



Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 SP Heavy Renewable & Min Gas Gen	N/A	N/A	
EOP-SP-T-1	N/A	N-1-1 Julian - Mirage 230 kV and Eagle Mountain - Iron Mountain 230 kV	P6	L-1/L-1	Diverged	Diverged	Diverged	Converge	Converge	Diverged			System adjustments after initial contingency per ISO OP 7720F.
EOP-SP-T-2	N/A	N-1-1 Julian - Mirage 230 kV and Camino - Gene - Iron Mountain - Mead 230 kV	P6	L-1/L-1	Diverged	Diverged	Diverged	Converge	Converge	Diverged			System adjustments after initial contingency per ISO OP 7720F.
EOP-SP-T-3	N/A	N-1-1 Julian - Mirage 230 kV and BlytheSC - Eagle Mountain 161 kV	P6	L-1/L-1	Diverged	Diverged	Diverged	Converge	Converge	Diverged			System adjustments after initial contingency per ISO OP 7720F.
EOP-SP-T-4	N/A	N-1-1 Julian - Mirage 230 kV and Blythe 161 kV Bus Tie (WALC - SCE)	P6	L-1/L-1	Diverged	Diverged	Diverged	Converge	Converge	Diverged			System adjustments after initial contingency per ISO OP 7720F.
EOP-SP-T-5	N/A	N-1-1 Julian - Mirage 230 kV and Eagle Mountain 230/161 kV Transformer	P6	L-1/L-1	Diverged	Diverged	Diverged	Converge	Converge	Diverged			System adjustments after initial contingency per ISO OP 7720F.
EOP-SP-T-6	Eagle Mountain - Iron Mountain 230 kV	N-1-1 Palo Verde - Colorado River 500 kV and Serrano - Valley 500 kV with SPS tripping 3 Blythe units	P6	L-1/L-1	101.09	<100	<100	<100	<100	<100			Colorado River - Delaney 500 kV line in service in 2020, Operation Procedure in the interim
EOP-SP-T-7	Eagle Mountain - Iron Mountain 230 kV	N-1-1 Palo Verde - Colorado River 500 kV and N. Gila-Imperial Valley 500 kV with SPS tripping 3 Blythe units	P6	L-1/L-1	107.28	<100	<100	<100	<100	<100			Colorado River - Delaney 500 kV line in service in 2020, Operation Procedure in the interim

Study Area: SCE Eastern area

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 SP Heavy Renewable & Min Gas Gen	N/A	N/A	
EOP-SP-VD-1	BUCK230 230 kV	N-1 Blythe CCGT Outage	P1	L-1	<5	<5	<5	5.88	<5	<5			Change the scheduled voltage at BLY1CT1, BLY1CT2 and BLY1ST1 to be 1.04375 to decrease voltage deviation

Study Area: **SCE Eastern area**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Summer Off-Peak	2020 Spring Light Load	2020 SP Heavy Renewable & Min Gas Gen	N/A	N/A	
EOP-SP-V-1	BUCK230 230 kV	N-1 Julian Hinds - Mirage 230 kV	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0719	<1.052			Install shunt reactor
EOP-SP-V-2	J.HINDS 230 kV	N-1 Julian Hinds - Mirage 230 kV	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0628	<1.052			Install shunt reactor
EOP-SP-V-3	EAGLEMTN 230 kV	N-1 Julian Hinds - Mirage 230 kV	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0613	<1.052			Install shunt reactor
EOP-SP-V-4	BUCK230 230 kV	N-1 Julian Hinds Shunt Reactor	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0599	<1.052			Install shunt reactor
EOP-SP-V-5	BUCK230 230 kV	N-1 Julian Hinds MWD - Eagle Mountain 230 kV	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0557	<1.052			Install shunt reactor
EOP-SP-V-6	BUCK230 230 kV	N-1 J Hinds 230 kV Bus Tie (MWD - SCE)	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0555	<1.052			Install shunt reactor
EOP-SP-V-7	EAGLEMTN 230 kV	N-1 Julian Hinds MWD - Eagle Mountain 230 kV	P1	L-1	<1.052	<1.052	<1.052	<1.052	1.0523	<1.052			Install shunt reactor
EOP-SP-V-8	BUCK230 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and Julian Hinds 230 kV Reactor	P6	L-1/L-1	<1.052	<1.052	<1.052	<1.052	1.1074	<1.052			Install shunt reactor
EOP-SP-V-9	J.HINDS 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and Julian Hinds 230 kV Reactor	P6	L-1/L-1	<1.052	<1.052	<1.052	<1.052	1.098	<1.052			Install shunt reactor
EOP-SP-V-10	EAGLEMTN 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and Julian Hinds 230 kV Reactor	P6	L-1/L-1	<1.052	<1.052	<1.052	<1.052	1.0907	<1.052			Install shunt reactor
EOP-SP-V-11	IRON MTN 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and CAMINO - GENE - IRON MTN - MEAD 230 KV OUTAGE	P6	L-1/L-1	<1.052	<1.052	<1.052	<1.052	1.0879	<1.052			Install shunt reactor
EOP-SP-V-12	BUCK230 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and Blythe CCGT Outage	P6	L-1/L-1	<1.052	<1.052	<1.052	1.0632	N/A	<1.052			Install shunt reactor
EOP-SP-V-13	J.HINDS 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and Blythe CCGT Outage	P6	L-1/L-1	<1.052	<1.052	<1.052	1.0546	N/A	<1.052			Install shunt reactor
EOP-SP-V-14	EAGLEMTN 230 kV	N-1-1 Julian Hinds - Mirage 230 kV and Blythe CCGT Outage	P6	L-1/L-1	<1.052	<1.052	<1.052	1.0534	N/A	<1.052			Install shunt reactor

Study Area: **SCE Eastern area**

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance								Potential Mitigation Solutions
				2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 SOP Heavy Renewable & Min Gas Gen	N/A	N/A	
EOP-SP-TS-1	Julian Hinds–Mirage & Eagle Mountain–Iron Mountain 230 kV lines	P6	L-1/L-1	Diverged	Diverged	Diverged	Diverged		Diverged			System adjustments after initial contingency per ISO OP 7720F.
EOP-SP-TS-2	Julian Hinds–Mirage & Iron Mountain–Camino–Mead–Gene 230 kV lines	P6	L-1/L-1	Diverged	Diverged	Diverged	Diverged		Diverged			System adjustments after initial contingency per ISO OP 7720F.

Study Area: SCE Eastern area



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)								Potential Mitigation Solutions
				Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SP-SLD-1												

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

Study Area: SCE Eastern area



Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)								Potential Mitigation Solutions
		Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SP-SS-1										

No single source substation with more than 100 MW Load