2026-2027 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
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	
AIRWAYS2-SANGER-LASPALMAS-MANCHSTR 115KV	BARTON-AIRWAYS-SANGER 115KV	P1	N-1	<100	<100	<100	104	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV	P1	N-1	<100	<100	<100	103	<100	<100	<100	<100	<100	Generation re-dispatch
	AIRWAYS1 115KV - RING R4 & R5 (2)	P2	Breaker	<100	<100	<100	104	<100	<100	<100	<100	<100	Generation re-dispatch
	AIRWAYS1 115KV - RING R4 & R5	P2	Breaker	<100	<100	<100	104	<100	<100	<100	<100	<100	Generation re-dispatch
	BARTON - 1F 115KV & BARTON-AIRWAYS-SANGER LINE	P2	Breaker	<100	<100	<100	103	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (MCMULLN1-KEARNEY)	P2	Line Section w/o Fault	<100	<100	<100	103	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (TRANQLTYSS-MCMULLN1)	P2	Line Section w/o Fault	<100	<100	<100	104	<100	<100	<100	<100	<100	Generation re-dispatch
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	115	<100	<100	<100	<100	<100	<100	Continue to monitor
	Barton 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	100	<100	<100	<100	<100	<100	Add redundant battery
	BARTON 115KV CB 162 (STUCK BREAKER & NO BF RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	<100	100	<100	<100	<100	<100	<100	Add redundant relay
	Mcmullin 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	103	<100	<100	<100	<100	<100	Add redundant battery
	WOODWARD-SHEPHERD 115KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	Sensitivity only
	WARNERVILLE-WILSON 230KV and TRANQUILLITY SW STA-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	< 100	< 100	< 100	124	< 100	< 100	< 100	112	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	117	< 100	Generation re-dispatch
ATWATER-LIVINGSTON-MERCED 115KV	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Add redundant relay
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	<100	<100	<100	<100	<100	Diverge	Add redundant battery
BARTON-AIRWAYS-SANGER 115KV	AIRWAYS2-SANGER-LASPALMAS-MANCHSTR 115KV	P1	N-1	<100	<100	<100	107	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV	P1	N-1	<100	<100	<100	109	<100	<100	<100	<100	<100	Generation re-dispatch
	HERNDON-KEARNEY 230KV	P1	N-1	<100	<100	<100	105	<100	<100	<100	<100	<100	Generation re-dispatch
	LASPALMASJCT 115KV - RING R1 & R3	P2	Breaker	<100	<100	NA	107	<100	NA	<100	<100	<100	Generation re-dispatch
	AIRWAYS2 115KV - RING R1 & R2	P2	Breaker	<100	<100	<100	107	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (MCMULLN1-KEARNEY)	P2	Line Section w/o Fault	<100	<100	<100	109	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (TRANQLTYSS-MCMULLN1)	P2	Line Section w/o Fault	<100	<100	<100	110	<100	<100	<100	101	<100	Generation re-dispatch
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	<100	<100	109	<100	<100	<100	<100	<100	Generation re-dispatch
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	117	<100	<100	<100	<100	<100	<100	Continue to monitor
	Las Palmas 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	107	<100	<100	<100	<100	<100	Add redundant battery
	Manchester 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	102	<100	<100	<100	<100	<100	Add redundant battery
	Mcmullin 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	109	<100	<100	<100	<100	<100	Add redundant battery
	Kearney 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	105	<100	<100	<100	<100	<100	Add redundant battery
	WARNERVILLE-WILSON 230KV and TRANQUILLITY SW STA-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	Diverge	< 100	Sensitivity only
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	< 100	< 100	< 100	133	< 100	< 100	105	123	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	104	128	< 100	Generation re-dispatch
BORDEN 230/70KV TB 1	MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE and BORDEN 230/70KV TB 4	P6	N-1-1	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Borden Transformer upgrade project
BORDEN-COPPERMINE 70KV	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	Diverge	Diverge	Diverge	187	< 100	< 100	< 100	< 100	Diverge	Summer setup
	HERNDON 115KV - SECTION 1D & 2D	P2	Breaker	104	<100	<100	<100	<100	<100	<100	<100	<100	Project:Coppermine 70kV reinforcement
	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	Diverge	Diverge	Diverge	120	< 100	< 100	< 100	< 100	Diverge	Summer setup
	HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	103	<100	<100	<100	<100	<100	<100	<100	<100	Add redundant relay
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	<100	Diverge	Diverge	<100	<100	<100	<100	<100	Add redundant relay
	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	<100	<100	<100	<100	Diverge	Add redundant battery
CALIFORNIA AVE-MCCALL 115KV	MCCALL-WEST FRESNO #2 115KV and SANGER-CALIFORNIA AVE 115KV	P6	N-1-1	< 100	103	126	< 100	< 100	< 100	< 100	< 100	109	Operating solution
	SANGER-CALIFORNIA AVE 115KV and MCCALL-WEST FRESNO #2 115KV	P6	N-1-1	< 100	101	120	< 100	< 100	< 100	< 100	< 100	107	Operating solution
CHOWCHILLA-KERCKHOFF 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and WILSON-LE GRAND 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	121	< 100	Sensitivity only
	HERNDON-KEARNEY 230KV and WILSON-LE GRAND 115KV	P6	N-1-1	< 100	< 100	< 100	103	< 100	< 100	< 100	121	< 100	Generation re-dispatch
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	<100	<100	<100	<100	<100	Diverge	Add redundant battery
COALINGA #1-SAN MIGUEL 70KV	TEMPLETON-14C1959SS #1 230KV and CALIFORNIA FLATS SW STA-GATES 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	Generation re-dispatch
COPPERMINE-TIVY VALLEY 70KV	FRIANTDAM 6.60KV GEN UNIT 2 and BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN CASSIDY	P3	G-1/N-1	114	101	157	< 100	< 100	< 100	< 100	< 100	104	Summer setup
	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	Diverge	Diverge	Diverge	146	< 100	< 100	< 100	< 100	Diverge	Summer setup
CRESCENTSS-SCHLNDLR #1 70KV	GATES D 230/70KV TB 5	P1	N-1	<100	NA	NA	<100	NA	NA	101	<100	NA	Sensitivity only
	TRANQUILLITY SW STA-HELM 230KV	P1	N-1	<100	<100	<100	<100	113	<100	<100	<100	<100	Generation re-dispatch
	GATES D 230KV - SECTION 2D & 1D	P2	Breaker	<100	<100	NA	<100	<100	NA	108	<100	<100	Sensitivity only
	GATES D 230KV SECTION 2D	P2	Bus	<100	<100	<100	<100	<100	<100	104	<100	<100	Sensitivity only
	PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Breaker	<100	<100	<100	<100	<100	<100	153	<100	<100	Sensitivity only
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	<100	<100	<100	<100	113	<100	<100	<100	<100	Generation re-dispatch
	GWF_GT1 13.80KV GEN UNIT 1 and HELM 230/70KV TB 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Continue to monitor
	AGRICO 13.80KV & AGRICO 13.80KV GEN UNITS and HELM 230/70KV TB 1	P3	G-1/N-1	148	< 100	< 100	106	< 100	< 100	< 100	106	< 100	Project:Helm-Crescent line reconductor
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	101	110	<100	Diverge	<100	<100	112	<100	109	Add redundant relay
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	101	<100	<100	<100	<100	136	<100	<100	Add redundant battery
	Tranquillity SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	102	145	<100	<100	<100	<100	Add redundant battery
	GATES D 230/70KV TB 5 and SCHINDLR 115/12.47KV TB 2	P6	N-1-1	138	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Project:Helm-Crescent line reconductor
	PANOCHE-SCHINDLER #1 115KV & EXCELSIORSS-PANOCHE2 115KV	P7	DCTL	<100	102	<100	<100	<100	<100	127	<100	<100	Project:Helm-Crescent line reconductor
	EXCELSIORSS-PANOCHE1 115KV & EXCELSIORSS-PANOCHE2 115KV	P7	DCTL	< 100	< 100	< 100	<100	<100	<100	110	<100	<100	Sensitivity only
	TRANQLTYSS-HELM #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	104	154	< 100	< 100	< 100	< 100	Generation re-dispatch
DINUBA-OROSI 70KV	REEDLEY-DINUBA #1 70KV	P1	N-1	113	<100	<100	<100	<100	<100	<100	<100	<100	Project: Reedley 70 kV reinforcement
EL CAPITAN-WILSON 115KV	ATWATER-LIVINGSTON-MERCED 115KV MOAS OPENED ON ATWATR J_MERCED and WILSON-ATWATER #2 115KV	P6	N-1-1	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Wilson 115 kV reinforcement
