2026-2027 ISO Reliability Assessment - Final Study Results
Study Area: PG&E Central Valley
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
AEC_300_2-AEC_300-TESLA-SCHULTE 115KV	VIERRA-TESLA 115KV and SCHULTE-TESLA 115KV	P6	N-1-1	< 100	< 100	< 100	116	< 100	< 100	< 100	< 100	< 100	Redispatch.
	STANISLAUSPH 13.80KV GEN UNIT 1 and SCHULTE-TESLA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	Redispatch.
	TESLA 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	< 100	< 100	< 100	111	< 100	< 100	119	108	< 100	Redispatch.
ATLANTIC-PLEASANT GROVE #2 115KV	ATLANTIC-PLEASANT GROVE #1 115KV and RIO OSO-LINCLN-SPILINCOLN 115KV	P6	N-1-1	109	118	144	< 100	< 100	< 100	< 100	< 100	122	Operating solution.
BANTA-TRACY 115KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	114	110	127	Diverge	< 100	< 100	Diverge	Diverge	113	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	104	103	117	Diverge	< 100	< 100	Diverge	Diverge	105	Install redundant relay.
	TRACY-LEPRINO 115KV	P1	N-1	< 100	101	112	< 100	< 100	< 100	< 100	< 100	103	Mitigation under development.
	TESLA-TRACY(115KV) 115KV (LEPRINO_JCT-TRACY)	P2	Line Section w/o Fault	< 100	101	112	< 100	< 100	< 100	< 100	< 100	103	Mitigation under development.
	TESLA-TRACY(115KV) 115KV (ELLIS_JCT-TRACY JC)	P2	Line Section w/o Fault	106	108	119	< 100	< 100	< 100	< 100	< 100	110	Mitigation under development.
	TESLA 115KV - MIDDLE BREAKER BAY 5	P2	Breaker	106	108	119	< 100	< 100	< 100	< 100	< 100	111	Mitigation under development.
	TESLA-TRACY(115KV) 115KV (LEPRINO_JCT-TRACY JC)	P2	Line Section w/o Fault	106	108	119	< 100	< 100	< 100	< 100	< 100	110	Mitigation under development.
	LEPRINO 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	101	112	< 100	< 100	< 100	< 100	< 100	103	Install redundant battery supply.
	TESLA-LEPRINO_JCT 115KV	P1	N-1	106	108	119	< 100	< 100	< 100	< 100	< 100	110	Mitigation under development.
	TESLA-TRACY(115KV) 115KV (TESLA-ELLIS_JCT)	P2	Line Section w/o Fault	107	109	120	< 100	< 100	< 100	< 100	< 100	112	Mitigation under development.
BELL-HIGGINS 115 kV	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	< 100	< 100	< 100	Diverge	Diverge	Install redundant relay.
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	138	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant relay.
	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	< 100	< 100	138	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant relay.
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	137	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	Diverge	NA	NA	Diverge	NA	NA	< 100	Diverge	NA	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	170	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	Diverge	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	< 100	< 100	137	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
BELLOTA 230/115KV TB 1	BELLOTA 230/115KV TB 2 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	BELLOTA - 2D 115KV & BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCHPH LINE	P2	Breaker	< 100	< 100	< 100	106	< 100	< 100	< 100	105	< 100	Redispatch.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
BELLOTA 230/115KV TB 2	BELLOTA 230/115KV TB 1 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
BELLOTA-RIVERBANK 115KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	108	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	101	< 100	Diverge	Diverge	< 100	Install redundant relay.
BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCHPH 115KV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	< 100	NA	< 100	Diverge	NA	173	Diverge	Diverge	NA	Redispatch.
	MANTECA 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	102	124	< 100	< 100	105	< 100	Install redundant battery supply.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	164	Diverge	148	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	130	Diverge	178	< 100	Diverge	Diverge	< 100	Install redundant relay.
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	< 100	NA	NA	104	NA	NA	NA	< 100	Redispatch.
	BELLOTA 230/115KV TB 1 and BELLOTA 230/115KV TB 2	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Redispatch.
BELL-PLACER 115KV	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	107	< 100	< 100	Diverge	Diverge	Install redundant relay.
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	Diverge	NA	NA	Diverge	NA	NA	< 100	Diverge	NA	project: Gold Hill 230/115 kV Transformer Addition Projec
	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant relay.
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant relay.
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	167	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	Diverge	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	< 100	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	Sensitivity only.
BRIGHTN-W.SCRMNO 115KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	130	127	< 100	< 100	< 100	< 100	< 100	134	Install redundant battery supply.
BRIGHTON-BELLOTA 230KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	111	167	NA	< 100	< 100	NA	< 100	< 100	170	Install redundant battery supply.
BRIGHTON-DAVIS 115KV	BRIGHTN-W.SCRMNO 115KV and WOODLAND-DAVIS 115KV	P6	N-1-1	< 100	116	153	< 100	< 100	< 100	< 100	< 100	120	Operating solution.
	WOODLAND-DAVIS 115KV and BRIGHTN-W.SCRMNO 115KV	P6	N-1-1	116	140	< 100	< 100	< 100	< 100	< 100	< 100	144	operating solution.
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	109	162	156	< 100	< 100	< 100	< 100	< 100	165	Install redundant battery supply.
	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	122	126	120	< 100	< 100	< 100	< 100	< 100	131	Install redundant relay.
	Rio Oso-West Sacramento 115 KV Line & West Sacramento-Brighton 115 KV Line	P7	DCTL	123	123	160	< 100	< 100	< 100	< 100	< 100	129	operating solution.
	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	104	104	132	< 100	< 100	< 100	< 100	< 100	108	Install redundant battery supply.
	Rio Oso-Woodland No. 1 115 KV Line & Rio Oso-Woodland No. 2 115 KV Line	P7	DCTL	104	104	132	< 100	< 100	< 100	< 100	< 100	108	operating solution.
	Rio Oso-Woodland #1 115 KV Line & Rio Oso-Woodland #2 115 KV Line	P7	DCTL	104	104	132	< 100	< 100	< 100	< 100	< 100	108	operating solution.
	W.SCRMNO - DE 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	106	105	129	< 100	< 100	< 100	< 100	< 100	110	operating solution.
	BRIGHTN-W.SCRMNO 115KV	P1	N-1	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	WEST SACRAMENTO-BRIGHTON 115KV (DPWT_TP2-BRIGHTN)	P2	Line Section w/o Fault	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
BRIGHTON-LOCKEFORD 230KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	160	NA	NA	< 100	NA	NA	NA	Install redundant battery supply.
CLAY-MARTEL 60KV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
CORTINA 230/230KV TB 1	WADHAM 13.80KV GEN UNIT 1 and CORTINA 115/60KV TB 5	P3	G-1/N-1	< 100	< 100	< 100	127	< 100	< 100	< 100	127	< 100	Redispatch.
CORTINA-VACA 230KV	VACA-DIXON F SECTION 2F & VACA-DIXON E SECTION 2E 230KV	P2	Breaker	< 100	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	Redispatch.
	VACA-DIXON F 230KV SECTION 2F	P2	Bus	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	Redispatch.
COTTLE-MELONES 230KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	103	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
DIXON-VACA #2 60KV	CORBY 0.48KV GEN UNIT 1 and VACA-DXN-DIXON-J1-TRAVIS 60KV	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	VACA-DXN-DIXON-J1-TRAVIS 60KV	P1	N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
DRUM-HIGGINS 115KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	105	109	111	< 100	< 100	< 100	108	105	Install redundant battery supply.
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	186	< 100	< 100	Diverge	Diverge	Install redundant relay.
	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	120	110	182	< 100	< 100	< 100	< 100	< 100	114	Install redundant relay.
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	120	110	182	< 100	< 100	< 100	< 100	< 100	114	Install redundant relay.
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	120	110	181	< 100	< 100	< 100	< 100	< 100	114	Install redundant battery supply.
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	247	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	Diverge	NA	NA	Diverge	NA	NA	< 100	Diverge	NA	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	Diverge	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	120	109	119	< 100	< 100	< 100	< 100	< 100	114	Operating solution.
DRUMPH1 115/115KV TB 1	RIO OSO-BRNSWALT-DRUMPH1 115KV and DRUM-HIGGINS 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103	< 100	Sensitivity only.
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	108	< 100	< 100	Diverge	Diverge	Install redundant relay.
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	107	< 100	< 100	< 100	< 100	Install redundant battery supply.
	DRUM-HIGGINS 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	< 100	< 100	142	< 100	< 100	< 100	< 100	< 100	145	continue to monitor.
E.MARYSVILLE-MARYSVILLE 60kV	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	NA	< 100	110	NA	< 100	< 100	NA	NA	< 100	continue to monitor.
	PALERMO-NICOLAUS 115KV and RIO OSO-NICOLAUS 115KV	P6	N-1-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
EL DORADO-MISSOURI FLAT #2 115KV	GOLDHILL 115KV - SECTION 1F & 1G	P2	Breaker	NA	193	NA	NA	< 100	NA	NA	NA	203	project: Gold Hill-El Dorado Reinforcement
	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	192	NA	NA	< 100	NA	NA	NA	202	project: Gold Hill-El Dorado Reinforcement
	MISSOURI FLAT-GOLD HILL #2 115KV (GOLDHILL-SHPRING2)	P2	Line Section w/o Fault	200	193	< 100	108	< 100	< 100	< 100	107	203	project: Gold Hill-El Dorado Reinforcement
ELDORAD-MIZOU_T1 115KV	GOLDHILL 115KV SECTION 1G	P2	Bus	NA	192	< 100	NA	< 100	< 100	NA	NA	202	project: Gold Hill-El Dorado Reinforcement
	GOLDHILL 115KV - SECTION 1F & 1G	P2	Breaker	NA	177	NA	NA	< 100	NA	NA	NA	189	project: Gold Hill-El Dorado Reinforcement
	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	176	NA	NA	< 100	NA	NA	NA	188	project: Gold Hill-El Dorado Reinforcement
	MISSOURI FLAT-GOLD HILL #2 115KV (GOLDHILL-SHPRING2)	P2	Line Section w/o Fault	181	176	< 100	< 100	< 100	< 100	< 100	< 100	188	project: Gold Hill-El Dorado Reinforcement
	GOLDHILL 115KV SECTION 1G	P2	Bus	NA	176	< 100	NA	< 100	< 100	NA	NA	188	project: Gold Hill-El Dorado Reinforcement
GOLDHILL-PLACER-FLINT 115KV	DRUM-HIGGINS 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	< 100	< 100	125	< 100	< 100	< 100	< 100	< 100	103	continue to monitor.
GRSS VLY-PALERMO 60KV	Palermo-Colgate 230 KV Line & Colgate-Rio Oso 230 KV Line	P7	DCTL	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
HAMMER-COUNTRY CLUB 60KV	LOCKFORD 230/60KV TB 3 and LOCKFORD 230/60KV TB 2	P6	N-1-1	< 100	< 100	< 100	< 100	217	< 100	< 100	< 100	< 100	Redispatch.
