



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			ISO Approved Projects & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
Pardee - Sylmar 230 kV #1 or #2	Remaining Pardee - Sylmar 230 kV line & Victorville - Lugo 500 kV line	P6	L-1/L-1	<100	<100	110	<100	<100	<100	<100	<100	Dispatch available resources including energy storage and demand response after initial contingency
Mesa - Laguna Bell 230 kV #1	Mesa - Lighthipec & Mesa - Redondo 230 kV lines	P6	L-1/L-1	104	100	110	<100	<100	104	<100	117	Dispatch available resources including energy storage and demand response pre-contingency (P7) or after initial contingency (P6); monitor LCR impact in local capacity studies and economic impact in production simulation studies
	Mesa - Lighthipec & Mesa - Laguna Bell #2 230 kV lines	P7	L-2	100	<100	102	<100	<100	<100	<100	109	
Mesa 500/230 kV Transformers	Two 500/230 kV Transformers	P6	T-1/T-1	<100	<100	<100	<100	<100	<100	<100	102	System adjustment after intial contingency
Serrano 500/230 kV Transformers (Worst case T2)	Two Serrano 500/230 kV Transformers	P6	T-1/T-1	<100	<100	100	<100	<100	104	101	<100	System adjustment per OP 7590 after initial or second contingency .
Vincent 500/230 kV Transformer #2 or #3	Vincent – Mesa 230 kV & Vincent 500/230 kV Transformer #3 or #2	P6	L-1/T-1	<100	<100	<100	<100	<100	<100	<100	104	System adjustment per OP 7550 after initial or second contingency
Vincent 500/230 kV Transformer #1 or #4	Vincent – Mesa 500 kV & Vincent 500/230 kV Transformer #4 or #1	P6	L-1/T-1	<100	<100	<100	<100	<100	<100	<100	107	

Note: The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

Study Area: SCE Metro

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			ISO Approved Projects & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2029 CAISO Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
Goleta	Santa Clara–Goleta #1 or #2 230 kV & Santa Clara 230 kV Shunt Capacitor	P6	N-1/L-1	>0.9	>0.9	0.90	>0.9	>0.90	>0.90	0.90	>0.90	>0.90	Planned energy storage resources procured under the Santa Clara area RFO (ISD 2021)

Note: The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

Study Area: SCE Metro

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)					Post Cont. Voltage Deviation % (Sensitivity Scenarios)			ISO Approved Projects & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	