EXCHEQUER-LE GRAND 115KV	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	<100	<100	<100	<100	<100	Diverge	Add redundant battery

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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	
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
EXCHEQUR 70/115KV TB 1	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	<100	<100	<100	<100	<100	Diverge	Add redundant battery
FINKSWSTA-WESTLEY #1 230KV	LASPALMAS_D1 12.00KV GEN UNIT 1 and MANNING 500/230KV TB 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Continue to monitor
GATES F-Q1593SWSTA #1 230KV	Q1382BESS 0.69KV GEN UNIT 1 and HELMS-GREGG #2 230KV	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Gates 500KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	<100	<100	<100	103	<100	Add redundant battery
	TRANQUILLITY SW STA-KEARNEY 230KV and HELMS-GREGG #1 230KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
GATES-HURON-CALFLAX 70KV	GATES E 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	<100	<100	<100	<100	<100	122	<100	<100	<100	Continue to monitor
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	<100	Diverge	<100	114	<100	<100	<100	Add redundant relay
GATES-MUSTANG SW STA #1 230KV	GATES-MUSTANG SW STA #2 230KV	P1	N-1	<100	<100	<100	106	<100	<100	<100	<100	<100	Generation re-dispatch
	GATES F 230KV - MIDDLE BREAKER BAY 4	P2	Breaker	<100	<100	<100	104	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV and GATES-MUSTANG SW STA #2 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117	< 100	Sensitivity only
GATES-MUSTANG SW STA #2 230KV	GATES-MUSTANG SW STA #1 230KV	P1	N-1	<100	<100	<100	106	<100	<100	<100	<100	<100	Generation re-dispatch
	GATES F 230KV - MIDDLE BREAKER BAY 5	P2	Breaker	<100	<100	<100	103	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV and GATES-MUSTANG SW STA #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117	< 100	Sensitivity only
GATES-PANOCHE #1 230KV	GATES E 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	<100	<100	<100	<100	<100	108	<100	<100	<100	Continue to monitor
GATES-PANOCHE #2 230KV	GATES E 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	<100	<100	<100	<100	<100	115	<100	<100	<100	Continue to monitor
GATES-TULARE LAKE 70KV	Base Case	P0	Base Case	<100	<100	<100	<100	104	<100	104	<100	<100	Generation re-dispatch
GREGG-ASHLAN 230KV	HERNDON-FIGRDN 1-ASHLAN 230KV	P1	N-1	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	HERNDON-ASHLAN 230KV (HERNDON-FGRDN T1)	P2	Line Section w/o Fault	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	FIGRDN 1 - 1D 230KV & HERNDON-FIGRDN 1-ASHLAN LINE	P2	Breaker	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	HERNDON 230KV SECTION 2E	P2	Bus	<100	<100	102	<100	<100	<100	<100	<100	<100	Continue to monitor
	HERNDON - 2E 230KV & HERNDON-FIGRDN 1-ASHLAN LINE	P2	Breaker	<100	<100	102	<100	<100	<100	<100	<100	<100	Continue to monitor
	HERNDON 230KV - SECTION 1E & 2E	P2	Breaker	<100	<100	100	<100	<100	<100	<100	<100	<100	Continue to monitor
	Figarden 230KV Batt #1(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	Herndon 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	100	<100	<100	<100	<100	<100	<100	Continue to monitor
GWF-HENRIETTA 70KV	LOSBANOS2-25 25.00KV GEN UNIT V8 and HELMS-GREGG #2 230KV	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LOSBANOS-POLELINE #1 230KV and HELMS-GREGG #2 230KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
GWF-KINGSBURG 115KV	MUSTANG SW STA-GREGG 230KV	P1	N-1	101	101	<100	<100	<100	<100	<100	<100	101	Project: GWF-Kingsburg reconductor project
	MC CALL 230KV - SECTION 2E & 1E	P2	Breaker	104	103	<100	<100	<100	<100	<100	<100	108	Project:GWF-Kingsburg line reconductoring
	MC CALL 230KV - SECTION 1E & 1D	P2	Breaker	102	<100	<100	<100	<100	<100	<100	<100	102	Project:GWF-Kingsburg line reconductoring
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	112	<100	<100	Diverge	<100	<100	<100	<100	<100	Project:GWF-Kingsburg line reconductoring
	GREGG 230KV - MIDDLE BREAKER BAY 5	P2	Breaker	101	101	<100	<100	<100	<100	<100	<100	101	Project:GWF-Kingsburg line reconductoring
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	101	101	<100	<100	<100	<100	<100	<100	101	Project:GWF-Kingsburg line reconductoring
	HENRIETTA_D - 1D 230KV & MUSTANG SW STA-GREGG LINE	P2	Breaker	101	101	<100	<100	<100	<100	<100	<100	101	Project:GWF-Kingsburg line reconductoring
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	106	105	<100	<100	<100	<100	<100	<100	105	Add redundant battery
	Mustang SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	102	101	<100	<100	<100	<100	<100	<100	101	Add redundant battery
	Henrietta 230-115-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	101	101	<100	<100	<100	<100	<100	<100	101	Add redundant battery
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	< 100	Continue to monitor
	HELM-MCCALL 230KV & HENTAP2-MUSTANGSS #1 230KV	P7	DCTL	< 100	< 100	< 100	<100	131	<100	<100	<100	<100	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV (2)	P7	DCTL	101	101	<100	Diverge	< 100	< 100	< 100	< 100	101	Project:GWF-Kingsburg line reconductoring
Harlan-Midway 500 kV line 2	Gates 500KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	112	107	106	<100	138	<100	Add redundant battery
HELM-CRESCENT SW STA 70KV		P1	N-1	<100	<100	<100	<100	113	<100	<100	<100	<100	Generation re-dispatch
	GATES D 230KV - SECTION 2D & 1D	P2	Breaker	100	<100	NA	<100	<100	NA	104	<100	<100	Project:Gates bank addition project
	PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Breaker	<100	<100	<100	<100	<100	<100	142	<100	<100	Sensitivity only
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	<100	<100	<100	<100	113	<100	<100	<100	<100	Generation re-dispatch
	GATES D 230KV SECTION 2D	P2	Bus	<100	<100	<100	<100	<100	<100	101	<100	<100	Sensitivity only
	AGRICO 13.80KV & AGRICO 13.80KV GEN UNITS and HELM 230/70KV TB 1	P3	G-1/N-1	128	< 100	132	< 100	< 100	< 100	< 100	< 100	< 100	Project: Helm-crescent line reconductoring modelling update fixed this issue
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	107	<100	<100	Diverge	<100	<100	107	<100	<100	Add redundant relay
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	<100	<100	129	<100	<100	Add redundant battery
	Tranquillity SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	147	<100	<100	<100	<100	Add redundant battery
	GATES D 230/70KV TB 5 and SCHINDLR 115/12.47KV TB 2	P6	N-1-1	146	< 100	< 100	120	< 100	< 100	< 100	119	< 100	Project:Gates bank addition project
	TRANQLTYSS-HELM #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	< 100	155	< 100	< 100	< 100	< 100	Generation re-dispatch
	PANOCHE-SCHINDLER #1 115KV & EXCELSIORSS-PANOCHE2 115KV	P7	DCTL	101	< 100	< 100	< 100	< 100	< 100	122	<100	< 100	Project:Helm-Crescent line reconductor
	EXCELSIORSS-PANOCHE1 115KV & EXCELSIORSS-PANOCHE2 115KV	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	Sensitivity only
HELMS-GREGG #1 230KV	TRANQLTY1-25 25.00KV GEN UNIT V5 and HELMS-GREGG #2 230KV	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	FRTSPS will drop Helms
	WARNERVILLE-WILSON 230KV and HELMS-GREGG #2 230KV	P6	N-1-1	Diverge	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	FRTSPS will drop Helms
HELMS-GREGG #2 230KV	GREGG 1-25 25.00KV GEN UNIT V5 and HELMS-GREGG #1 230KV	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	FRTSPS will drop Helms
	TRANQUILLITY SW STA-KEARNEY 230KV and HELMS-GREGG #1 230KV	P6	N-1-1	Diverge	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	FRTSPS will drop Helms
HENRIETTA_D 230/70KV TB 4	GWF-HENRIETTA 70KV	P1	N-1	<100	<100	106	<100	<100	<100	<100	<100	100	Continue to monitor
	AMRCNKNGSSPV 0.63KV GEN UNIT 1 and GWF-HENRIETTA 70KV	P3	G-1/N-1	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Henrietta bank upgrade
	GWF-KINGSBURG 115KV & GWF-HENRIETTA 70KV	P7	DCTL	< 100	< 100	106	<100	< 100	< 100	< 100	< 100	101	Continue to monitor
HENRIETTA-LEPRINO SW STA 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	HELM-MCCALL 230KV & HENTAP2-MUSTANGSS #1 230KV	P7	DCTL	< 100	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	Generation re-dispatch