	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	< 100	348	< 100	< 100	216	< 100	< 100	< 100	350	project: Lockeford-Lodi Area 230 kV Development
	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	< 100	348	< 100	< 100	216	< 100	< 100	< 100	350	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	154	NA	NA	< 100	NA	NA	NA	186	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	< 100	219	NA	< 100	< 100	NA	< 100	< 100	225	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	< 100	219	NA	< 100	< 100	NA	< 100	< 100	225	project: Lockeford-Lodi Area 230 kV Development
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	< 100	152	NA	< 100	< 100	NA	< 100	< 100	188	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	155	124	< 100	< 100	< 100	< 100	< 100	188	Install redundant battery supply.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	< 100	148	< 100	< 100	< 100	< 100	< 100	< 100	167	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-BELLOTA 230KV	P1	N-1	< 100	147	< 100	< 100	< 100	< 100	< 100	< 100	161	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	181	172	< 100	< 100	< 100	< 100	< 100	180	Install redundant relay.
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	181	172	< 100	< 100	< 100	< 100	< 100	180	Install redundant relay.
	LOCKEFORD 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	102	121	< 100	< 100	< 100	< 100	< 100	105	Install redundant battery supply.
	STAGG-HAMMER 60KV	P1	N-1	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	LOCKFORD 230/60KV TB 3	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101	Sensitivity only.
	LOCKFORD 230/60KV TB 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100	Sensitivity only.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	Base Case	P0	Base Case	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	152	146	< 100	< 100	< 100	< 100	< 100	152	Install redundant battery supply.
	EIGHT MILE ROAD-TESLA 230KV & STAGG-TESLA 230KV	P7	DCTL	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	STAGG-E - 1E 230KV & STAGG-TESLA LINE	P2	Breaker	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	STAGG-E 230KV SECTION 1E	P2	Bus	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	STAGG-F SECTION 1F & STAGG-D SECTION 1D 230KV	P2	Breaker	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	STAGG-D 230KV SECTION 1D	P2	Bus	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Mosher Transmission Project
	LOCKEFORD #1 60KV	P1	N-1	< 100	102	122	< 100	< 100	< 100	< 100	< 100	105	Mitigation under development.
	LOCKFORD 230/60KV TB 2 and LOCKFORD 230/60KV TB 3	P6	N-1-1	< 100	< 100	222	< 100	165	< 100	< 100	< 100	< 100	continue to monitor.
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	< 100	NA	123	< 100	NA	< 100	< 100	< 100	NA	continue to monitor.
	LOCKEFORD-BELLOTA 230KV #1 & LOCKEFORD-BELLOTA 230KV #2	P7	DCTL	NA	NA	124	NA	NA	< 100	NA	NA	NA	continue to monitor.
KASSON-LOUISE 60KV	KASSON 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	158	193	196	< 100	< 100	< 100	< 100	< 100	198	Install redundant relay.
LINCOLN-PLEASANT GROVE 115KV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	117	117	< 100	< 100	< 100	< 100	< 100	< 100	121	oject: Lincoln-Pleasant Grove 115 kV Reconductoring Proj
LOCKEFORD #1 60KV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	200	203	< 100	< 100	< 100	< 100	< 100	200	Install redundant relay.
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	200	203	< 100	< 100	< 100	< 100	< 100	200	Install redundant relay.
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	194	198	< 100	< 100	< 100	< 100	< 100	194	Install redundant battery supply.
	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	< 100	140	< 100	< 100	136	< 100	< 100	< 100	139	project: Lockeford-Lodi Area 230 kV Development
	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	< 100	141	< 100	< 100	136	< 100	< 100	< 100	139	project: Lockeford-Lodi Area 230 kV Development

2026-2027 ISO Reliability Assessment - Final Study Results
Study Area: PG&E Central Valley
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
LOCKEFORD-BELLOTA 230KV	STAGG-E 230/60KV TB 4 and STAGG-D 230/60KV TB 1	P6	N-1-1	< 100	119	< 100	< 100	< 100	< 100	< 100	< 100	122	project: Lockeford-Lodi Area 230 kV Development
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	121	NA	< 100	< 100	NA	< 100	< 100	124	Install redundant relay.
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	121	NA	< 100	< 100	NA	< 100	< 100	124	Install redundant relay.
	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	< 100	116	NA	< 100	< 100	NA	< 100	< 100	120	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	118	NA	< 100	< 100	NA	< 100	< 100	122	Install redundant battery supply.
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	< 100	121	NA	< 100	< 100	NA	< 100	< 100	124	project: Lockeford-Lodi Area 230 kV Development
LOCKEFORD-INDUSTRIAL 60KV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	128	NA	NA	Diverge	NA	NA	Diverge	Diverge	NA	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	121	NA	NA	< 100	NA	NA	NA	143	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFRD-VICTOR-INDUSTRL 60KV	P1	N-1	120	138	NA	< 100	< 100	NA	114	< 100	142	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	119	148	NA	< 100	< 100	NA	122	< 100	150	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	119	148	NA	< 100	< 100	NA	122	< 100	150	project: Lockeford-Lodi Area 230 kV Development
	LODI-INDUSTRIAL 60KV	P1	N-1	103	121	NA	< 100	< 100	NA	102	< 100	125	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-LODI #3 60KV	P1	N-1	103	119	NA	< 100	< 100	NA	< 100	< 100	122	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	127	121	NA	< 100	< 100	NA	< 100	< 100	144	Install redundant battery supply.
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	128	119	NA	< 100	< 100	NA	< 100	< 100	144	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	130	116	NA	< 100	< 100	NA	< 100	< 100	129	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV SECTION 2E	P2	Bus	130	117	NA	< 100	< 100	NA	< 100	< 100	126	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-BELLOTA 230KV	P1	N-1	130	117	NA	< 100	< 100	NA	< 100	< 100	125	project: Lockeford-Lodi Area 230 kV Development
	Base Case	P0	Base Case	< 100	110	NA	< 100	< 100	NA	< 100	< 100	114	project: Lockeford-Lodi Area 230 kV Development
	SUTTER HOME SW STA-LOCKEFORD-LODI 60KV	P1	N-1	< 100	103	NA	< 100	< 100	NA	< 100	< 100	106	project: Lockeford-Lodi Area 230 kV Development
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	111	NA	< 100	< 100	NA	< 100	< 100	115	Install redundant relay.
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	111	NA	< 100	< 100	NA	< 100	< 100	115	Install redundant relay.
	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	< 100	109	NA	< 100	< 100	NA	< 100	< 100	113	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	109	NA	< 100	< 100	NA	< 100	< 100	113	Install redundant battery supply.
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	NA	< 100	< 100	NA	< 100	< 100	103	Install redundant battery supply.
LOCKEFORD-LODI #3 60KV	LOCKEFORD-INDUSTRIAL 60KV	P1	N-1	118	136	NA	< 100	< 100	NA	108	< 100	140	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	111	NA	NA	< 100	NA	NA	NA	132	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFRD-VICTOR-INDUSTRL 60KV	P1	N-1	109	123	NA	< 100	< 100	NA	< 100	< 100	127	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	111	137	NA	< 100	< 100	NA	110	< 100	138	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	111	137	NA	< 100	< 100	NA	110	< 100	138	project: Lockeford-Lodi Area 230 kV Development
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	120	110	NA	< 100	< 100	NA	< 100	< 100	133	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	119	112	< 100	< 100	< 100	< 100	< 100	< 100	133	Install redundant battery supply.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	121	107	< 100	< 100	< 100	< 100	< 100	< 100	119	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV SECTION 2E	P2	Bus	122	108	< 100	< 100	< 100	< 100	< 100	< 100	116	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-BELLOTA 230KV	P1	N-1	122	108	< 100	< 100	< 100	< 100	< 100	< 100	116	project: Lockeford-Lodi Area 230 kV Development
	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103	Sensitivity only.
	SUTTER HOME SW STA-LOCKEFORD-LODI 60KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101	Sensitivity only.
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	106	Install redundant relay.
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	106	Install redundant relay.
	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	105	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	104	Install redundant battery supply.
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	120	NA	< 100	Diverge	NA	< 100	Diverge	Diverge	NA	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD-VICTOR-INDUSTRL 60KV	LOCKEFORD-INDUSTRIAL 60KV	P1	N-1	123	142	NA	< 100	< 100	NA	112	< 100	146	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	117	NA	NA	< 100	NA	NA	NA	138	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	118	145	NA	< 100	< 100	NA	115	< 100	147	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	118	145	NA	< 100	< 100	NA	114	< 100	147	project: Lockeford-Lodi Area 230 kV Development
	LODI-INDUSTRIAL 60KV	P1	N-1	< 100	115	NA	< 100	< 100	NA	< 100	< 100	118	project: Lockeford-Lodi Area 230 kV Development
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	127	115	NA	< 100	< 100	NA	< 100	< 100	139	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-LODI #3 60KV	P1	N-1	< 100	< 100	NA	< 100	< 100	NA	< 100	< 100	100	Sensitivity only.
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	126	117	< 100	< 100	< 100	< 100	< 100	< 100	139	Install redundant battery supply.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	104	< 100	NA	< 100	< 100	NA	< 100	< 100	104	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV SECTION 2E	P2	Bus	104	< 100	NA	< 100	< 100	NA	< 100	< 100	102	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-BELLOTA 230KV	P1	N-1	104	< 100	NA	< 100	< 100	NA	< 100	< 100	102	project: Lockeford-Lodi Area 230 kV Development
	Base Case	P0	Base Case	< 100	107	< 100	< 100	< 100	< 100	< 100	< 100	110	project: Lockeford-Lodi Area 230 kV Development
	SUTTER HOME SW STA-LOCKEFORD-LODI 60KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	Sensitivity only.
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	111	Install redundant relay.
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	111	Install redundant relay.
	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	110	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	110	Install redundant battery supply.
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	127	NA	< 100	Diverge	NA	< 100	Diverge	Diverge	NA	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230/60KV TB 2	LOCKFORD 230KV - RING R1 & R2	P2	Breaker	113	126	NA	< 100	< 100	NA	101	< 100	130	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	108	113	NA	< 100	< 100	NA	114	< 100	113	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230/60KV TB 3	P1	N-1	113	130	< 100	< 100	< 100	< 100	101	< 100	134	project: Lockeford-Lodi Area 230 kV Development
	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	116	project: Lockeford-Lodi Area 230 kV Development
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	117	< 100	< 100	< 100	< 100	< 100	< 100	118	Install redundant relay.
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	< 100	117	< 100	< 100	< 100	< 100	< 100	< 100	118	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	117	< 100	< 100	< 100	< 100	< 100	< 100	118	Install redundant relay.
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	116	< 100	< 100	< 100	< 100	< 100	< 100	118	Install redundant battery supply.
LOCKFORD 230/60KV TB 3	LOCKFORD 230KV - RING R1 & R4	P2	Breaker	113	126	NA	< 100	< 100	NA	101	< 100	130	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	108	113	NA	< 100	< 100	NA	114	< 100	113	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230/60KV TB 2	P1	N-1	113	131	< 100	< 100	< 100	< 100	101	< 100	134	project: Lockeford-Lodi Area 230 kV Development
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	120	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	120	Install redundant relay.
	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	120	Install redundant relay.
	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	< 100	115	< 100	< 100	< 100	< 100	< 100	< 100	117	project: Lockeford-Lodi Area 230 kV Development
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	119	Install redundant battery supply.
