERBER 60kV	P1-3:A3:12:_COTWD_E2 230/60KV TB 2 & P1-3:A3:13:_COTWD_E230/60KV TB 3	P6	N-1-1	Low	0.85	0.90	0.55	>0.9	>0.9	0.89	>0.9	>0.9	Operating solution
LPSPi 60kV	P1-3:A3:12:_COTWD_E2 230/60KV TB 2 & P1-3:A3:13:_COTWD_E230/60KV TB 3	P6	N-1-1	Low	0.86	>0.9	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution
LS MLNSJ 60kV	P1-3:A3:12:_COTWD_E2 230/60KV TB 2 & P1-3:A3:13:_COTWD_E230/60KV TB 3	P6	N-1-1	Low	0.85	0.89	0.54	>0.9	>0.9	0.88	>0.9	>0.9	Operating solution
RWSN J2 60kV	P1-3:A3:12:_COTWD_E2 230/60KV TB 2 & P1-3:A3:13:_COTWD_E230/60KV TB 3	P6	N-1-1	Low	0.86	>0.9	0.58	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution
VINA 60kV	P1-3:A3:12:_COTWD_E2 230/60KV TB 2 & P1-3:A3:13:_COTWD_E230/60KV TB 3	P6	N-1-1	Low	0.84	0.88	0.53	>0.9	>0.9	0.88	>0.9	>0.9	Operating solution
BIG MDWS 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.89	NConv	NConv	>0.9	>0.9	NConv	0.89	0.95	Under review
CHESTER 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.83	NConv	NConv	>0.9	>0.9	NConv	0.84	0.91	Under review
COLLINSPINE 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.83	NConv	NConv	>0.9	0.90	NConv	0.83	0.90	Under review
GANSNER 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.90	NConv	NConv	>0.9	>0.9	NConv	>0.9	>0.9	Under review
HMLTN BR 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.88	NConv	NConv	>0.9	>0.9	NConv	0.88	0.94	Under review
ULTR WSD 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.88	NConv	NConv	>0.9	>0.9	NConv	0.88	0.94	Under review
WESTWOOD 60 kV	P7-1:A3:6_Table Mountain-Paradise 115 kV Line and Caribou-Table Mountain 230 kV Line	P7	DCTL	Low	0.88	NConv	NConv	>0.9	>0.9	NConv	0.88	0.94	Under review

Study Area: PG&E North Valley

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	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	
CHESTER 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	13	<8	<8	<8	<8	<8	13	<8	Under review
COLLINSPINE 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	14	<8	<8	<8	<8	<8	<8	<8	Under review
HMLTN BR 60 kV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	10	<8	<8	<8	<8	<8	10	<8	Under review
TYLER 60 kV	P1-1:A3:10:_NEO REDB 13.80KV GEN UNIT 1	P1	N-1	13	<8	<8	<8	<8	<8	<8	<8	Project: Tyler 60kV capacitor

Study Area: PG&E North Valley

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	2027 SP High CEC Forecast	2024 OP Sensitivity	
In accordance with TPL-001-4- Requirement R2.6, this area relies on the past studies from the 2019-20 Transmission Planning Process for transient stability studies:									
http://www.caiso.com/Documents/AppendixC-BoardApprovedt2019-2020TransmissionPlan.pdf									

Study Area: PG&E North Valley



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 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2032 Spring Off-Peak	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2032 SP with Additional Transportation Electrification	

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

Study Area: PG&E North Valley



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 Winter Peak	2027 Winter Peak	2032 Winter Peak	2024 Spring Off-Peak	2027 Spring Off-Peak	2032 Spring Off-Peak	2027 SP High CEC Forecast	2024 SP Heavy Renewable & Min Gas Gen	2024 OP Sensitivity	2032 SP with Additional Transportation Electrification	

No single source substation with more than 100 MW