HERNDON-BARTON 115KV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	101	Diverge	Diverge	<100	<100	<100	<100	111	Add redundant relay
	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	<100	<100	<100	<100	Diverge	Add redundant battery
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
HERNDON-FIGRDN 1-ASHLAN 230KV	GREGG-ASHLAN 230KV	P1	N-1	<100	<100	103	<100	<100	<100	<100	<100	<100	Continue to monitor
	GREGG 230KV - MIDDLE BREAKER BAY 5	P2	Breaker	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	GREGG-ASHLAN 230KV (GREGG-FGRDN T2)	P2	Line Section w/o Fault	<100	<100	103	<100	<100	<100	<100	<100	<100	Continue to monitor
	FIGRDN 2 - 1F 230KV & GREGG-ASHLAN LINE	P2	Breaker	<100	<100	103	<100	<100	<100	<100	<100	<100	Continue to monitor
	Figarden 230KV Batt #2(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	103	<100	<100	<100	<100	<100	<100	Continue to monitor
HERNDON-KEARNEY 230KV	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	<100	<100	Diverge	<100	<100	<100	100	<100	Sensitivity only
	WARNERVILLE-WILSON 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
HERNDON-MANCHESTER 115KV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	102	Diverge	Diverge	<100	<100	<100	<100	112	Add redundant relay
	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	<100	<100	<100	<100	Diverge	Add redundant battery
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch

2026-2027 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
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	
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
HERNDON-WOODWARD 115KV	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	<100	<100	<100	<100	Diverge	Add redundant battery
KERCKHOFF-CLOVIS-SANGER #1 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	WARNERVILLE-WILSON 230KV and TRANQUILLITY SW STA-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV & MANCHESTER-AIRWAYS-SANGER 115KV	P7	DCTL	< 100	< 100	< 100	116	< 100	< 100	< 100	110	<100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	< 100	< 100	< 100	110	< 100	< 100	< 100	104	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	107	< 100	Generation re-dispatch
	HERNDON-BARTON 115KV & MANCHESTER-AIRWAYS-SANGER 115KV	P7	DCTL	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
KERCKHOFF-CLOVIS-SANGER #2 115KV	KERCKHOFF-CLOVIS-SANGER #1 115KV and CHOWCHILLA-KERCKHOFF 115KV MOAS OPENED ON OAKH_JCT_K1-JCT	P6	N-1-1	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
KINGS RIVER-SANGER-REEDLEY 115KV	MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE and SANGER-REEDLEY 115KV MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	131	122	167	< 100	< 100	< 100	< 100	< 100	129	Operating solution
LE GRAND-CHOWCHILLA 115KV	HERNDON 115KV - SECTION 1D & 2D	P2	Breaker	<100	<100	<100	<100	126	<100	<100	<100	<100	Generation re-dispatch
	SANGER 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	<100	<100	<100	<100	100	<100	<100	<100	<100	Generation re-dispatch
	HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE	P2	Breaker	<100	<100	<100	<100	103	<100	<100	<100	<100	Generation re-dispatch
	HERNDON 115KV SECTION 2D	P2	Bus	<100	<100	<100	<100	103	<100	<100	<100	<100	Generation re-dispatch
	HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Breaker	<100	<100	<100	<100	104	<100	<100	<100	<100	Generation re-dispatch
	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	CHOWCOGN 13.80KV GEN UNIT 1 and CHOWCHILLA-KERCKHOFF 115KV MOAS OPENED ON OAKH_JCT_K1-JCT	P3	G-1/N-1	117	116	118	< 100	< 100	< 100	< 100	< 100	120	Mitigation under progress
	HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	127	<100	<100	<100	<100	Add redundant relay
	Herndon 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	119	<100	<100	<100	<100	Add redundant battery
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	<100	<100	<100	<100	<100	Diverge	Add redundant battery
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	Tranquillity SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	102	<100	<100	<100	<100	Add redundant battery
	Mustang SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	101	<100	<100	<100	<100	Add redundant battery
	MUSTANG SW STA-MCCALL 230KV and HELM-MCCALL 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	133	< 100	< 100	< 100	< 100	Generation re-dispatch
	HERNDON-KEARNEY 230KV and WILSON-LE GRAND 115KV	P6	N-1-1	< 100	< 100	< 100	104	< 100	< 100	< 100	110	< 100	Generation re-dispatch
	HELM-MCCALL 230KV & HENTAP2-MUSTANGSS #1 230KV	P7	DCTL	< 100	< 100	< 100	< 100	133	< 100	< 100	< 100	< 100	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV (2)	P7	DCTL	< 100	< 100	< 100	Diverge	101	< 100	< 100	< 100	< 100	Generation re-dispatch
	HELM-MCCALL 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	< 100	Generation re-dispatch
	TRANQLTYSS-HELM #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	Generation re-dispatch
LEPRINO SW STA-GWF HANFORD SW STA 115KV	GWF-KINGSBURG 115KV	P1	N-1	<100	<100	105	<100	<100	<100	<100	<100	<100	Continue to monitor
	GWF-KINGSBURG 115KV (GWFHANFORDSS-CONTADNA)	P2	Line Section w/o Fault	<100	<100	105	<100	<100	<100	<100	<100	<100	Continue to monitor
	KINGSBURGD - 1D 115KV & GWF-KINGSBURG LINE	P2	Breaker	<100	<100	105	<100	<100	<100	<100	<100	<100	Continue to monitor
	GWF-KINGSBURG 115KV (KINGSBURGD-CONTADNA)	P2	Line Section w/o Fault	<100	<100	101	<100	<100	<100	<100	<100	<100	Continue to monitor
	KINGSBURGD - 1D 115KV & MCCALL-KINGSBURG #1 LINE	P2	Breaker	<100	<100	101	<100	<100	<100	<100	<100	<100	Continue to monitor
	KINGSBURGD 115KV SECTION 1D	P2	Bus	<100	<100	101	<100	<100	<100	<100	<100	<100	Continue to monitor
	KINGSBURG 115KV CB 112 122 132 152 OR 162 (STUCK BREAKER & NO BF RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	Kingsburg 115-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	104	<100	<100	<100	<100	<100	<100	Continue to monitor
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	Sensitivity only
	GWF-KINGSBURG 115KV & GWF-HENRIETTA 70KV	P7	DCTL	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
LOS BANOS-LIVINGSTON JCT-CANAL 70KV	POLELINE-PANOCHE #1 230KV and LOSBANOS-POLELINE #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Generation re-dispatch
LOS BANOS-MERCY SPRINGS SW STA 70KV	POLELINE-PANOCHE #1 230KV and LOSBANOS-POLELINE #1 230KV	P6	N-1-1	< 100	< 100	149	< 100	< 100	Diverge	< 100	< 100	< 100	Continue to monitor
Los Banos-Pole line 230 kV line No 1	POLELINE-PANOCHE #1 230KV	P1	N-1	NA	<100	<100	NA	<100	131	NA	NA	<100	Continue to monitor
	PANOCHE 230KV SECTION 2E	P2	Bus	NA	<100	<100	NA	<100	130	NA	NA	<100	Continue to monitor
Mccall 230/115 kV bank 1	MC CALL 230KV - SECTION 1D & 2D	P2	Breaker	<100	<100	108	113	<100	<100	<100	108	<100	Continue to monitor
	MC CALL 230/115KV TB 3 and MC CALL 230/115KV TB 2	P6	N-1-1	< 100	< 100	102	100	< 100	< 100	< 100	< 100	<100	Continue to monitor
Mccall 230/115kV bank3	MC CALL 230/115KV TB 1 and MC CALL 230/115KV TB 2	P6	N-1-1	< 100	< 100	102	<100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MCCALL-KINGSBURG #1 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MCCALL-KINGSBURG #2 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MCCALL-REEDLEY 115KV	FRIANTDAM 6.60KV GEN UNIT 2 and BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P3	G-1/N-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	Diverge	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	Diverge	Operating solution
	Sanger 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	107	<100	<100	<100	<100	<100	<100	Continue to monitor
	Sanger 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	115	112	131	105	<100	<100	<100	100	118	Add redundant battery
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	107	<100	<100	<100	<100	<100	<100	Continue to monitor
MCCALL-SANGER #1 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
MCCALL-SANGER #2 115KV	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	108	<100	<100	<100	<100	<100	<100	Add redundant battery
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
MCCALL-SANGER #3 115KV	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	127	<100	<100	<100	<100	<100	<100	Continue to monitor