LODI-INDUSTRIAL 60KV	LOCKEFORD-INDUSTRIAL 60KV	P1	N-1	< 100	114	NA	< 100	< 100	NA	101	< 100	117	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFRD-VICTOR-INDUSTRL 60KV	P1	N-1	< 100	< 100	NA	< 100	< 100	NA	< 100	< 100	102	Sensitivity only.
LOUISE-MANTECA 60KV	KASSON 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	105	107	< 100	< 100	< 100	< 100	< 100	108	Install redundant relay.
MANTECA-RIPON 115KV	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	125	< 100	106	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
	RIPON 115KV - RING R4 & R5	P2	Breaker	137	< 100	< 100	151	101	< 100	178	151	< 100	eca-Ripon-Riverbank-Melones Area 115 kV Line Reconduc
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	140	< 100	122	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	BELLOTA 230/115KV TB 2 and BELLOTA 115/230KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	148	< 100	< 100	< 100	Redispatch.
	STANISLAUS-MANTECA #2 115KV & RIPON-RIVERBANKJSS 115KV	P7	DCTL	< 100	< 100	< 100	212	< 100	102	190	212	< 100	Redispatch.
	RIVERBANK JCT SW STA-RIPON 115KV (VALLEYHOMEJ1-RIPONJCT1)	P2	Line Section w/o Fault	< 100	< 100	< 100	211	< 100	103	190	211	< 100	Redispatch.
	RIPON-RIVERBANKJSS 115KV	P1	N-1	< 100	< 100	< 100	211	< 100	103	190	211	< 100	Redispatch.
	RIVERBANKJSS-RIPON 115KV	P1	N-1	< 100	< 100	< 100	211	< 100	103	190	211	< 100	Redispatch.
	STANISLAUSPH - 1D 115KV & STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS LINE	P2	Breaker	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Redispatch.
	STANISLAUS-MANTECA #2 115KV & STANISLAUS-MELONES SW STA-RIVERBANK JCT SW STA 115KV	P7	DCTL	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Redispatch.
	RIVERBANK JCT SW STA-RIPON 115KV (MELONESJCT2-RIVERBANKJSS)	P2	Line Section w/o Fault	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Redispatch.
	STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P1	N-1	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Redispatch.
	MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH 115KV	P1	N-1	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Redispatch.
	RIVERBANK SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Install redundant battery supply.
	RIVERBANK JCT SW STA-RIPON 115KV (RIVERBANKJSS-VALLEYHOMEJ1)	P2	Line Section w/o Fault	< 100	< 100	< 100	222	< 100	113	192	222	< 100	Redispatch.
	STUCK BREAKER & NO BF RELAY STANISLAUS 115KV CB 112 122 OR 132	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	221	< 100	113	192	221	< 100	Install redundant relay.
	MELONES SW STA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	221	< 100	113	192	220	< 100	Install redundant relay.
	MELONES SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	221	< 100	113	192	220	< 100	Install redundant battery supply.
	MELONESSWSTA - 1D 115KV & MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH LINE	P2	Breaker	< 100	< 100	< 100	220	< 100	113	191	220	< 100	Redispatch.
	Base Case	P0	Base Case	< 100	< 100	< 100	159	< 100	< 100	122	153	< 100	Redispatch.
	STANISLAUSPH 115/13.8KV TB 1	P1	N-1	< 100	< 100	< 100	166	< 100	< 100	133	161	< 100	Redispatch.
	SCHULTE SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	110	< 100	< 100	139	< 100	< 100	< 100	135	< 100	Install redundant battery supply.
	MI-WUK 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	166	< 100	< 100	131	161	< 100	Install redundant battery supply.
	MI-WUK-CURTIS 115KV	P1	N-1	< 100	< 100	< 100	166	< 100	< 100	131	161	< 100	Redispatch.
	BELLOTA-RIVERBANK-MELONES SW STA 115KV & BELLOTA-RIVERBANK 115KV	P7	DCTL	< 100	< 100	< 100	140	< 100	< 100	115	137	< 100	Redispatch.
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	< 100	NA	< 100	Diverge	NA	148	Diverge	Diverge	NA	Redispatch.
	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	< 100	< 100	< 100	147	< 100	< 100	114	141	< 100	Redispatch.
	Rio Oso-Brighton 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	< 100	< 100	< 100	147	< 100	< 100	113	141	< 100	Redispatch.
	BELLOTA-COTTLE 230KV & BELLOTA-WARNERVILLE 230KV	P7	DCTL	< 100	< 100	< 100	137	< 100	< 100	114	137	< 100	Redispatch.
	COTTLE-MELONES 230KV & BELLOTA-WARNERVILLE 230KV	P7	DCTL	< 100	< 100	< 100	138	< 100	< 100	114	137	< 100	Redispatch.
	BRIGHTON-BELLOTA 230KV & RIO OSO-LOCKEFORD 230KV	P7	DCTL	< 100	< 100	NA	147	< 100	NA	114	141	< 100	Redispatch.
MELONESSWSTA-MANTECA 115KV	STANISLAUSPH 13.80KV GEN UNIT 1 and STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	Sensitivity only.
	STANISLAUS-MANTECA #2 115KV & RIPON-RIVERBANKJSS 115KV	P7	DCTL	< 100	< 100	< 100	121	138	< 100	146	131	< 100	Redispatch.
	STANISLAUS-MANTECA #2 115KV & STANISLAUS-MELONES SW STA-RIVERBANK JCT SW STA 115KV	P7	DCTL	< 100	< 100	< 100	< 100	140	< 100	119	104	< 100	Redispatch.
	STANISLAUS-MANTECA #2 115KV & MANTECA-RIPON 115KV	P7	DCTL	< 100	< 100	< 100	< 100	127	< 100	125	104	< 100	Redispatch.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	106	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	RIVERBANK JCT SW STA-RIPON 115KV (MELONESJCT2-RIVERBANKJSS)	P2	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	Sensitivity only.
	RIPONJCT1-RIPON 115KV NO FAULT	P2	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	< 100	103	< 100	< 100	Sensitivity only.
	RIVERBANK JCT SW STA-RIPON 115KV (VALLEYHOMEJ1-RIPONJCT1)	P2	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	< 100	103	< 100	< 100	Sensitivity only.
	RIVERBANK JCT SW STA-RIPON 115KV (RIVERBANKJSS-VALLEYHOMEJ1)	P2	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	Sensitivity only.
	STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	Sensitivity only.
	MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	Sensitivity only.
	RIVERBANK SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
	RIVERBANKJSS-RIPON 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	103	< 100	< 100	Sensitivity only.
	RIPON-RIVERBANKJSS 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	103	< 100	< 100	Sensitivity only.

2026-2027 ISO Reliability Assessment - Final Study Results
Study Area: PG&E Central Valley
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
	STANISLAUSPH - 1D 115KV & STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS LINE	P2	Breaker	< 100	< 100	< 100	< 100	< 100	< 100	105	101	< 100	Sensitivity only.
	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	< 100	< 100	< 100	119	< 100	< 100	Diverge	123	< 100	Redispatch.
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	< 100	NA	< 100	Diverge	NA	< 100	Diverge	Diverge	NA	Redispatch.
	STANISLAUSPH 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	STANISLAUSPH 115/13.8KV TB 1 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	BELLOTA 230/115KV TB 1 and BELLOTA 230/115KV TB 2	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
MELONESSWSTA-RIVERBANKISS-STANISLAUSPH 115KV	MANTECA-RIPON 115KV and Q1557-RIPON #1 115KV	P6	N-1-1	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	eca-Ripon-Riverbank-Melones Area 115 kV Line Reconduc
	RIPON 115KV - RING R3 & R2	P2	Breaker	133	< 100	< 100	190	< 100	< 100	193	190	< 100	eca-Ripon-Riverbank-Melones Area 115 kV Line Reconduc
	MANTECA-RIPON 115KV	P1	N-1	< 100	< 100	< 100	Diverge	< 100	< 100	227	Diverge	< 100	Redispatch.
	RIPONJCT2-RIPON 115KV NO FAULT	P2	Line Section w/o Fault	< 100	< 100	< 100	Diverge	< 100	< 100	227	Diverge	< 100	Redispatch.
	RIPON-MANTECA 115KV (RIPONJCT2-MANTECA)	P2	Line Section w/o Fault	< 100	< 100	< 100	Diverge	< 100	< 100	227	Diverge	< 100	Redispatch.
	MANTECA 115KV - RING R4 & R5	P2	Breaker	< 100	< 100	< 100	Diverge	< 100	< 100	223	Diverge	< 100	Redispatch.
	MANTECA 115KV - RING R6 & R5	P2	Breaker	< 100	< 100	< 100	Diverge	< 100	< 100	225	Diverge	< 100	Redispatch.
	AVENA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	108	< 100	< 100	114	114	< 100	Install redundant battery supply.
	FROGTOWN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	108	< 100	< 100	114	114	< 100	Install redundant battery supply.
	MANTECA-MELONESSWSTA 115KV	P1	N-1	< 100	< 100	< 100	108	< 100	< 100	114	114	< 100	Redispatch.
	MELONESSWSTA-MANTECA 115KV	P1	N-1	< 100	< 100	< 100	108	< 100	< 100	114	114	< 100	Redispatch.
	STANISLAUS-MANTECA #2 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	103	103	< 100	Sensitivity only.
	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	100	101	< 100	Sensitivity only.
	TESLA-SCHULTE SW STA #2 115KV & TESLA-SCHULTE SW STA #1 115KV	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	104	102	< 100	Sensitivity only.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	< 100	< 100	< 100	117	< 100	< 100	Diverge	122	< 100	Redispatch.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
	Q1461BESS 0.69KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	Q1461-RALPH #1 230KV and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	MADISON 115/21KV TB 3 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
NICOLAUS-MARYSVILLE 60KV	PEASE-RIO OSO 115KV and PALERMO-NICOLAUS 115KV	P6	N-1-1	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	100	Mitigation under development.
	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	108	< 100	129	< 100	< 100	< 100	< 100	< 100	< 100	East Marysville 115/60 kV Project. Continue to monitor lo
	Palermo-Pease 115 KV Line amd Pease-Rio Oso 115 KV Line	P7	DCTL	< 100	< 100	< 100	103	< 100	< 100	149	< 100	< 100	Redispatch.
	PEASE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	118	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	PEASE-MARYSVILLE-HARTER 60KV	P1	N-1	118	NA	NA	< 100	NA	NA	< 100	< 100	NA	project: East Marysville 115/60 kV Project
	PEASE-RIO OSO 115KV and PALERMO-PEASE 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	Sensitivity only.
	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	117	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant relay.
	E.MRYSVE-MRYSVLLE #1 60KV	P1	N-1	NA	101	129	NA	< 100	NA	NA	NA	106	Mitigation under development.
	NARROWSPH2 13.80KV GEN UNIT 1 and E.MRYSVE-MRYSVLLE #1 60KV	P3	G-1/N-1	NA	119.00	142.00							Mitigation under development.
PEASE-MARYSVILLE-HARTER 60KV	PALERMO-NICOLAUS 115KV and RIO OSO-NICOLAUS 115KV	P6	N-1-1	156	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	East Marysville 115/60 kV Project. Continue to monitor lo
	E.MRYSVE 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	NA	< 100	< 100	NA	109	< 100	NA	NA	< 100	Redispatch.
	E.MRYSVE 115KV SECTION EF	P2	Bus	NA	< 100	< 100	NA	101	< 100	NA	NA	< 100	Redispatch.
	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	< 100	< 100	< 100	< 100	< 100	< 100	117	< 100	< 100	Sensitivity only.
	EAST MARYSVILLE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	Install redundant battery supply.
	EAST NICOLAUS 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	< 100	< 100	130	< 100	< 100	Install redundant battery supply.
	Palermo-Nicolaus 115 KV Line & Bogue-Rio Oso 115 KV Line	P7	DCTL	< 100	< 100	< 100	< 100	108	< 100	< 100	< 100	< 100	Redispatch.
	YUBACITYCGN 13.80KV GEN UNIT 1 and YCEC 13.80KV GEN UNIT 1	P3	G-1/N-1	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: East Marysville 115/60 kV Project
	PALERMO-NICOLAUS 115KV (E.MRYSVE-E.MRY J2)	P2	Line Section w/o Fault	< 100	< 100	< 100	< 100	103	< 100	< 100	< 100	< 100	Redispatch.
	Palermo-Pease 115 KV Line amd Pease-Rio Oso 115 KV Line	P7	DCTL	< 100	< 100	< 100	< 100	134	119	< 100	< 100	< 100	Redispatch.
PLACER-GOLD HILL #1 115KV	GOLDHILL-PLACER-FLINT 115KV and DRUM-HIGGINS 115KV	P6	N-1-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
RIO OSO-ATLANTIC 230KV	GOLDHILL 230KV - SECTION 1D & 1E	P2	Breaker	NA	< 100	104	NA	< 100	< 100	NA	NA	< 100	continue to monitor.
RIO OSO-BRIGHTON 230KV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	101	103	< 100	< 100	< 100	< 100	< 100	101	Install redundant relay.
RIO OSO-BRNSWALT-DRUMPH1 115KV	BRNSWALT 115KV - RING R4 & R3	P2	Breaker	< 100	< 100	< 100	119	< 100	< 100	< 100	118	< 100	Redispatch.
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	194	< 100	< 100	Diverge	Diverge	Install redundant relay.
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	131	< 100	< 100	< 100	< 100	Install redundant battery supply.
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	Install redundant relay.
	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	Install redundant relay.
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	Diverge	NA	NA	Diverge	NA	NA	< 100	Diverge	NA	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
RIO OSO-DRUMPH1-BRUNSWCK 115KV	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	189	< 100	< 100	Diverge	Diverge	Install redundant relay.
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	127	< 100	< 100	< 100	< 100	Install redundant battery supply.
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	Diverge	NA	NA	< 100	NA	NA	< 100	< 100	NA	project: Gold Hill 230/115 kV Transformer Addition Projec
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Gold Hill 230/115 kV Transformer Addition Projec
RIO OSO-LINCLN-SPILINCOLN 115KV	Rio Oso-Atlantic 230 KV Line & Rio Oso-Gold Hill 230 KV Line	P7	DCTL	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Reconductor Rio Oso–SPI Jct–Lincoln 115kV line
	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	140	< 100	119	< 100	< 100	< 100	< 100	< 100	< 100	115kV
RIO OSO-LOCKEFORD 230KV	LOCKFORD 230/60KV TB 2 and LOCKEFORD-BELLOTA 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	117	< 100	< 100	Sensitivity only.
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	107	NA	NA	< 100	NA	NA	NA	121	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	128	NA	< 100	Diverge	NA	< 100	Diverge	Diverge	NA	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	119	118	NA	< 100	< 100	NA	117	< 100	119	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	118	118	NA	< 100	< 100	NA	117	< 100	119	project: Lockeford-Lodi Area 230 kV Development
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	128	105	NA	< 100	< 100	NA	< 100	< 100	121	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	127	107	< 100	< 100	< 100	< 100	< 100	< 100	121	Install redundant battery supply.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	129	103	< 100	< 100	< 100	< 100	< 100	< 100	112	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-BELLOTA 230KV	P1	N-1	130	104	< 100	< 100	< 100	< 100	< 100	< 100	110	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV SECTION 2E	P2	Bus	130	104	< 100	< 100	< 100	< 100	< 100	< 100	110	project: Lockeford-Lodi Area 230 kV Development
RIO OSO-WEST SACRAMENTO 115KV	WOODLAND-DAVIS 115KV and RIO OSO-BRIGHTON 230KV	P6	N-1-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Redispatch.
RIO OSO-WOODLAND #1 115KV	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	RIO OSO-BRIGHTON 230KV and RIO OSO-WOODLAND #2 115KV	P6	N-1-1	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN 115KV SECTION ME	P2	Bus	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
RIO OSO-WOODLAND #2 115KV	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	RIO OSO-BRIGHTON 230KV and RIO OSO-WOODLAND #1 115KV	P6	N-1-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN 115KV SECTION ME	P2	Bus	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
RIVERBANKISS-RIPON 115KV	DONNELLS 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	Sensitivity only.
	RIPONJCT2-RIPON 115KV NO FAULT	P2	Line Section w/o Fault	< 100	< 100	< 100	Diverge	123	102	215	Diverge	< 100	Redispatch.
	MANTECA-RIPON 115KV	P1	N-1	< 100	< 100	< 100	Diverge	123	102	215	Diverge	< 100	Redispatch.
	RIPON-MANTECA 115KV (RIPONJCT2-MANTECA)	P2	Line Section w/o Fault	< 100	< 100	< 100	Diverge	123	102	214	Diverge	< 100	Redispatch.
	MANTECA 115KV - RING R6 & R5	P2	Breaker	< 100	< 100	< 100	Diverge	123	102	213	Diverge	< 100	Redispatch.
	MANTECA 115KV - RING R4 & R5	P2	Breaker	< 100	< 100	< 100	Diverge	123	102	211	Diverge	< 100	Redispatch.
	MANTECA-MELONESSWSTA 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	107	< 100	< 100	Sensitivity only.
	MELONESSWSTA-MANTECA 115KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	107	< 100	< 100	Sensitivity only.
	AVENA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	< 100	< 100	107	< 100	< 100	Install redundant battery supply.
	FROGTOWN 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	< 100	< 100	107	< 100	< 100	Install redundant battery supply.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
	Q1461BESS 0.69KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	SUISUN 115/9.11KV TB 1 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	MANTECA-MELONESSWSTA 115KV and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Redispatch.
	RIPON 115KV - RING R3 & R2	P2	Breaker	141	138	114	173	158	< 100	183	173	138	Operating solution.
SCHULTE SW STA-KASSON-MANTECA 115KV	SCHULTE SW STA-LAMMERS 115KV and VIERRA-TESLA 115KV	P6	N-1-1	116	< 100	122	< 100	< 100	< 100	< 100	< 100	< 100	Mitigation under development.
	Q1690BESS 0.48KV GEN UNIT 1 and SCHULTE SW STA-LAMMERS 115KV	P3	G-1/N-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	TESLA-LEPRINO_JCT 115KV and SCHULTE SW STA-LAMMERS 115KV	P6	N-1-1	105	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	Mitigation under development.
SCHULTE-TESLA 115KV	VIERRA-TESLA 115KV and AEC_300_2-AEC_300-TESLA-SCHULTE 115KV	P6	N-1-1	< 100	< 100	< 100	116	< 100	< 100	< 100	< 100	< 100	Redispatch.
	STANISLAUSPH 13.80KV GEN UNIT 1 and AEC_300_2-AEC_300-TESLA-SCHULTE 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	Redispatch.
	SCHULTE 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	< 100	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	Redispatch.
SMARTVILLE-MARYSVILLE 60KV	E.MRYSVE-MRYSVLLE #1 60KV	P1	N-1	NA	102	102	NA	< 100	< 100	NA	NA	102	Mitigation under development.
	CORBY 0.48KV GEN UNIT 1 and COLGATE-SMARTVILLE #1 60KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	Redispatch.
	EAST NICOLAUS 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	145	< 100	< 100	100	< 100	< 100	181	100	< 100	Install redundant battery supply.
	PALERMO-PEASE 115KV and COLGTE1 230/60KV TB 3	P6	N-1-1	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	Redispatch.
	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	< 100	< 100	132	< 100	< 100	< 100	Install redundant relay.
SPAULDING-SUMMIT 60KV	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	< 100	102	< 100	< 100	< 100	116	< 100	< 100	100	project: Gold Hill-El Dorado Reinforcement
	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	< 100	102	< 100	< 100	< 100	116	< 100	< 100	100	project: Gold Hill-El Dorado Reinforcement
STAGG-HAMMER 60KV	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	< 100	175	< 100	< 100	< 100	< 100	< 100	< 100	176	project: Lockeford-Lodi Area 230 kV Development
	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	< 100	175	< 100	< 100	< 100	< 100	< 100	< 100	176	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	101	NA	NA	< 100	NA	NA	NA	114	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	< 100	125	NA	< 100	< 100	NA	< 100	< 100	128	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	< 100	125	NA	< 100	< 100	NA	< 100	< 100	128	project: Lockeford-Lodi Area 230 kV Development
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	< 100	100	NA	< 100	< 100	NA	< 100	< 100	115	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	114	Install redundant battery supply.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107	Sensitivity only.
	BELLOTA 230KV SECTION 2E	P2	Bus	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105	Sensitivity only.
	LOCKEFORD-BELLOTA 230KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105	Sensitivity only.
STANISLAUS-MANTECA #2 115KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant battery supply.
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Install redundant relay.
STCKTN A-WEBER E-HARDING-D 60KV	STCKNBIOMASS 13.80KV GEN UNIT 1 and STOCKTON A-WEBER #1 60KV	P3	G-1/N-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	100	continue to monitor.

2026-2027 ISO Reliability Assessment - Final Study Results
Study Area: PG&E Central Valley
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
STKTON A-BELLOTA-LOCKFORD 115KV	BELLOTA - 1D 115KV & BELLOTA-LOCKFORD-CAMANCHEPH LINE	P2	Breaker	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BELLOTA 115KV SECTION 1D	P2	Bus	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BELLOTA - 1D 115KV & BELLOTA-RIVERBANK LINE	P2	Breaker	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	Base Case	P0	Base Case	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
STOCKTON A-CHANNEL 60KV	STANISLAUSPH 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	Sensitivity only.
	STANISLAUSPH 115/13.8KV TB 1 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	Sensitivity only.
	STCKNBIOMASS 13.80KV GEN UNIT 1	P1	N-1	111	109	116	< 100	< 100	< 100	104	< 100	110	Mitigation under development.
STOCKTON A-LOCKEFORD-BELLOTA #2 115KV	BELLOTA - 1D 115KV & BELLOTA-RIVERBANK LINE	P2	Breaker	115	120	148	< 100	< 100	< 100	< 100	< 100	124	Operating solution.
	BELLOTA 115KV SECTION 1D	P2	Bus	116	120	148	< 100	< 100	< 100	< 100	< 100	124	Operating solution.
	BELLOTA - 1D 115KV & BELLOTA-LOCKFORD-CAMANCHEPH LINE	P2	Breaker	122	120	148	< 100	< 100	< 100	< 100	< 100	124	Operating solution.