	WARNERVILLE-WILSON 230KV and TRANQUILLITY SW STA-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	MCCALL-SANGER #1 115KV & MCCALL-SANGER #2 115KV	P7	DCTL	< 100	< 100	< 100	109	< 100	< 100	< 100	105	<100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	< 100	< 100	< 100	107	<100	<100	<100	101	<100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	105	<100	Generation re-dispatch
MCCALL-WEST FRESNO #2 115KV	CALIFORNIA AVE-MCCALL 115KV and SANGER-CALIFORNIA AVE 115KV	P6	N-1-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	100	Continue to monitor
MCSWAIN-MERCEDFALLS-EXCHEQUR 70KV	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	170	NA	NA	138	171	NA	Generation re-dispatch
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	168	204	173	137	169	Diverge	Add redundant battery
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	170	NA	NA	138	171	NA	Project: Wilson 115 kV reinforcement
MENDOTA 115/70KV TB 5	PANOCHE-MENDOTA 115KV and LE GRAND-DAIRYLAND 115KV MOAS OPENED ON ADERASLRJCT_DAIRYLND	P6	N-1-1	Diverge	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	Diverge	Operating solution
	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement

2026-2027 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
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	
Merced 115/70 kV bank 1	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	<100	<100	<100	<100	<100	Diverge	Add redundant battery
MERCED-MERCED FALLS 70KV	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	169	NA	NA	139	170	NA	Generation re-dispatch
	LE GRAND - MA 115KV & LE GRAND-CHOWCHILLA LINE	P2	Breaker	<100	<100	<100	108	100	<100	<100	<100	<100	Generation re-dispatch
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	167	174	158	139	168	Diverge	Add redundant battery
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	169	NA	NA	139	170	NA	Project: Wilson 115 kV reinforcement
	Le Grand 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	NA	108	100	NA	<100	<100	<100	Add redundant battery
MERCY SPRINGS SW STA-CANAL-ORO LOMA 70KV	POLELINE-PANOCHE #1 230KV and LOSBANOS-POLELINE #1 230KV	P6	N-1-1	< 100	< 100	212	< 100	< 100	Diverge	< 100	< 100	< 100	Continue to monitor
MUSTANG SW STA-GREGG 230KV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	<100	Diverge	Diverge	<100	<100	<100	100	<100	Add redundant relay
	GWF-KINGSBURG 115KV and HENRIETTA_D 230/70KV TB 4	P6	N-1-1	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TRANQUILLITY SW STA-KEARNEY 230KV and WARNERVILLE-WILSON 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	WARNERVILLE-WILSON 230KV and TRANQUILLITY SW STA-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
Oro Loma- Mercy Springs 70 kV line	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	<100	111	NA	<100	<100	NA	NA	<100	Continue to monitor
ORO LOMA-CANAL #1 70KV	LOSBANOS-POLELINE #1 230KV and POLELINE-PANOCHE #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Generation re-dispatch
ORO LOMA-MENDOTA 70KV	PANOCHE-MENDOTA 115KV	P1	N-1	<100	107	145	140	<100	<100	<100	<100	114	Summer setup
	MENDOTA 115/70KV TB 5	P1	N-1	117	100	128	<100	<100	<100	<100	<100	103	Summer setup
	PANOCHE-ORO LOMA 115KV	P1	N-1	<100	<100	<100	102	<100	<100	<100	<100	<100	Generation re-dispatch
	PANOCHE-MENDOTA 115KV (PANOCHET-MENDOTA)	P2	Line Section w/o Fault	<100	107	145	140	<100	<100	<100	<100	114	Summer setup
	PANOCHE-MENDOTA 115KV (PANOCHET-PANOCHE1)	P2	Line Section w/o Fault	<100	107	145	140	<100	<100	<100	<100	114	Summer setup
	PANOCHE1 - 1D 115KV & PANOCHE-MENDOTA LINE	P2	Breaker	<100	102	139	133	<100	<100	104	<100	109	Summer setup
	PANOCHE1 115KV SECTION 1D	P2	Bus	<100	102	139	132	<100	<100	104	<100	109	Summer setup
	PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Breaker	<100	102	139	132	<100	<100	104	<100	109	Summer setup
	PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Breaker	<100	102	139	132	<100	<100	104	<100	109	Summer setup
	MENDOTA 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	117	100	129	<100	<100	<100	<100	<100	103	Summer setup
	MENDOTA 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	108	115	149	140	<100	106	<100	<100	122	Summer setup
	PANOCHE2 115KV SECTION 2D	P2	Bus	108	<100	<100	116	<100	<100	<100	114	<100	Summer setup
	PANOCHE-ORO LOMA 115KV (PANOCHEJ-PANOCHE2)	P2	Line Section w/o Fault	108	<100	<100	116	<100	<100	<100	112	<100	Summer setup
	PANOCHE2 - 2D 115KV & PANOCHE-EXCELSIOR SW STA #2 LINE	P2	Breaker	107	<100	<100	115	<100	<100	<100	113	<100	Summer setup
	PANOCHE-ORO LOMA 115KV (PANOCHEJ-HAMMONDS)	P2	Line Section w/o Fault	<100	<100	<100	108	<100	<100	<100	105	<100	Generation re-dispatch
	PANOCHE2 - 2D 115KV & PANOCHE-ORO LOMA LINE	P2	Breaker	<100	<100	<100	101	<100	<100	<100	102	<100	Generation re-dispatch
	PANOCHE-ORO LOMA 115KV (HAMMONDS-DFSTP)	P2	Line Section w/o Fault	<100	<100	<100	103	<100	<100	<100	101	<100	Generation re-dispatch
	EXCHQUER 13.80KV GEN UNIT 1 and PANOCHE-MENDOTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
	OROLOMA1SPV 0.38KV GEN UNIT 1 and PANOCHE-ORO LOMA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	Sensitivity only
	13C1728SPV 0.63KV GEN UNIT 1 and PANOCHE-MENDOTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	100	< 100	<100	< 100	< 100	Generation re-dispatch
	Mendota 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	129	NA	NA	<100	NA	NA	NA	Continue to monitor
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	121	<100	<100	<100	<100	<100	<100	Continue to monitor
	Hammonds 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	NA	102	<100	NA	<100	<100	<100	Add redundant battery
	LE GRAND-DAIRYLAND 115KV MOAS OPENED ON LE GRAND_ADERASLRJCT and PANOCHE-MENDOTA 115KV	P6	N-1-1	Diverge	Diverge	< 100	241	< 100	133	< 100	< 100	Diverge	Summer setup under review
	POLELINE-PANOCHE #1 230KV and LOSBANOS-POLELINE #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Generation re-dispatch
	LOS BANOS-PANOCHE #1 230KV & PANOCHE-ORO LOMA 115KV	P7	DCTL	< 100	< 100	< 100	102	< 100	< 100	< 100	101	< 100	Generation re-dispatch
Oro Loma-Mercy Springs 70 kV	PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Breaker	NA	<100	122	NA	<100	<100	NA	NA	<100	Continue to monitor
	LOSBANOS-POLELINE #1 230KV and POLELINE-PANOCHE #1 230KV	P6	N-1-1	< 100	< 100	236	< 100	< 100	Diverge	< 100	< 100	< 100	Continue to monitor
PANOCHE-EXCELSIOR SW STA #2 115KV	PANOCHE1 115KV SECTION 1D	P2	Bus	<100	<100	<100	<100	<100	<100	107	<100	<100	Sensitivity only
	PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Breaker	<100	<100	<100	<100	<100	<100	107	<100	<100	Sensitivity only
	PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Breaker	<100	<100	<100	<100	<100	<100	107	<100	<100	Sensitivity only
	PANOCHE1 - 1D 115KV & PANOCHE-MENDOTA LINE	P2	Breaker	<100	<100	<100	<100	<100	<100	107	<100	<100	Sensitivity only
	PANOCHE-EXCELSIOR SW STA #1 115KV (KAMM_JCT-CANTUA_JCT)	P2	Line Section w/o Fault	<100	<100	<100	<100	<100	<100	102	<100	<100	Sensitivity only
	CANTUA-EXCELSIORSS 115KV MOAS OPENED ON PANOCHE1_KAMM_JCT and GATES D 230/70KV TB 5	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	Sensitivity only
PANOCHE-MENDOTA 115KV	PANOCHE-ORO LOMA 115KV and TRANQUILLITY SW STA-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
Pole Line-Mercy Springs 70 kV	LOSBANOS 230KV SECTION 2D	P2	Bus	NA	<100	<100	NA	<100	110	NA	NA	<100	Continue to monitor
	POLELINE-PANOCHE #1 230KV and LOSBANOS-POLELINE #1 230KV	P6	N-1-1	< 100	< 100	307	< 100	< 100	Diverge	< 100	< 100	< 100	Continue to monitor
PPG-MALAGA 115KV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	<100	Diverge	Diverge	<100	<100	<100	<100	101	Add redundant relay
Q1596 500/230 kV Bank	Base Case	P0	Base Case	NA	<100	100	NA	<100	<100	NA	NA	<100	Continue to monitor
	MUSTANG SW STA-GREGG 230KV	P1	N-1	NA	<100	101	NA	<100	<100	NA	NA	<100	Continue to monitor
	HELMS PP2 SECTION 1E & HELMS PP3 SECTION 1F 230KV	P2	Breaker	NA	101	102	NA	<100	101	NA	NA	101	Mitgation under development
	HELMS PP2 230KV SECTION 1E	P2	Bus	NA	100	101	NA	<100	101	NA	NA	100	Mitgation under development
	HELMS PP1 SECTION 1D & HELMS PP2 SECTION 1E 230KV	P2	Breaker	NA	100	101	NA	<100	111	NA	NA	100	Mitgation under development