STOCKTON A-WEBER #1 60KV	STCKNBIOMASS 13.80KV GEN UNIT 1 and STCKTN A-WEBER E-HARDING-D 60KV	P3	G-1/N-1	101	103	113	< 100	< 100	< 100	< 100	< 100	105	Operating solution.
SUTTER HOME SW STA-LOCKEFORD-LODI 60KV	LOCKEFORD-INDUSTRIAL 60KV	P1	N-1	102	117	NA	< 100	< 100	NA	< 100	< 100	120	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	< 100	NA	NA	< 100	NA	NA	NA	118	Sensitivity only.
	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	101	124	NA	< 100	< 100	NA	< 100	< 100	125	project: Lockeford-Lodi Area 230 kV Development
	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	100	124	NA	< 100	< 100	NA	< 100	< 100	125	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFRD-VICTOR-INDUSTRL 60KV	P1	N-1	< 100	106	NA	< 100	< 100	NA	< 100	< 100	110	project: Lockeford-Lodi Area 230 kV Development
	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	108	< 100	NA	< 100	< 100	NA	< 100	< 100	119	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-LODI #3 60KV	P1	N-1	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	105	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	108	100	< 100	< 100	< 100	< 100	< 100	< 100	119	Install redundant battery supply.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV SECTION 2E	P2	Bus	110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104	project: Lockeford-Lodi Area 230 kV Development
	LOCKEFORD-BELLOTA 230KV	P1	N-1	110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104	project: Lockeford-Lodi Area 230 kV Development
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	108	NA	< 100	< 100	NA	< 100	Diverge	Diverge	NA	project: Lockeford-Lodi Area 230 kV Development
TAMARACK-SUMMIT 60KV	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	< 100	< 100	< 100	< 100	< 100	111	< 100	< 100	< 100	Redispatch.
	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	< 100	< 100	< 100	< 100	< 100	111	< 100	< 100	< 100	Redispatch.
TESLA-LAWRENCE LAB 115KV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	< 100	< 100	< 100	318	162	< 100	Diverge	315	< 100	Redispatch.
TESLA-NEWARK #2 230KV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Tesla - Newark 230 kV Line No. 2 Reconductoring
	TESLA E 230KV SECTION 2E	P2	Bus	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Tesla - Newark 230 kV Line No. 2 Reconductoring
	TESLA E - 2E 230KV & STAGG-TESLA LINE	P2	Breaker	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Tesla - Newark 230 kV Line No. 2 Reconductoring
	TESLA-NEWARK #1 230KV & TESLA-RAVENSWOOD 230KV	P7	DCTL	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Tesla - Newark 230 kV Line No. 2 Reconductoring
	TESLA E SECTION 2E & TESLA D SECTION 2D 230KV	P2	Breaker	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	project: Tesla - Newark 230 kV Line No. 2 Reconductoring
TIGER CREEK-ELECTRA 230KV	VALLEY SPRINGS-BELLOTA 230KV and VLLY SPS 230/60KV TB 2	P6	N-1-1	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution.
	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	< 100	108	139	< 100	< 100	< 100	< 100	< 100	109	Operating solution.
	VALLEY SPRINGS-BELLOTA 230KV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100	Sensitivity only.
	BELLOTA - 2D 230KV & RANCHO SECO-BELLOTA #2 LINE	P2	Breaker	< 100	102	101	< 100	< 100	< 100	< 100	< 100	102	Operating solution.
	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	< 100	102	101	< 100	< 100	< 100	< 100	< 100	102	Operating solution.
	BELLOTA 230KV SECTION 2D	P2	Bus	< 100	102	101	< 100	< 100	< 100	< 100	< 100	102	Operating solution.
	VLLY SPS 230KV - RING R4 & R3	P2	Breaker	< 100	100	101	< 100	< 100	< 100	< 100	< 100	101	Operating solution.
VACA-BAHIA 230KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	112	Diverge	< 100	104	Diverge	Diverge	< 100	Install redundant battery supply.
VACA-DIXON E 230/115KV TB 2	VACA-DIXON E 230/115KV TB 3 and VACA-DIXON F 230/115KV TB 4	P6	N-1-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
VACA-DXN-DIXON-J1-TRAVIS 60KV	DIXON-VACA #2 60KV	P1	N-1	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
VACA-PARKWAY 230KV	Tulucay-Vaca 230 KV Line & Vaca-Lakeville #1 230 KV Line	P7	DCTL	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	TESLA 500KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	110	< 100	111	< 100	< 100	107	102	< 100	< 100	Install redundant battery supply.
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	107	< 100	128	Diverge	< 100	115	Diverge	Diverge	< 100	Install redundant battery supply.
VACA-SUISUN-JAMESON 115KV	VACA-VACAVILLE-JAMESON-NORTH TOWER 115KV and VACA-SUISUN 115KV	P6	N-1-1	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	101	continue to monitor.
VALLEY SPRINGS-CLAY 60KV	PRDESWS 60/7.2KV TB 1	P1	N-1	109	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Mitigation under development.
	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
VIERRA-BANTA #1 115KV	SCHULTE SW STA-KASSON-MANTECA 115KV and SCHULTE SW STA-LAMMERS 115KV	P6	N-1-1	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	SCHULTE SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
VLLY SPS 230/60KV TB 1	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
W.SCRMNO-DAVIS 115KV	BRIGHTN-W.SCRMNO 115KV and RIO OSO-WEST SACRAMENTO 115KV	P6	N-1-1	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	WOODLAND-DAVIS 115KV and BRIGHTON-DAVIS 115KV	P6	N-1-1	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	Rio Oso-West Sacramento 115 KV Line & West Sacramento-Brighton 115 KV Line	P7	DCTL	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
WEBER E-STCKTN A-SUMIDEN 60KV	STCKNBIOMASS 13.80KV GEN UNIT 1 and STCKTN A-WEBER E-HARDING-D 60KV	P3	G-1/N-1	116	119	133	< 100	< 100	< 100	< 100	< 100	122	Operating solution.
WEBER-FRENCH CAMP #2 60KV	WEBER-FRENCH CAMP #1 60KV	P1	N-1	151	< 100	< 100	< 100	< 100	115	117	< 100	< 100	project: French Camp Reinforcement
WEST POINT-VALLEY SPRINGS 60KV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
WOODLAND-DAVIS 115KV	BRIGHTON 230/115KV TB 10 and BRIGHTON 230/115KV TB 9	P6	N-1-1	< 100	< 100	129	< 100	< 100	< 100	< 100	< 100	102	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTON-BELLOTA 230KV and RIO OSO-BRIGHTON 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	Sensitivity only.
	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	< 100	100	134	< 100	< 100	< 100	< 100	< 100	102	Install redundant relay.
	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	< 100	100	134	< 100	< 100	< 100	< 100	< 100	102	Install redundant battery supply.
	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	< 100	Install redundant battery supply.
	BRIGHTN 115KV SECTION ME	P2	Bus	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	continue to monitor.

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2036 Summer-Off Peak	2036 Winter Off-Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
APPLE HL 115.0 kV	MISSOURI FLAT-GOLD HILL #2 115KV (GOLDHILL-SHPRING2)	P2	Line Section w/o Fault	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill-El Dorado Reinforcement
ATLANTC 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
DEL MAR 60.0 kV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	0.85	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution.
ATLANTC 230.0 kV	ATLANTIC-GOLD HILL 230KV and RIO OSO-ATLANTIC 230KV	P6	N-1-1	0.88	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution.
ATLANTI 60.0 kV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	0.88	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution.
ATLANTIC 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
LOCKFORD 230.0 kV	LOCKEFORD-BELLOTA 230KV and RIO OSO-LOCKEFORD 230KV	P6	N-1-1	> 0.9	0.22	> 0.9	> 0.9	0.42	> 0.9	> 0.9	> 0.9	0.23	project: Lockeford-Lodi Area 230 kV Development
BELL PGE 115.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
BELL PGE 115.0 kV	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	0.86	>0.9	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
BELL PGE 115.0 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.86	>0.9	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
BELL PGE 115.0 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.86	>0.9	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
BELL PGE 115.0 kV	GOLDHILL-PLACER-FLINT 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	0.88	> 0.9	0.55	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution.
BELL PGE 115.0 kV	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	0.86	>0.9	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution.
BELLOTA 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.90	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
BELLOTA 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
BRIGHTN 115.0 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	0.90	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Install redundant relay.
BRIGHTN 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	>0.9	0.90	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Install redundant battery supply.
BRIGHTN 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.71	0.62	>0.9	>0.9	>0.9	>0.9	>0.9	0.69	Install redundant battery supply.
LOCKFORD 230.0 kV	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	NA	0.23	>0.9	NA	0.44	>0.9	NA	NA	0.22	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	>0.9	0.23	>0.9	>0.9	0.44	>0.9	>0.9	>0.9	0.22	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	>0.9	0.23	>0.9	>0.9	0.43	>0.9	>0.9	>0.9	0.22	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	NA	0.23	>0.9	NA	0.43	>0.9	NA	NA	0.22	project: Lockeford-Lodi Area 230 kV Development
BRIGHTON 230.0 kV	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
BRIGHTON 230.0 kV	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
LODI 60.0 kV	LOCKEFORD-BELLOTA 230KV and RIO OSO-LOCKEFORD 230KV	P6	N-1-1	> 0.9	0.23	> 0.9	> 0.9	0.43	> 0.9	> 0.9	> 0.9	0.23	project: Lockeford-Lodi Area 230 kV Development
BRIGHTON 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.88	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
BRIGHTON 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.83	0.66	0.58	>0.9	>0.9	>0.9	>0.9	>0.9	0.64	Install redundant battery supply.
LOCKEFRD 60.0 kV	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	NA	0.26	>0.9	NA	0.46	>0.9	NA	NA	0.25	project: Lockeford-Lodi Area 230 kV Development
HALSEY 60.0 kV	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
LOCKEFRD 60.0 kV	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	>0.9	0.26	>0.9	>0.9	0.46	>0.9	>0.9	>0.9	0.25	project: Lockeford-Lodi Area 230 kV Development
PLACER 60.0 kV	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
STAGG-D 230.0 kV	EIGHT MILE ROAD-TESLA 230KV & STAGG-TESLA 230KV	P7	DCTL	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
EIGHT MI 230.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
CARBONA 60.0 kV	KASSON 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Install redundant relay.
WEBER 230.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
BRIGHTON 230.0 kV	RIO OSO 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
CLAY 60.0 kV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	>0.9	>0.9	0.62	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
BRIGHTON 230.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
WOODLAND 115.0 kV	Rio Oso-Woodland #1 115 KV Line & Rio Oso-Woodland #2 115 KV Line	P7	DCTL	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
LOCKFORD 230.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
LOCKEFRD 60.0 kV	LOCKEFORD-BELLOTA 230KV and RIO OSO-LOCKEFORD 230KV	P6	N-1-1	> 0.9	0.26	> 0.9	> 0.9	0.46	> 0.9	> 0.9	> 0.9	0.26	project: Lockeford-Lodi Area 230 kV Development
CNTRY CB 60.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	NA	0.38	0.32	NA	0.87	>0.9	NA	NA	0.37	Install redundant relay.