	GREGG 230KV - MIDDLE BREAKER BAY 5	P2	Breaker	NA	<100	101	NA	<100	<100	NA	NA	<100	Mitgation under development
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	NA	<100	101	NA	<100	<100	NA	NA	<100	Mitgation under development
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	101	102	NA	<100	101	NA	NA	101	Mitgation under development
	Tranquillity SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	<100	101	NA	<100	101	NA	NA	100	Mitgation under development
	Mustang SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	<100	101	NA	<100	<100	NA	NA	<100	Mitgation under development
	Los Banos 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	<100	101	NA	<100	<100	NA	NA	<100	Mitgation under development
	Henrietta 230-115-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	<100	101	NA	<100	<100	NA	NA	<100	Mitgation under development
	HELMS-GREGG #1 230KV & HELMS-GREGG #2 230KV	P7	DCTL	NA	101	102	NA	<100	101	NA	NA	101	Mitgation under development
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV (2)	P7	DCTL	NA	<100	101	NA	<100	<100	NA	NA	<100	Mitgation under development
REEDLEY 115/70KV TB 2	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	Project:Reedley 70 kV reinforcement
REEDLEY 115/70KV TB 4	REEDLEY 115/70KV TB 2 and BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P6	N-1-1	136	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Reeley 70 kV reinforcement
REEDLEY-DINUBA #1 70KV	REEDLEY-OROSI 70KV	P1	N-1	111	<100	<100	<100	<100	<100	<100	<100	<100	Project: Reedley 70 kV reinforcement
REEDLEY-OROSI 70KV	REEDLEY-DINUBA #1 70KV	P1	N-1	116	<100	<100	<100	<100	<100	<100	<100	<100	Project: Reedley 70 kV reinforcement
RIOBRVOFSNO-MALAGA-MC CALL 115KV	MALAGA 115KV - SECTION 1F & 1E	P2	Breaker	104	105	101	<100	<100	<100	<100	<100	105	Operating solution
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	Sensitivity only
SAN JOQN-HELM-AGRICO-KERMAN1 70KV	Base Case	P0	Base Case	<100	<100	106	<100	<100	<100	<100	<100	<100	Continue to monitor
SANGER-CALIFORNIA AVE 115KV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	114	Diverge	Diverge	<100	<100	<100	<100	125	Add redundant relay
	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	<100	<100	<100	<100	Diverge	Add redundant battery

2026-2027 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
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	
[redacted]	MCCALL-WEST FRESNO #2 115KV and CALIFORNIA AVE-MCCALL 115KV	P6	N-1-1	< 100	101	112	< 100	< 100	< 100	< 100	< 100	104	Operating solution
	CALIFORNIA AVE-MCCALL 115KV & MCCALL-WEST FRESNO #2 115KV	P7	DCTL	<100	101	112	<100	<100	<100	<100	<100	104	Operating solution
SANGER-REEDLEY 115KV	KINGS RIVER-SANGER-REEDLEY 115KV and MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	147	< 100	171	101	< 100	< 100	< 100	< 100	< 100	Operating solution
SCHINDLER-COALINGA #2 70KV	GATES D 230KV - SECTION 2D & 1D	P2	Breaker	103	<100	NA	<100	<100	NA	<100	<100	<100	Project:Gates bank addition project
	PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Breaker	<100	<100	<100	<100	<100	<100	106	<100	<100	Sensitivity only
	Gates 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	137	103	<100	Diverge	<100	<100	<100	<100	102	Add redundant battery
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	105	<100	<100	Diverge	<100	<100	<100	<100	<100	Add redundant relay
	GATES D-GATES E #1 230KV and GATES D-GATES E #2 230KV	P6	N-1-1	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Gates bank addition project
SCHINDLER-FIVE POINTS SW STA 70KV	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	<100	Diverge	<100	122	<100	<100	<100	Add redundant relay
SCHINDLR 11S/12.47KV TB 2	PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Breaker	<100	<100	<100	<100	<100	<100	150	<100	<100	Sensitivity only
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	<100	<100	<100	121	<100	<100	Add redundant battery
	PANOCHE-SCHINDLER #1 115KV & EXCELSIORSS-PANOCHE2 115KV	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	121	<100	< 100	Sensitivity only
	EXCELSIORSS-PANOCHE1 115KV & EXCELSIORSS-PANOCHE2 115KV	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	Sensitivity only
TIVY VALLEY-REEDLEY 70KV	BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<100	<100	106	<100	<100	<100	<100	<100	<100	Continue to monitor
	BORDEN-COPPERMINE 70KV (BORDEN-CASSIDY)	P2	Line Section w/o Fault	<100	<100	106	<100	<100	<100	<100	<100	<100	Continue to monitor
	FRIANTDAM 6.60KV GEN UNIT 2 and BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN CASSIDY	P3	G-1/N-1	135	120	< 100	< 100	< 100	< 100	< 100	< 100	124	Project:Reedley 70 kV reinforcement
	Borden 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	106	NA	NA	<100	NA	NA	NA	Continue to monitor
	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	Diverge	Diverge	< 100	164	< 100	< 100	< 100	< 100	Diverge	Summer setup under review
TRANQUILLITY SW STA-KEARNEY 230KV	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	<100	<100	Diverge	<100	<100	<100	108	<100	Sensitivity only
	Gates 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	Diverge	<100	<100	<100	<100	<100	Add redundant battery
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	<100	Diverge	<100	<100	<100	<100	<100	Add redundant relay
	WARNERVILLE-WILSON 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
Warnerville-Standiford 115 kV line 7	COTTLE-MELONES 230KV & BELLOTA-WARNERVILLE 230KV	P7	DCTL	< 100	< 100	< 100	< 100	< 100	106	<100	<100	<100	Generation re-dispatch
	BELLOTA-COTTLE 230KV & BELLOTA-WARNERVILLE 230KV	P7	DCTL	< 100	< 100	< 100	< 100	< 100	105	< 100	< 100	< 100	Generation re-dispatch
WARNERVILLE-WILSON 230KV	TRANQUILLITY SW STA-KEARNEY 230KV	P1	N-1	<100	NA	NA	101	NA	NA	<100	<100	NA	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (TRANQLTYSS-MCMULLN1)	P2	Line Section w/o Fault	<100	NA	NA	103	NA	NA	<100	<100	NA	Generation re-dispatch
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	NA	NA	101	NA	NA	<100	<100	NA	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (MCMULLN1-KEARNEY)	P2	Line Section w/o Fault	<100	NA	NA	101	NA	NA	<100	<100	NA	Generation re-dispatch
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	NA	NA	Diverge	NA	NA	<100	133	NA	Sensitivity only
	Tranquillity SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	NA	NA	108	NA	NA	<100	111	NA	Add redundant battery
	Mcmullin 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	NA	NA	101	NA	NA	<100	<100	NA	Add redundant battery
	Gates 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	NA	NA	Diverge	NA	NA	<100	125	NA	Add redundant battery
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	NA	NA	Diverge	NA	NA	<100	125	NA	Add redundant relay
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	<100	Diverge	Diverge	<100	<100	<100	100	<100	Add redundant relay
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	Diverge	< 100	Sensitivity only
	KERCKHOFF-CLOVIS-SANGER #1 115KV and HERNDON-KEARNEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	<100	NA	NA	117	NA	NA	<100	114	NA	Generation re-dispatch
	HELM-MCCALL 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	<100	NA	NA	110	NA	NA	<100	112	NA	Generation re-dispatch
	TRANQLTYSS-HELM #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	NA	NA	107	NA	NA	<100	110	NA	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	NA	NA	Diverge	NA	NA	<100	121	NA	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV	P7	DCTL	< 100	NA	NA	Diverge	NA	NA	< 100	122	NA	Generation re-dispatch
WILSON-ATWATER #2 115KV	EL CAPITAN-WILSON 115KV and ATWATER-LIVINGSTON-MERCED 115KV MOAS OPENED ON ATWATR J_MERCED	P6	N-1-1	< 100	113	149	< 100	< 100	< 100	< 100	< 100	117	Operating solution
WILSON-BORDEN #1 230KV	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	NA	NA	Diverge	NA	NA	<100	112	NA	Sensitivity only
	Gates 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	NA	NA	Diverge	NA	NA	<100	103	NA	Add redundant battery
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	NA	NA	Diverge	NA	NA	<100	103	NA	Add redundant relay