CNTRY CB 60.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.38	0.32	NA	0.87	>0.9	NA	NA	0.37	Install redundant relay.
CNTRY CB 60.0 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	0.47	0.39	NA	>0.9	>0.9	NA	NA	0.46	Install redundant battery supply.
BRIGHTON 230.0 kV	Rio Oso-Woodland #1 115 KV Line & Rio Oso-Woodland #2 115 KV Line	P7	DCTL	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
BRIGHTON 230.0 kV	Rio Oso-Woodland No. 1 115 KV Line & Rio Oso-Woodland No. 2 115 KV Line	P7	DCTL	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
DAVIS 115.0 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
DAVIS 115.0 kV	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
DAVIS 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
DAVIS 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
DAVIS 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.86	0.59	0.48	>0.9	>0.9	>0.9	>0.9	>0.9	0.57	Install redundant battery supply.
W.SCRMNO 115.0 kV	Rio Oso-West Sacramento 115 KV Line & West Sacramento-Brighton 115 KV Line	P7	DCTL	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
DAVIS 115.0 kV	Rio Oso-West Sacramento 115 KV Line & West Sacramento-Brighton 115 KV Line	P7	DCTL	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
MSHR 60V 60.0 kV	Brighton-Bellota 230 KV Line & Rio Oso-Lockeford 230 KV Line	P7	DCTL	>0.9	0.59	>0.9	>0.9	0.76	>0.9	>0.9	>0.9	0.58	project: Lockeford-Lodi Area 230 kV Development
WEIMAR 60.0 kV	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
CLAY 60.0 kV	VLLY SPS 230KV - RING R4 & R3	P2	Breaker	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
MSHR 60V 60.0 kV	RIO OSO-LOCKEFORD 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	>0.9	0.59	>0.9	>0.9	0.76	>0.9	>0.9	>0.9	0.58	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.60	0.75	0.81	>0.9	>0.9	>0.9	0.86	>0.9	0.69	Install redundant battery supply.
VLLY SPS 230.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
DAVIS 115.0 kV	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
LOCKFORD 230.0 kV	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	0.76	NA	NA	>0.9	NA	NA	NA	0.69	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	0.61	0.76	NA	>0.9	>0.9	NA	0.87	>0.9	0.69	project: Lockeford-Lodi Area 230 kV Development
DEL MAR 60.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
DEL MAR 60.0 kV	Base Case	P0	Base Case	0.95	1.03	1.01	1.02	1.03	1.04	1.00	1.02	1.02	Mitigation under development.
LOCKFORD 230.0 kV	BELLOTA 230KV SECTION 2E	P2	Bus	0.62	0.78	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	0.75	project: Lockeford-Lodi Area 230 kV Development
DAVIS 115.0 kV	BRIGHTN 115KV SECTION ME	P2	Bus	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
LOCKFORD 230.0 kV	LOCKEFORD-BELLOTA 230KV	P1	N-1	0.62	0.78	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	0.75	project: Lockeford-Lodi Area 230 kV Development
DAVIS 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
DRUMPH1 115.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
DAVIS 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
E.MRYSVE 115.0 kV	PALERMO-NICOLAUS 115KV RIO OSO-NICOLAUS 115KV	P6	N-1-1	0.59	> 0.9	0.83	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	project: East Marysville 115/60 kV Project. Continue to monitor long-term.
E.NICOLS 115.0 kV	PALERMO-NICOLAUS 115KV RIO OSO-NICOLAUS 115KV	P6	N-1-1	0.61	> 0.9	0.81	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	project: East Marysville 115/60 kV Project. Continue to monitor long-term.
E.NICOLS 115.0 kV	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	0.76	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: East Marysville 115/60 kV Project. Continue to monitor long-term.
E.NICOLS 60.0 kV	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: East Marysville 115/60 kV Project.
E.NICOLS 60.0 kV	PALERMO-NICOLAUS 115KV RIO OSO-NICOLAUS 115KV	P6	N-1-1	0.70	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	project: East Marysville 115/60 kV Project.
EIGHT MI 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.89	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
DAVIS 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
ELDORAD 115.0 kV	MISSOURI FLAT-GOLD HILL #2 115KV (GOLDHILL-SHPRING2)	P2	Line Section w/o Fault	0.86	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	project: Gold Hill-El Dorado Reinforcement
ELDORAD 115.0 kV	GOLDHILL 115KV SECTION 1G	P2	Bus	NA	0.90	>0.9	NA	>0.9	>0.9	NA	NA	0.88	project: Gold Hill-El Dorado Reinforcement
ELDORAD 115.0 kV	GOLDHILL 115KV - SECTION 1F & 1G	P2	Breaker	NA	0.89	NA	NA	>0.9	NA	NA	NA	0.88	project: Gold Hill-El Dorado Reinforcement
ELDORAD 115.0 kV	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	0.90	NA	NA	>0.9	NA	NA	NA	0.88	project: Gold Hill-El Dorado Reinforcement
LOCKFORD 230.0 kV	Base Case	P0	Base Case	0.95	0.95	0.94	1.00	1.00	1.00	0.97	1.00	0.94	continue to monitor.
DAVIS 115.0 kV	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
ELECTRA 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.90	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
ELECTRA 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Install redundant battery supply.
GOLDHILL 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.90	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
GOLDHILL 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
DAVIS 115.0 kV	Rio Oso-Woodland #1 115 KV Line & Rio Oso-Woodland #2 115 KV Line	P7	DCTL	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
GRAND IS 115.0 kV	BRIGHTON 230/115KV TB 10 and BRIGHTON 230/115KV TB 9	P6	N-1-1	> 0.9	0.89	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	>0.9	Operating solution.
GRAND IS 115.0 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	0.88	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Install redundant relay.
GRAND IS 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	>0.9	0.88	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Install redundant battery supply.
GRAND IS 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.68	0.60	>0.9	>0.9	>0.9	>0.9	>0.9	0.67	Install redundant battery supply.
DAVIS 115.0 kV	Rio Oso-Woodland No. 1 115 KV Line & Rio Oso-Woodland No. 2 115 KV Line	P7	DCTL	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
HALSEY 60.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
HALSEY 60.0 kV	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
HALSEY 60.0 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
HALSEY 60.0 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
WEBER 230.0 kV	Base Case	P0	Base Case	0.96	0.97	0.95	1.00	0.99	1.00	0.96	1.00	0.96	continue to monitor.
HAMMER 60.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	NA	0.38	0.32	NA	0.88	>0.9	NA	NA	0.37	Install redundant relay.
HAMMER 60.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.38	0.32	NA	0.88	>0.9	NA	NA	0.37	Install redundant relay.
HAMMER 60.0 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	0.47	0.40	NA	>0.9	>0.9	NA	NA	0.46	Install redundant battery supply.
ATLANTC 230.0 kV	Base Case	P0	Base Case	0.96	0.98	0.94	1.00	1.02	1.03	0.99	1.00	0.98	continue to monitor.
HIGGINS 115.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.61	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
HIGGINS 115.0 kV	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	0.89	>0.9	0.60	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2036 Summer-Off Peak	2036 Winter Off-Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
HIGGINS 115.0 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.89	>0.9	0.60	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
HIGGINS 115.0 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	>0.9	0.60	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
HIGGINS 115.0 kV	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	0.89	>0.9	0.60	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution.
HORSESHE 115.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.51	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
KASSON 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.84	>0.9	Redispatch.
LAMMERS 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.85	>0.9	Redispatch.
LEPRINO 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.84	>0.9	Redispatch.
GOLDHILL 230.0 kV	Base Case	P0	Base Case	0.96	0.98	0.94	1.00	1.02	1.03	0.99	1.00	0.98	continue to monitor.
LOCKFORD 230.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	0.61	0.78	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	0.74	project: Lockeford-Lodi Area 230 kV Development
LINCLN 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
LIVNGSTN 115.0 kV	MELONES-WILSON 230KV & WARNERVILLE-WILSON 230KV	P7	DCTL	>0.9	>0.9	NA	0.90	>0.9	NA	>0.9	>0.9	>0.9	Redispatch.
LODI 60.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.56	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	Install redundant battery supply.
LODI 60.0 kV	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	0.78	NA	NA	>0.9	NA	NA	NA	0.68	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	0.57	0.79	NA	>0.9	>0.9	NA	>0.9	>0.9	0.68	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	BELLOTA 230KV SECTION 2E	P2	Bus	0.58	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.77	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	0.59	0.65	NA	NA	>0.9	NA	0.64	>0.9	0.64	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	0.59	0.65	NA	>0.9	>0.9	NA	0.64	>0.9	0.64	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	LOCKEFORD-BELLOTA 230KV	P1	N-1	0.58	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.77	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	0.57	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.63	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.75	Install redundant battery supply.
LOCKEFRD 60.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Install redundant relay.
LOCKEFRD 60.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Install redundant relay.
LOCKEFRD 60.0 kV	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	0.84	NA	NA	>0.9	NA	NA	NA	0.75	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	0.63	0.85	NA	>0.9	>0.9	NA	>0.9	>0.9	0.74	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	BELLOTA 230KV SECTION 2E	P2	Bus	0.64	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	LOCKEFORD-BELLOTA 230KV	P1	N-1	0.64	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	0.63	0.66	NA	>0.9	>0.9	NA	0.67	>0.9	0.66	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	0.63	0.66	NA	>0.9	>0.9	NA	0.67	>0.9	0.66	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	0.64	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.81	project: Lockeford-Lodi Area 230 kV Development
VLLY SPS 230.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	>0.9	0.88	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Operating solution.
VLLY SPS 230.0 kV	BELLOTA - 2D 230KV & RANCHO SECO-BELLOTA #2 LINE	P2	Breaker	>0.9	0.88	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Operating solution.
VLLY SPS 230.0 kV	BELLOTA 230KV SECTION 2D	P2	Bus	>0.9	0.88	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Operating solution.
VLLY SPS 230.0 kV	RIO OSO-BRIGHTON 230KV and VALLEY SPRINGS-BELLOTA 230KV	P6	N-1-1	> 0.9	0.89	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	>0.9	Operating solution.
BRIGHTON 230.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.87	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
BRIGHTON 230.0 kV	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	0.87	>0.9	NA	>0.9	>0.9	NA	>0.9	>0.9	>0.9	project: Lockeford-Lodi Area 230 kV Development
RIO OSO 230.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
STKTON A 115.0 kV	BELLOTA - 1D 115KV & BELLOTA-LOCKFORD-CAMANCHEPH LINE	P2	Breaker	0.90	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution.
LOCKFORD 230.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Install redundant relay.
LOCKFORD 230.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Install redundant relay.
LOCKFORD 230.0 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Install redundant battery supply.
STKTON A 115.0 kV	BELLOTA 115KV SECTION 1D	P2	Bus	0.90	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution.
LOCKFORD 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.89	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
LOCKFORD 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.88	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Install redundant battery supply.
DEL MAR 60.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
LOCKFORD 230.0 kV	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	project: Lockeford-Lodi Area 230 kV Development
DEL MAR 60.0 kV	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	0.89	>0.9	NA	>0.9	>0.9	NA	>0.9	>0.9	>0.9	Mitigation under development.
DEL MAR 60.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Mitigation under development.