	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	Diverge	Diverge	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	<100	NA	NA	107	NA	NA	<100	101	NA	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	NA	NA	Diverge	NA	NA	<100	107	NA	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV	P7	DCTL	< 100	NA	NA	Diverge	NA	NA	<100	102	NA	Generation re-dispatch
WILSON-BORDEN #2 230KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	NA	NA	Diverge	< 100	< 100	< 100	< 100	NA	Generation re-dispatch
Wilson-El Capitan 115 kV No1	WILSON-ATWATER #2 115KV and ATWATER-LIVINGSTON-MERCED 115KV MOAS OPENED ON ATWATR J_MERCED	P6	N-1-1	< 100	103	132	< 100	< 100	< 100	< 100	< 100	107	Operating solution
WILSON-MERCED #1 115KV	WILSON B 115KV SECTION 2D	P2	Bus	105	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	WILSON B - 2D 115KV & WILSON-ORO LOMA LINE	P2	Breaker	105	NA	NA	<100	NA	NA	<100	<100	NA	Project:Wilson 115 kV reinforcement
	EXCHQUER 13.80KV GEN UNIT 1 and WILSON-MERCED #2 115KV	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	EL CAPITAN-WILSON 115KV and WILSON-MERCED #2 115KV	P6	N-1-1	< 100	< 100	130	< 100	< 100	< 100	< 100	< 100	103	Continue to monitor
	WILSON-MERCED #2 115KV and EL CAPITAN-WILSON 115KV	P6	N-1-1	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Gates bank addition project
WILSON-MERCED #2 115KV	WILSON-MERCED #1 115KV and EL CAPITAN-WILSON 115KV	P6	N-1-1	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Wilson 115 kV reinforcement
	EXCHQUER 13.80KV GEN UNIT 1 and WILSON-MERCED #1 115KV	P3	G-1/N-1	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	WILSON-MERCED #1 115KV and EL CAPITAN-WILSON 115KV	P6	N-1-1	< 100	101	134	< 100	< 100	< 100	< 100	< 100	106	Operating solution
WILSON-ORO LOMA 115KV	TRANQUILLITY SW STA-KEARNEY 230KV	P1	N-1	<100	<100	<100	107	<100	<100	<100	<100	<100	Generation re-dispatch
	HERNDON-KEARNEY 230KV	P1	N-1	<100	<100	<100	103	<100	<100	<100	<100	<100	Generation re-dispatch
	GREGG 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	<100	<100	112	<100	<100	<100	<100	<100	<100	Continue to monitor
	TRANQUILLITY SW STA-KEARNEY 230KV (TRANQLTYSS-MCMULLN1)	P2	Line Section w/o Fault	<100	<100	<100	107	<100	<100	<100	100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (MCMULLN1-KEARNEY)	P2	Line Section w/o Fault	<100	<100	<100	107	<100	<100	<100	<100	<100	Generation re-dispatch
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	<100	<100	107	<100	<100	<100	<100	<100	Generation re-dispatch
	HERNDON 230KV SECTION 1D	P2	Bus	<100	<100	<100	103	<100	<100	<100	<100	<100	Generation re-dispatch
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	<100	<100	<100	Diverge	<100	<100	<100	116	<100	Sensitivity only
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	114	<100	<100	<100	<100	<100	<100	Add redundant battery
	Mcmullin 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	107	<100	<100	<100	<100	<100	Add redundant battery
	Tranquillity SW STA 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	111	<100	<100	<100	105	<100	Add redundant battery
	Kearney 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	104	<100	<100	<100	<100	<100	Add redundant battery
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	<100	<100	<100	Diverge	<100	<100	<100	104	<100	Add redundant relay

2026-2027 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
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	
	Gates 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	<100	<100	<100	Diverge	<100	<100	<100	105	<100	Add redundant battery
	GATES-MUSTANG SW STA #1 230KV and GATES-MUSTANG SW STA #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
	GATES-MUSTANG SW STA #2 230KV and GATES-MUSTANG SW STA #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
	POLELINE-PANOCHE #1 230KV and LOSBANOS-POLELINE #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	<100	<100	<100	120	<100	<100	<100	113	<100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	<100	<100	101	Diverge	<100	<100	<100	118	<100	Continue to monitor
	BORDEN-GREGG 230KV #1 & #2	P7	DCTL	< 100	<100	112	<100	<100	<100	<100	<100	<100	Continue to monitor
	HELM-MCCALL 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	116	<100	<100	<100	111	<100	Generation re-dispatch
	MELONES-WILSON 230KV & WARNERVILLE-WILSON 230KV	P7	DCTL	< 100	< 100	< 100	121	< 100	< 100	< 100	112	< 100	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV & MUSTANGSS-GATES #2 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	110	< 100	Generation re-dispatch
WOODWARD-SHEPHERD 115KV	TRANQUILLITY SW STA-KEARNEY 230KV and MUSTANG SW STA-GREGG 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	Diverge	< 100	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV & MANCHESTER-AIRWAYS-SANGER 115KV	P7	DCTL	< 100	< 100	< 100	109	< 100	< 100	< 100	102	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & HERNDON-KEARNEY 230KV	P7	DCTL	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV & TRANQLTYSS-MCMULLN1 #1 230KV	P7	DCTL	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Generation re-dispatch

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	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
AIRWAYS1 115.0 kV	GREGG-HERNDON #1 230KV and GREGG-HERNDON #2 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
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.93	0.83	1.00	1.02	1.06	0.98	1.00	0.93	Install redundant battery/relay supply
	HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.95	0.88	1.01	1.02	1.05	0.99	1.01	0.95	Install redundant battery/relay supply
	Herndon 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.95	0.88	1.01	1.02	1.05	0.99	1.01	0.95	Install redundant battery/relay supply
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.90	Diverge	Diverge	1.01	1.05	0.92	0.92	0.86	Install redundant battery/relay supply
ASHLAN 230.0 kV	TRANQUILLITY SW STA-KEARNEY 230KV and MERCED 115/70KV TB 2	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.87	0.90	0.78	0.97	1.01	1.07	0.96	0.97	0.90	Install redundant battery/relay supply
ATWATER 115.0 kV	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	0.23	NA	NA	0.35	0.25	NA	Install redundant battery/relay supply
BARTON 115.0 kV	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.92	0.82	0.99	1.02	1.06	0.98	1.00	0.93	Install redundant battery/relay supply
BORDEN 230.0 kV	FRIANTDAM 6.60KV GEN UNIT 2 and TRANQUILLITY SW STA-KEARNEY 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.95	0.90	0.96	0.98	0.99	0.96	0.97	0.95	Install redundant battery/relay supply
BORDEN 70.0 kV	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	1.03	1.05	1.02	Diverge	1.08	1.10	1.03	0.98	1.05	Generation re-dispatch
	Gates 230-70KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.05	1.03	Diverge	1.08	1.10	1.03	1.00	1.05	Install redundant battery/relay supply
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	1.03	1.05	1.03	Diverge	1.08	1.10	1.03	1.00	1.05	Install redundant battery/relay supply
	BORDEN 230/70KV TB 1 and BORDEN 230/70KV TB 4	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.41	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BULLARD 115.0 kV	GREGG-HERNDON #2 230KV and GREGG-HERNDON #1 230KV	P6	N-1-1	0.90	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Project: Herndon-Bullard reconductoring project under review
	HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE	P2	Breaker	0.90	0.95	0.88	0.94	1.01	1.05	0.93	0.95	0.94	Continue to monitor
	HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Breaker	0.90	0.94	0.89	0.93	1.01	1.05	0.93	0.95	0.93	Project: Herndon-Bullard reconductoring project under review
	HERNDON 115KV SECTION 2D	P2	Bus	0.90	0.94	0.88	0.93	1.01	1.05	0.93	0.95	0.93	Project: Herndon-Bullard reconductoring project under review
	HERNDON 230KV - SECTION 1E & 2E	P2	Breaker	0.89	0.93	0.83	0.98	1.00	1.05	0.96	0.98	0.92	Project: Herndon-Bullard reconductoring project under review
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.86	0.90	0.76	0.98	1.02	1.08	0.96	0.98	0.90	Install redundant battery/relay supply
CAL AVE 115.0 kV	SANGER-CALIFORNIA AVE 115KV and MCCALL-WEST FRESNO #2 115KV	P6	N-1-1	0.89	0.85	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.86	Operating solution
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.87	Diverge	Diverge	1.03	1.04	0.92	0.94	0.82	Install redundant battery/relay supply