W.SCRMNO 115.0 kV	BRIGHTN 115KV SECTION ME	P2	Bus	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
LODI 60.0 kV	YCEC 13.80KV GEN UNIT 1 and LOCKEFORD-BELLOTA 230KV	P3	G-1/N-1	0.57	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.79	project: Lockeford-Lodi Area 230 kV Development
LOCKFORD 230.0 kV	YCEC 13.80KV GEN UNIT 1 and LOCKEFORD-BELLOTA 230KV	P3	G-1/N-1	0.61	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.78	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	YCEC 13.80KV GEN UNIT 1 and LOCKEFORD-BELLOTA 230KV	P3	G-1/N-1	0.64	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.83	project: Mosher Transmission Project
CLAY 60.0 kV	BRIGHTN-W.SCRMNO 115KV and VALLEY SPRINGS-BELLOTA 230KV	P6	N-1-1	0.79	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.88	Mitigation under development.
LODI 60.0 kV	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	0.53	0.57	NA	>0.9	>0.9	NA	0.58	>0.9	0.56	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	0.52	0.57	NA	>0.9	>0.9	NA	0.58	>0.9	0.56	project: Lockeford-Lodi Area 230 kV Development
DEL MAR 60.0 kV	RBROCKLIN 12.47KV GEN UNIT 1 and LOCKEFORD-BELLOTA 230KV	P3	G-1/N-1	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	project: Lockeford-Lodi Area 230 kV Development
LODI 60.0 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	project: Lockeford-Lodi Area 230 kV Development
RIO OSO 230.0 kV	LOCKEFORD-BELLOTA 230KV and BRIGHTON-BELLOTA 230KV	P6	N-1-1	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Project: Table Mountain Second 500/230 kV Transformer
LODI 60.0 kV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	0.57	NA	>0.9	Diverge	NA	>0.9	Diverge	Diverge	NA	project: Mosher Transmission Project
LODI 60.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	Install redundant relay.
LODI 60.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.84	Install redundant relay.
LODI 60.0 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	Install redundant battery supply.
LOCKFORD 230.0 kV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	0.61	NA	0.81	Diverge	NA	>0.9	Diverge	Diverge	NA	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	0.63	NA	>0.9	Diverge	NA	>0.9	Diverge	Diverge	NA	project: Mosher Transmission Project
BRIGHTON 230.0 kV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	0.88	NA	0.85	Diverge	NA	>0.9	Diverge	Diverge	NA	Operating solution.
LODI 60.0 kV	EIGHT MILE ROAD-STAGG 230KV & STAGG-TESLA 230KV	P7	DCTL	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	project: Lockeford-Lodi Area 230 kV Development
DEL MAR 60.0 kV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	0.89	NA	>0.9	Diverge	NA	>0.9	Diverge	Diverge	NA	Colgate station restoration.
MANTECA 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.85	>0.9	Redispatch.
MOSSLAND 500.0 kV	Base Case	P0	Base Case	1.05	1.07	1.06	1.05	1.06	1.06	1.03	1.04	1.07	Sensitivity only.
MRYSVLLE 60.0 kV	PALERMO-NICOLAUS 115KV RIO OSO-NICOLAUS 115KV	P6	N-1-1	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	project: East Marysville 115/60 kV Project.
W.SCRMNO 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
W.SCRMNO 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
MSHR 60V 60.0 kV	LOCKFORD 230KV - RING R3 & R4	P2	Breaker	>0.9	0.82	NA	>0.9	>0.9	NA	>0.9	>0.9	0.82	project: Lockeford-Lodi Area 230 kV Development
MSHR 60V 60.0 kV	LOCKFORD 230KV - RING R3 & R2	P2	Breaker	>0.9	0.82	NA	>0.9	>0.9	NA	>0.9	>0.9	0.82	project: Lockeford-Lodi Area 230 kV Development
STKTON A 115.0 kV	BELLOTA - 1D 115KV & BELLOTA-RIVERBANK LINE	P2	Breaker	>0.9	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
MSHR 60V 60.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Mosher Transmission Project
MSHR 60V 60.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	NA	0.45	0.45	NA	>0.9	>0.9	NA	NA	0.44	Install redundant relay.
MSHR 60V 60.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.45	0.45	NA	>0.9	>0.9	NA	NA	0.44	Install redundant relay.
MSHR 60V 60.0 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	0.51	0.50	NA	>0.9	>0.9	NA	NA	0.50	Install redundant battery supply.
CLAY 60.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
MSHR 60V 60.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	>0.9	>0.9	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
CLAY 60.0 kV	BELLOTA - 2D 230KV & RANCHO SECO-BELLOTA #2 LINE	P2	Breaker	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
CLAY 60.0 kV	BELLOTA 230KV SECTION 2D	P2	Bus	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
VLLY SPS 230.0 kV	VALLEY SPRINGS-BELLOTA 230KV	P1	N-1	>0.9	0.90	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Operating solution.
PLACER 115.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
PLACER 115.0 kV	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	0.86	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
PLACER 115.0 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.86	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
PLACER 115.0 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.85	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
PLACER 115.0 kV	GOLDHILL-PLACER-FLINT 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	0.87	> 0.9	0.54	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution.
PLACER 115.0 kV	Placer-Gold Hill No. 1 115 KV Line and Placer-Gold Hill No. 2 115 KV Line	P7	DCTL	0.85	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Operating solution.
VLLY SPS 230.0 kV	Base Case	P0	Base Case	0.97	0.96	0.94	1.00	1.01	1.00	0.98	1.00	0.95	continue to monitor.
PLACER 60.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
PLACER 60.0 kV	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
PLACER 60.0 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
PLACER 60.0 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
W.SCRMNO 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
W.SCRMNO 115.0 kV	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
PLSNT GR 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
RIO OSO 230.0 kV	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
TIGERCREEK 230.0 kV	BELLOTA 230KV - SECTION 2E & 2D	P2	Breaker	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
W.SCRMNO 115.0 kV	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
RIPON 115.0 kV	DONNELLS 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	Sensitivity only.
RIPON 115.0 kV	MANTECA-RIPON 115KV and MI-WUK-CURTIS 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	Sensitivity only.
RIPON 115.0 kV	MANTECA-RIPON 115KV	P1	N-1	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.86	Diverge	>0.9	Sensitivity only.
RIPON 115.0 kV	RIPON-MANTECA 115KV (RIPONJCT2-MANTECA)	P2	Line Section w/o Fault	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.86	Diverge	>0.9	Sensitivity only.
RIPON 115.0 kV	RIPONJCT2-RIPON 115KV NO FAULT	P2	Line Section w/o Fault	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.86	Diverge	>0.9	Sensitivity only.
RIPON 115.0 kV	MANTECA 115KV - RING R4 & R5	P2	Breaker	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.88	Diverge	>0.9	Sensitivity only.
RIPON 115.0 kV	MANTECA 115KV - RING R6 & R5	P2	Breaker	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.87	Diverge	>0.9	Sensitivity only.
RIPON 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.85	>0.9	Redispatch.
SALADO 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.85	>0.9	Redispatch.
SCHULTE 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.85	>0.9	Redispatch.
SHWSS 60.0 kV	STUCK BREAKER & NO BF RELAY STAGG 230 KV CB252	P5	Non-Redundant Battery/Relay	NA	0.35	0.29	NA	0.84	0.89	NA	NA	0.34	Install redundant relay.
SHWSS 60.0 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.35	0.29	NA	0.84	0.89	NA	NA	0.34	Install redundant relay.

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2036 Summer-Off Peak	2036 Winter Off-Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
SMRTSVLE 60.0 kV	PALERMO-NICOLAUS 115KV RIO OSO-NICOLAUS 115KV	P6	N-1-1	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	project: East Marysville 115/60 kV Project
STAGG-D 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.88	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
WOODLAND 115.0 kV	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
STAGG-D 230.0 kV	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	0.89	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Mitigation under development.
TIGERCREEK 230.0 kV	BELLOTA - 2D 230KV & RANCHO SECO-BELLOTA #2 LINE	P2	Breaker	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
WOODLAND 115.0 kV	BRIGHTN 115KV SECTION ME	P2	Bus	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
WOODLAND 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
TESLA 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.86	>0.9	>0.9	Diverge	0.86	>0.9	Redispatch.
WOODLAND 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
TIGERCREEK 230.0 kV	VLLY SPS 230KV - RING R4 & R3	P2	Breaker	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
WOODLAND 115.0 kV	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
WOODLAND 115.0 kV	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
ELECTRA 230.0 kV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
TIGERCREEK 230.0 kV	Base Case	P0	Base Case	0.98	0.96	0.95	1.01	1.01	1.01	0.99	1.01	0.96	continue to monitor.
VLLY SPS 60.0 kV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	>0.9	>0.9	0.72	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
ATLANTIC 115.0 kV	ATLANTIC-GOLD HILL 230KV and RIO OSO-ATLANTIC 230KV	P6	N-1-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
TIGERCREEK 230.0 kV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	>0.9	0.89	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Operating solution.
TIGERCREEK 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.90	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
TIGERCREEK 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.90	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Install redundant battery supply.
TRACY 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.84	>0.9	>0.9	Diverge	0.84	>0.9	Redispatch.
VALLEYHOME 115.0 kV	DONNELLS 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	Sensitivity only.
VALLEYHOME 115.0 kV	MANTECA-RIPON 115KV and MI-WUK-CURTIS 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	Sensitivity only.
VALLEYHOME 115.0 kV	MANTECA-RIPON 115KV	P1	N-1	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.88	Diverge	>0.9	Sensitivity only.
VALLEYHOME 115.0 kV	RIPON-MANTECA 115KV (RIPONJCT2-MANTECA)	P2	Line Section w/o Fault	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.88	Diverge	>0.9	Sensitivity only.
VALLEYHOME 115.0 kV	RIPONJCT2-RIPON 115KV NO FAULT	P2	Line Section w/o Fault	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.88	Diverge	>0.9	Sensitivity only.
VALLEYHOME 115.0 kV	MANTECA 115KV - RING R4 & R5	P2	Breaker	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.89	Diverge	>0.9	Sensitivity only.
VALLEYHOME 115.0 kV	MANTECA 115KV - RING R6 & R5	P2	Breaker	>0.9	>0.9	>0.9	Diverge	>0.9	>0.9	0.88	Diverge	>0.9	Sensitivity only.
VALLEYHOME 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.88	>0.9	>0.9	Diverge	0.87	>0.9	Redispatch.
VIERRA 115.0 kV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Diverge	0.84	>0.9	Redispatch.
BRIGHTN 115.0 kV	BRIGHTON 230/115KV TB 10 and BRIGHTON 230/115KV TB 9	P6	N-1-1	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	>0.9	continue to monitor.
BRIGHTON 230.0 kV	RIO OSO-BRIGHTON 230KV and BRIGHTON-LOCKFORD 230KV	P6	N-1-1	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
BRIGHTON 230.0 kV	Base Case	P0	Base Case	> 0.9	> 0.9	0.93	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
TIGERCREEK 230.0 kV	BELLOTA 230KV SECTION 2D	P2	Bus	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
MSHR 60V 60.0 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Install redundant battery supply.
MSHR 60V 60.0 kV	BRIGHTON-BELLOTA 230KV & LOCKEFORD-BELLOTA 230KV	P7	DCTL	>0.9	>0.9	NA	>0.9	>0.9	NA	>0.9	>0.9	0.87	Sensitivity only.
TIGERCREEK 230.0 kV	VALLEY SPRINGS-BELLOTA 230KV	P1	N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor.
VLLY SPS 230.0 kV	VLLY SPS 230KV - RING R4 & R3	P2	Breaker	>0.9	0.89	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Operating solution.
VLLY SPS 230.0 kV	VLLY SPS 230KV - RING R1 & R4	P2	Breaker	>0.9	0.86	0.75	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	Operating solution.
CLAY 60.0 kV	PRDE 1-3 7.20KV GEN UNIT 1 and VALLEY SPRINGS-BELLOTA 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
VLLY SPS 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.89	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
VLLY SPS 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	0.90	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Install redundant battery supply.
ELECTRA 230.0 kV	RIO OSO-BRIGHTON 230KV and VALLEY SPRINGS-BELLOTA 230KV	P6	N-1-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
DAVIS 115.0 kV	BRIGHTON-DAVIS 115KV BRIGHTN-W.SCRMNO 115KV	P6	N-1-1	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
TIGERCREEK 230.0 kV	RIO OSO-BRIGHTON 230KV and VALLEY SPRINGS-BELLOTA 230KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
HALSEY 60.0 kV	GOLDHILL-PLACER-FLINT 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.54	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
HIGGINS 115.0 kV	GOLDHILL-PLACER-FLINT 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.60	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
LINCLN 115.0 kV	RBROCKLIN 12.47KV GEN UNIT 1 and RIO OSO-LINCLN-SPILINCOLN 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
LINCLN 115.0 kV	RIO OSO-LINCLN-SPILINCOLN 115KV and RIO OSO-ATLANTIC 230KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
MSHR 60V 60.0 kV	Q1109BESS 34.50KV GEN UNIT 1 and HAMMER-COUNTRY CLUB 60KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
PLACER 60.0 kV	GOLDHILL-PLACER-FLINT 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.54	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
W.SCRMNO 115.0 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
W.SCRMNO 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
W.SCRMNO 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
W.SCRMNO 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	0.63	0.52	>0.9	>0.9	>0.9	>0.9	>0.9	0.61	Install redundant battery supply.
PLSNT GR 115.0 kV	ATLANTIC-GOLD HILL 230KV and RIO OSO-ATLANTIC 230KV	P6	N-1-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
TIGERCREEK 230.0 kV	SALT SPS 11.00KV GEN UNIT 2 and VALLEY SPRINGS-BELLOTA 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
VLLY SPS 230.0 kV	SALT SPS 11.00KV GEN UNIT 2 and VALLEY SPRINGS-BELLOTA 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
WEBER 230.0 kV	WEBER-TESLA 230KV and BELLOTA-TESLA #2 230KV (2)	P6	N-1-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
W.SCRMNO 115.0 kV	BRIGHTON-DAVIS 115KV BRIGHTN-W.SCRMNO 115KV	P6	N-1-1	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
WEBER 230.0 kV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.87	Diverge	>0.9	>0.9	Diverge	Diverge	>0.9	Install redundant battery supply.
WEBER 230.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
WEBER 230.0 kV	STCKNBIOMASS 13.80KV GEN UNIT 1 and WEBER-TESLA 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
MSHR 60V 60.0 kV	BELLOTA 230KV - SECTION 2E & 1E	P2	Breaker	NA	>0.9	NA	NA	>0.9	NA	NA	NA	0.87	Sensitivity only.
WEIMAR 60.0 kV	ROLLINSPH 6.60KV GEN UNIT 1 and DRUMPH1 115/115KV TB 1	P3	G-1/N-1	0.83	0.87	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	>0.9	Operating solution.
WEIMAR 60.0 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	project: Gold Hill 230/115 kV Transformer Addition Project
WEIMAR 60.0 kV	STUCK BREAKER & NO BF RELAY GOLD HILL 115KV CB 172 OR 392	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
WEIMAR 60.0 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
WEIMAR 60.0 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
WEIMAR 60.0 kV	RIO OSO-BRIGHTON 230KV and DRUMPH1 115/115KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
WOODLAND 115.0 kV	BRIGHTON-DAVIS 115KV BRIGHTN-W.SCRMNO 115KV	P6	N-1-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	continue to monitor.
BRIGHTON 230.0 kV	LOCKEFORD-BELLOTA 230KV #1 & LOCKEFORD-BELLOTA 230KV #2	P7	DCTL	NA	NA	0.85	NA	NA	>0.9	NA	NA	NA	continue to monitor.
COLGATE 230.0 kV	Palermo-Colgate 230 KV Line & Colgate-Rio Oso 230 KV Line	P7	DCTL	NA	>0.9	0.90	NA	>0.9	>0.9	NA	NA	>0.9	continue to monitor.
E.MRYSVE 115.0 kV	PALERMO-NICOLAUS 115KV (E.MRYSVE-E.MRY J2)	P2	Line Section w/o Fault	NA	>0.9	0.88	NA	>0.9	>0.9	NA	NA	>0.9	continue to monitor.
LOCKFORD 230.0 kV	LOCKEFORD-BELLOTA 230KV #1 & LOCKEFORD-BELLOTA 230KV #2	P7	DCTL	NA	NA	0.80	NA	NA	>0.9	NA	NA	NA	continue to monitor.
MSHR 60V 60.0 kV	HAMMER-COUNTRY CLUB 60KV	P1	N-1	NA	>0.9	0.89	NA	>0.9	>0.9	NA	NA	>0.9	continue to monitor.
WEBER 230.0 kV	WEBER-TESLA 230KV & French CAMP-TESLA #2 230KV	P7	DCTL	NA	>0.9	0.89	NA	>0.9	>0.9	NA	NA	>0.9	continue to monitor.
WOODLAND 115.0 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant relay.
WOODLAND 115.0 kV	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
WOODLAND 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
WOODLAND 115.0 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Install redundant battery supply.
WOODLAND 115.0 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.85	0.58	0.46	>0.9	>0.9	>0.9	>0.9	>0.9	0.55	Install redundant battery supply.

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
LODI 60.0 kV	LOCKEFORD-BELLOTA 230KV	P1	N-1	42	18	< 8	< 8	< 8	< 8	< 8	< 8	22	project: Lockeford-Lodi Area 230 kV Development
MSHR 60V 60.0 kV	HAMMER-COUNTRY CLUB 60KV	P1	N-1	NA	< 8	9	NA	< 8	< 8	NA	NA	9	continue to monitor.
VALLEYHOME 115.0 kV	MANTECA-RIPON 115KV	P1	N-1	< 8	< 8	< 8	Diverge	< 8	< 8	12	Diverge	< 8	Off-peak/sensitivity only.
RIPON 115.0 kV	MANTECA-RIPON 115KV	P1	N-1	< 8	< 8	< 8	Diverge	< 8	< 8	13	Diverge	< 8	Off-peak/sensitivity only.
LOCKFORD 230.0 kV	LOCKEFORD-BELLOTA 230KV	P1	N-1	34	17	< 8	< 8	< 8	< 8	10	< 8	19	project: Lockeford-Lodi Area 230 kV Development
LOCKEFRD 60.0 kV	LOCKEFORD-BELLOTA 230KV	P1	N-1	39	17	< 8	< 8	< 8	< 8	< 8	< 8	20	project: Lockeford-Lodi Area 230 kV Development

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2028 Spring Off-Peak	2031 Summer Peak	2036 Summer Peak	2036 Summer-Off Peak	2028 Spring OP Sensitivity	2031 SP High CEC Forecast	
P1-2_ CTL-MEL-230-1	P1	N-1	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Project: Borden-Storey reconductoring
P1-2_8MI-LODI-230-1	P1	N-1	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Project: Borden-Storey reconductoring
P1-2_TBM-RIO-230-1	P1	N-1	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Project: Borden-Storey reconductoring
P1-3_TES_500-230-2	P1	N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	Mitigation under review with PTO
P1-3_TES_500-230-6	P1	N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	Mitigation under review with PTO
P1-4_ BEL-230-r	P1	N-1	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	project: Lockeford-Lodi Area 230 kV Development
P2-2_BEL-230-1E	P2	Bus/Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	project: Lockeford-Lodi Area 230 kV Development
P2-4_BEL-230-CB-400	P2	Bus/Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	project: Lockeford-Lodi Area 230 kV Development
P2-4_TES-230-CB-202	P2	Bus/Breaker	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	project: Lockeford-Lodi Area 230 kV Development
P3-3 - Gen HIGHWINDS 0.69 kV unit 1 and Tran TESLA 500/230 kV bk 2	P3	N-1/G-1	No Issues	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
P3-4 - Gen GWFTRACY (3 units) and RIO OSO 230 kV SVC id v	P3	N-1/G-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	project: Gold Hill-El Dorado Reinforcement
P3-4_GWFT_1-3_RIO_v	P3	N-1/G-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	project: Gold Hill-El Dorado Reinforcement
P4-4 - Stuck Breaker 492 protecting SVD VACA-DIX 230 kV id v	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Sensitivity only
P5-3d_DC_RIO_230-115-1_RIO-230-CB-272f	P5	Non-Redundant Battery/Relay	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Install redundant battery
P5-4 - Failure of non-redundant relay protecting RIO OSO 230 kV SVC id v	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	No Issues	Install redundant relay
P5-4 - Failure of non-redundant relay protecting RIO OSO 230 kV SVC id v	P5	Non-Redundant Battery/Relay	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Install redundant relay
P5-4d_DC_GHL-115-v_GHL-115-CB-392f	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Install redundant battery
P5-5_DC_RIO-230	P5	Non-Redundant Battery/Relay	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	continue to monitor
P5-5a_RLY_TES-230	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Install redundant relay
P5-5c_DC_BEL-230	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Install redundant battery
P6-1_LKF-BEL-230-1_RIO-LKF-230-1	P6	N-1/N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	project: Lockeford-Lodi Area 230 kV Development
P6-2_BEL-230-115-2_BEL-230-115-1	P6	N-1/N-1	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	project: Lockeford-Lodi Area 230 kV Development
P6-2_BEL-230-115-2_BEL-230-115-1_wRAS	P6	N-1/N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	project: Lockeford-Lodi Area 230 kV Development
P6-3_RIO_v_LKF-BEL-230-1	P6	N-1/N-1	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	project: Lockeford-Lodi Area 230 kV Development
P7-1_HSR-F_RIO-BRI-230-1_RIO-LKF-230-1	P7	DCTL	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Project: Borden-Storey reconductoring

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)														Potential Mitigation Solutions
			2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2041 Summer Peak	2028 Winter Peak	2031 Winter Peak	2041 Winter Peak	2028 Spring Off-Peak	2036 Summer-Off Peak	2036 Winter Off-Peak	2041 Greater Bay area Summer Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	

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

Substation	Load Served (MW)									Potential Mitigation Solutions
	2028 Summer Peak	2031 Summer Peak	2036 Summer Peak	2028 Spring Off-Peak	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
CLRKSVLE 115.0 kV	101.62	111.18	130.43	70	-45.47	2.01	9.68	70	113.59	Close line to Missouri Flat-Gold Hill #1 115 kV