CHWCHLLA 115.0 kV	HELMS 1 18.00KV GEN UNIT 1 and LE GRAND-CHOWCHILLA 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	GREGG-HERNDON #2 230KV and LE GRAND-CHOWCHILLA 115KV	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
	LE GRAND-CHOWCHILLA 115KV	P1	N-1	0.87	0.91	0.84	0.94	1.01	1.05	0.96	0.95	0.90	Mitigation under development
	LE GRAND - MA 115KV & LE GRAND-CHOWCHILLA LINE	P2	Breaker	0.87	0.91	0.84	0.93	1.01	1.05	0.96	0.95	0.90	Continue to monitor
	LE GRAND-CHOWCHILLA 115KV (CHWCHLLA-CERTAN T)	P2	Line Section w/o Fault	0.87	0.91	0.84	0.94	1.01	1.05	0.96	0.95	0.90	Continue to monitor
	Le Grand 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.84	NA	NA	1.05	NA	NA	NA	Install redundant battery/relay supply
COPPRMNE 70.0 kV	FRIANTDAM 6.60KV GEN UNIT 2 and BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P3	G-1/N-1	0.76	> 0.9	0.63	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Project: Coppermine reinforcement project
	BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	0.89	1.03	0.97	0.98	1.03	1.03	0.99	0.98	1.03	Project: Coppermine reinforcement project
	BORDEN-COPPERMINE 70KV (BORDEN-CASSIDY)	P2	Line Section w/o Fault	0.89	1.03	0.97	0.98	1.03	1.03	0.99	0.98	1.03	Project:Coppermine reinforcement project
CORCORAN 70.0 kV	WAUKENA SW STA-CORCORAN 115KV and GWF-KINGSBURG 115KV	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
CORCORAN 115.0 kV	KINGSBUR 13.80KV & SANGERCGN 13.80KV & KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS and WAUKENA SW STA-CORCORAN 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
	WAUKENA SW STA-CORCORAN 115KV and GWF-KINGSBURG 115KV	P6	N-1-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	KINGSBURGD - 1D 115KV & GWF-KINGSBURG LINE	P2	Breaker	0.98	0.98	0.89	0.98	1.02	1.04	1.00	0.98	0.98	Continue to monitor
	KINGSBURGD - 1D 115KV & MCCALL-KINGSBURG #1 LINE	P2	Breaker	0.98	0.98	0.89	0.98	1.02	1.04	1.00	0.98	0.98	Continue to monitor
	KINGSBURGD 115KV SECTION 1D	P2	Bus	0.98	0.98	0.89	0.98	1.02	1.04	1.00	0.98	0.98	Continue to monitor
CRESSEY 115.0 kV	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	0.23	NA	NA	0.35	0.25	NA	Install redundant battery/relay supply
DAIRYLND 115.0 kV	LE GRAND-DAIRYLAND 115KV MOAS OPENED ON ADERASLRJCT_DAIRYLND and PANOCHE-MENDOTA 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.37	> 0.9	0.86	> 0.9	0.88	> 0.9	Generation re-dispatch
DINUBA 70.0 kV	REEDLEY 115/70KV TB 2 and REEDLEY 115/70KV TB 4	P6	N-1-1	0.31	0.34	0.30	0.41	> 0.9	> 0.9	0.55	0.44	0.34	Project: Reedley 70 kV reinforcement project
EL CAPTN 115.0 kV	WILSON 230/115KV TB 2 and WILSON 230/115KV TB 1	P6	N-1-1	0.76	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Project: Wilson 115 kV reinforcement project
	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Breaker	Diverge	NA	NA	0.22	NA	NA	0.34	0.25	NA	Project:Wilson 115 kV reinforcement project
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	0.22	NA	NA	0.34	0.25	NA	Install redundant battery/relay supply
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	0.22	0.46	Diverge	0.34	0.25	Diverge	Install redundant battery/relay supply
FIGRDN 1 230.0 kV	GREGG-HERNDON #1 230KV and GREGG-HERNDON #2 230KV	P6	N-1-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.87	0.90	0.78	0.97	1.01	1.07	0.96	0.97	0.90	Install redundant battery/relay supply
GALLO 115.0 kV	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	0.23	NA	NA	0.35	0.25	NA	Install redundant battery/relay supply
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	0.22	0.46	Diverge	0.35	0.25	Diverge	Install redundant battery/relay supply
	MELONES-WILSON 230KV & WARNERVILLE-WILSON 230KV	P7	DCTL	0.93	1.00	0.91	0.90	1.03	1.07	0.93	0.92	1.00	Generation re-dispatch
HAMMONDS 115.0 kV	PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Breaker	0.87	0.93	0.89	0.83	0.99	1.03	0.90	0.91	0.92	Project:Wilson 115 kV reinforcement project
	PANOCHE2 - 2D 115KV & PANOCHE-EXCELSIOR SW STA #2 LINE	P2	Breaker	0.88	0.92	0.89	0.88	1.00	1.04	0.93	0.91	0.92	Project:Wilson 115 kV reinforcement project
	PANOCHE2 115KV SECTION 2D	P2	Bus	0.88	0.92	0.89	0.88	1.00	1.04	0.93	0.91	0.92	Project:Wilson 115 kV reinforcement project
	PANOCHE-ORO LOMA 115KV (PANOCHEJ-PANOCHE2)	P2	Line Section w/o Fault	0.88	0.92	0.89	0.88	1.00	1.04	0.93	0.91	0.92	Project:Wilson 115 kV reinforcement project
HERNDON 115.0 kV	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	0.92	0.80	0.99	1.03	1.08	0.98	0.99	0.92	Install redundant battery/relay supply
HERNDON 230.0 kV	GREGG-HERNDON #1 230KV and GREGG-HERNDON #2 230KV	P6	N-1-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.87	0.90	0.78	0.97	1.01	1.06	0.96	0.97	0.90	Install redundant battery/relay supply
KEARNEY 230.0 kV	TRANQUILLITY SW STA-KEARNEY 230KV	P1	N-1	0.93	0.96	0.92	0.90	1.01	1.02	0.93	0.92	0.96	Generation re-dispatch
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	0.96	0.98	0.95	Diverge	1.01	1.03	0.96	0.89	0.98	Generation re-dispatch
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	0.93	0.96	0.92	0.90	1.01	1.02	0.93	0.92	0.96	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV (MCMULLN1-KEARNEY)	P2	Line Section w/o Fault	0.93	0.96	0.92	0.90	1.01	1.02	0.93	0.92	0.96	Generation re-dispatch
	Mcmullin 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.96	0.92	0.90	1.01	1.02	0.93	0.92	0.96	Install redundant battery/relay supply
KERCKHF1 115.0 kV	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.96	0.87	1.01	1.03	1.07	1.00	1.01	0.96	Install redundant battery/relay supply
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.92	Diverge	Diverge	1.03	1.05	0.92	0.93	0.88	Install redundant battery/relay supply
LIVNGSTN 115.0 kV	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	0.23	NA	NA	0.35	0.25	NA	Install redundant battery/relay supply
	MELONES-WILSON 230KV & WARNERVILLE-WILSON 230KV	P7	DCTL	0.93	1.00	0.91	0.90	1.03	1.07	0.93	0.92	1.00	Generation re-dispatch

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	2031 Spring Off-Peak	2036 Summer-Off Peak	2028 SP Heavy Renewable & Min Gas Gen	2028 OP Sensitivity	2031 SP High CEC Forecast	
MADERA 70.0 kV	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	1.06	1.10	1.00	0.99	Diverge	Install redundant battery/relay supply
MALAGA 115.0 kV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.93	Diverge	Diverge	1.02	1.04	0.96	0.95	0.89	Install redundant battery/relay supply
MANCHSTR 115.0 kV	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.93	0.82	0.99	1.03	1.07	0.98	0.99	0.93	Install redundant battery/relay supply
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.90	Diverge	Diverge	1.02	1.04	0.91	0.92	0.87	Install redundant battery/relay supply
MENDOTA 70.0 kV	CALRENEW 12.50KV GEN UNIT 1 and MENDOTA 115/70KV TB 5	P3	G-1/N-1	0.87	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Summer setup
	MENDOTA 115/70KV TB 5	P1	N-1	0.88	0.92	0.87	0.92	0.98	0.95	0.93	0.92	0.92	Summer setup
	PANOCHE-MENDOTA 115KV	P1	N-1	1.03	1.03	1.02	0.89	1.04	1.01	1.04	1.03	1.03	Generation re-dispatch
	MENDOTA 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	0.88	0.92	0.86	0.92	0.98	0.95	0.93	0.91	0.91	Summer setup
	Mendota 115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.86	NA	NA	0.95	NA	NA	NA	Install redundant battery/relay supply
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.03	1.01	0.88	1.04	1.02	1.04	1.04	1.03	Install redundant battery/relay supply
MENDOTA 115.0 kV	EXCHQUER 13.80KV GEN UNIT 1 and PANOCHE-MENDOTA 115KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	LE GRAND-DAIRYLAND 115KV MOAS OPENED ON LE GRAND_ADERASLRJCT and PANOCHE-MENDOTA 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.41	> 0.9	0.89	> 0.9	> 0.9	> 0.9	Generation re-dispatch
	PANOCHE-MENDOTA 115KV	P1	N-1	1.02	1.03	1.02	0.88	1.04	1.01	1.03	1.02	1.03	Generation re-dispatch
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.03	1.02	0.87	1.04	1.01	1.02	1.02	1.03	Install redundant battery/relay supply
MERCED 115.0 kV	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	0.26	NA	NA	0.39	0.28	NA	Install redundant battery/relay supply
	Wilson 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	0.26	0.48	Diverge	0.39	0.28	Diverge	Install redundant battery/relay supply
ORO LOMA 115.0 kV	PANOCHE-ORO LOMA 115KV and WILSON-ORO LOMA 115KV	P6	N-1-1	0.70	0.88	0.86	0.76	> 0.9	> 0.9	> 0.9	0.89	0.91	Summer setup
	PANOCHE2 115KV SECTION 2D	P2	Bus	0.88	0.93	0.90	0.89	1.01	1.04	0.93	0.91	0.92	Continue to monitor
	Panoche 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.97	0.90	0.87	1.00	1.05	0.93	0.95	0.97	Install redundant battery/relay supply
PNEDLE 115.0 kV	GREGG 1-25 25.00KV GEN UNIT VS and HERNDON-BULLARD #1 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
	HERNDON 230KV - SECTION 1E & 2E	P2	Breaker	0.89	0.93	0.83	0.98	1.00	1.05	0.96	0.98	0.92	Continue to monitor
	HERNDON-BULLARD #1 115KV (HERNDON-PNDLJ1)	P2	Line Section w/o Fault	0.90	0.95	0.89	0.94	1.01	1.05	0.93	0.95	0.94	Continue to monitor
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.87	0.90	0.77	0.98	1.02	1.08	0.96	0.98	0.91	Install redundant battery/relay supply
REEDLEY 115.0 kV	MC CALL 230KV - SECTION 1E & 1D	P2	Breaker	0.93	0.96	0.88	0.97	1.02	1.05	0.97	0.98	0.95	Continue to monitor
	Gregg 230KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.95	0.88	1.00	1.03	1.05	0.99	1.01	0.95	Install redundant battery/relay supply
	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.87	Diverge	Diverge	1.02	1.05	0.90	0.91	0.83	Install redundant battery/relay supply
	Mccall 230-115KV Batt(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	1.02	1.06	0.90	0.89	Diverge	Install redundant battery/relay supply
	MCCALL-REEDLEY 115KV & MCCALL-SANGER #3 115KV	P7	DCTL	0.92	0.95	0.90	0.97	1.02	1.06	0.96	0.98	0.94	Continue to monitor
SANGER 115.0 kV	MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.89	Diverge	Diverge	1.02	1.05	0.92	0.93	0.85	Install redundant battery/relay supply
SHEPHERD 115.0 kV	HERNDON 115KV - SECTION 1D & 2D	P2	Breaker	0.94	0.97	0.87	1.02	1.03	1.06	1.01	1.03	0.97	Continue to monitor
TVY VLLY 70.0 kV	FRIANTDAM 6.60KV GEN UNIT 2 and BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P3	G-1/N-1	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
WAHTOKE 115.0 kV	KINGSBUR 13.80KV & SANGERCGN 13.80KV & KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS and MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE	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
	MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE and SANGER-REEDLEY 115KV MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	0.79	0.83	0.70	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.85	Operating solution
	MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE	P1	N-1	0.92	0.94	0.90	0.97	1.02	1.06	0.96	0.97	0.94	Continue to monitor
	MC CALL 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	0.91	0.94	0.89	0.96	1.02	1.06	0.96	0.97	0.93	Continue to monitor
	MCCALL-REEDLEY 115KV (MC CALL-WAHTOKE)	P2	Line Section w/o Fault	0.92	0.94	0.90	0.97	1.02	1.06	0.96	0.97	0.94	Continue to monitor
WILSON 230.0 kV	WARNERVILLE-WILSON 230KV and MELONES-WILSON 230KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	MELONES-WILSON 230KV & WARNERVILLE-WILSON 230KV	P7	DCTL	0.92	0.97	0.91	0.89	1.00	1.03	0.92	0.91	0.97	Generation re-dispatch
WILSON A 115.0 kV	WILSON 230/115KV TB 2 and WILSON 230/115KV TB 1	P6	N-1-1	0.78	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
WOODWARD 115.0 kV	KERCKHOFFPH2 13.80KV GEN UNIT 1 and HERNDON-WOODWARD 115KV	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
	MCCALL-REEDLEY 115KV MOAS OPENED ON MC CALL_WAHTOKE and HERNDON-WOODWARD 115KV	P6	N-1-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
WST FRSO 115.0 kV	SANGER-CALIFORNIA AVE 115KV and MCCALL-WEST FRESNO #2 115KV	P6	N-1-1	0.89	0.85	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.86	Mitigation under development

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	
MENDOTA 115.0 kV	PANOCHE-MENDOTA 115KV	P1	N-1	<8	<8	<8	12	<8	<8	<8	<8	<8	Generation re-dispatch
COPPRMNE 70.0 kV	BORDEN-COPPERMINE 70KV MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	12	<8	<8	<8	<8	<8	<8	<8	<8	Project: Coppermine reinforcement project
MENDOTA 70.0 kV	PANOCHE-MENDOTA 115KV	P1	N-1	<8	<8	<8	13	<8	<8	<8	<8	<8	Generation re-dispatch
MENDOTA 70.0 kV	MENDOTA 115/70KV TB 5	P1	N-1	16	12	17	10	<8	10	11	12	13	Summer setup
CHWCHLLA 115.0 kV	LE GRAND-CHOWCHILLA 115KV	P1	N-1	11	10	14	<8	<8	NA	<8	<8	10	Mitigation under 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	
P1-1 - Gen KERCKHOF 13.8 kV unit 1	P1	N-1	No issues	Potential WECC/NERC criteria violation	No issues	No issues	No issues	No issues	Future projects
P1-2 - Line GREGG to HERNDON 230 kV ckt 1 with RAS	P1	N-1	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Continue to monitor
P1-4 - SVD GREGG 230 kV id v	P1	N-1	No issues	No issues	No issues	No issues	No issues	Potential WECC/NERC criteria violation	Sensitivity only
P2-1 - Line HENTAP1 to MUSTANGSS 230 kV ckt 1	P2	Bus/Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	No issues	No issues	No issues	Future projects
P2-2 - Bus Fault at GATES 230 kV Section 1D	P2	Bus/Breaker	No issues	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Potential WECC/NERC criteria violation	Future projects
P2-2 - Bus Fault at GATES 230 kV Section 1D" 1.00	P2	Bus/Breaker	Potential WECC/NERC criteria violation	No issues	No issues	No issues	No issues	No issues	Future projects
P2-3 - Internal fault at non-Bus-tie breaker Herndon 252 protecting Line GREGG to HERNDON 230 kV ckt 1 with RAS	P2	Bus/Breaker	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Continue to monitor
P2-4 - Internal fault at Bus-tie Breaker 202 at MC CALL 230 kV Bus D	P2	Bus/Breaker	No issues	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Sensitivity only
P2-4 - Internal fault at Bus-tie Breaker 302 at MC CALL 230 kV Bus E	P2	Bus/Breaker	No issues	No issues	Potential WECC/NERC criteria violation	No issues	No issues	Potential WECC/NERC criteria violation	Continue to monitor
P3-2 - Gen HELMS 1 18 kV unit 1 and Line GREGG to HERNDON 230 kV ckt 1 with RAS	P3	N-1/G-1	No issues	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Sensitivity only
P3-2 - Gen KERCKHOF 13.8 kV unit 1 and Line GREGG to HERNDON 230 kV ckt 1	P3	N-1/G-1	No issues	No issues	No issues	No issues	No issues	Potential WECC/NERC criteria violation	Sensitivity only
P3-2 - Gen SUNRISEPR 18 kV (3 units) and Line GREGG to HERNDON 230 kV ckt 1 with RAS	P3	N-1/G-1	No issues	No issues	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Continue to monitor
P3-3 - Gen HELMS 1 18 kV unit 1 and Tran MC CALL 230/115 kV bk 1	P3	N-1/G-1	No issues	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Sensitivity only
P3-4 - Gen HELMS 1 18 kV unit 1 and SVD GREGG 230 kV id v	P3	N-1/G-1	No issues	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Sensitivity only
P4-1 - Stuck 115 kV Breaker 172 protecting Gen KERCKHOF 13.8 kV unit 1	P4	Stuck Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Turn off Kerckhoff unit
P4-6 - Stuck Bus-tie Breaker 202 protecting Substation Bus GATES 230 kV Section 1D	P4	Stuck Breaker	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	No issues	No issues	No issues	Future projects
P5-5c - Failure of non-redundant DC battery supplying Borden 230kV and 70kV Buses	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Install redundant battery supply
P5-5c - Failure of non-redundant DC battery supplying PANOCHE 230kV Buses for SLG fault at PANOCHE 230kV	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Install redundant battery supply
P7-1_RF - Fault on Line GATES E-PANOCHE* 230 kV ckt 1 and Line GATES E-PANOCHE* 230 kV ckt 2 (HSR Failure)	P7	DCTL	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	No issues	No issues	No issues	Future projects
P7-1_RS - Fault on Line GATES E-PANOCHE* 230 kV ckt 1 and Line GATES E-PANOCHE* 230 kV ckt 2 (HSR Success)	P7	DCTL	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issues	No issues	No issues	No issues	Future projects

Worst Contingency	Category	Category Description	Amount of Load Drop (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	

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	

No single source substation with more than 100 MW