No voltage deviation issues were identified

Note: The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off- Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
Lugo-Victorville 500 kV, 3-PH Fault @ Lugo 500 kV, Normal Clearing	P1.2	Single contingency	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Imperial Valley-N.Gila 500 kV, 3-PH Fault @ Imperial Valley 500 kV, Normal Clearing	P1.2	Single contingency	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Loss of Palo Verde Unit No.1, 3-PH Fault @ Palo Verde 500 kV, Normal Clearing	P1.1	Two overlapping events	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Loss of Santiago Synchronous Condensers, 3-PH Fault @ Santiago 230 kV, Normal Clearing	P1.3	Single contingency	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Sylmar No.1 230 kV & Gould-Sylmar 230 kV, 3-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Sylmar No.2 230 kV & Eagle Rock-Sylmar 230 kV, 3-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Gould-Sylmar 230 kV & Sylmar Bank E 230 kV, 3-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.3	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Eagle Rock-Sylmar 230 kV & Sylmar Bank E 230 kV, 3-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Sylmar No.1 230 kV & Sylmar Bank F 230 kV, 3-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.3	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Sylmar No.2 230 kV & Sylmar Bank F 230 kV, 3-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.3	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Sylmar Bank G 230 kV & Sylmar Bank E 230 kV, 1-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.3	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Sylmar Bank G 230 kV & Sylmar Bank F 230 kV, 1-PH Fault @ Sylmar(SCE) 230 kV, Delayed Clearing	P4.3	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Devers-Red Bluff No.1 500 kV& Devers-Valley No.1 500 kV, 3-PH Fault @ Devers 500 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Rancho Vista 500 kV & Lugo-Vincent No.1 500 kV, 1-PH Fault @ Lugo 500 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Vincent No.2 500 kV & Lugo-Victorville 500 kV, 1-PH Fault @ Lugo 500 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Rancho Vista 500 kV & Mira Loma-Serrano No.1 500 kV, 3-PH Fault @ Mira Loma 500 kV, Delayed Clearing	P4.2	Stuck Breaker	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off- Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
Mira Loma-Walnut 230 kV & Chino-Mira Loma No.2 230 kV, 3-PH Fault @ Mira Loma 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Olinda 230 kV & Chino-Mira Loma No.3 230 kV, 3-PH Fault @ Mira Loma 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Rancho Vista No.1 230 kV & Mira Loma-Vista No.2 230 kV, 3-PH Fault @ Mira Loma 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Etiwanda-Rancho Vista No.1 230 kV & Mira Loma-Rancho Vista No.2 230 kV, 3-PH Fault @ Mira Loma 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Padua-Rancho Vista No.1 230 kV & Etiwanda-Rancho Vista No.2 230 kV , 3-PH Fault @ Rancho Vista 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Chino-Serrano 230 kV & Lewis-Serrano No.1 230 kV, 3-PH Fault @ Serrano 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lewis-Serrano No.2 230 kV & SONGS-Serrano 230 kV , 3-PH Fault @ Serrano 500 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Vincent 500 kV & Midway-Vincent No.2 500 kV , 3-PH Fault @ Vincent 500 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Antelope-Vincent No.1 500 kV & Lugo-Vincent No.2 500 kV , 3-PH Fault @ Vincent 500 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Vincent No.2 230 kV & Santa Clara-Vincent 230 kV, 3-PH Fault @ Vincent 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Vincent No.1 230 kV & Mesa-Vincent No.1 230 kV, 3-PH Fault @ Vincent 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Chino-Viejo 230 kV & Chino-Serrano 230 kV , 3-PH Fault @ Chino 230 kV , Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Barre-Ellis No.2 230 kV & Ellis-Santiago 230 kV, 3-PH Fault @ Ellis 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Ellis-Johanna 230 kV & Barre-Ellis No.1 230 kV, 3-PH Fault @ Ellis 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Goodrich-Gould 230 kV & Goodrich-Mesa 230 kV , 3-PH Fault @ Goodrich 230 kV, Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Hinson-Lighthipe 230 kV & Hinson-Harborgen 230 kV, 3-PH Fault @ Hinson 230 kV , Delayed Clearing	P4.2	Non-Redundant Bus Diff Relay Failure	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
Olinda-Walnut 230 kV & Mira Loma-Olinda 230 kV, 3-PH Fault @ Olinda 230 kV , Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Rio Hondo No.2 230 kV & Rio Hondo-Vincent No.2 230 kV, 3-PH Fault @ Rio Hondo 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Moorpark-Santa Clara No.1 230 kV & Goleta-Santa Clara No.1 230 kV, 3-PH Fault @ Santa Clara 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Goleta-Santa Clara No.2 230 kV & Moorpark-Santa Clara No.2 230 kV, 3-PH Fault @ Santa Clara 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
SONGS-Santiago No.2 230 kV & Ellis-Santiago 230 kV, 3-PH Fault @ Santiago 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Bailey-Pardee 230 kV & Pardee-Vincent No.1 230 kV, 3-PH Fault @ Pardee 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Vincent No.2 230 kV & Pardee-Pastoria 230 kV, 3-PH Fault @ Pardee 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Santa Clara 230 kV & Pardee-Pastoria-Warne 230 kV, 3-PH Fault @ Pardee 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Moor Park-Pardee No.2 230 kV & Pardee-Sylmar No.2 230 kV, 3-PH Fault @ Pardee 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Pardee-Sylmar No.1 230 kV & Moor Park-Pardee No.3 230 kV, 3-PH Fault @ Pardee 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Barre-Villa Park 230 kV & Serrano-Villa Park No.1 230 kV, 3-PH Fault @ Villa Park 230 kV, Delayed Clearing	P4.2	Two overlapping events	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Barre-Lewis 230 kV & Lewis-Serrano No.2 230 kV, 3-PH Fault @ Lewis 230 kV, Delayed Clearing	P4.2	Bipolar DC	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lewis-Serrano 230 kV & Lewis-Villa Park 230 kV, 3-PH Fault @ Lewis 230 kV , Delayed Clearing	P4.2	Bipolar DC	15	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Alamitos (Sec. "A"), 1-PH Fault @ Alamitos "A" 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Alamitos (Sec. "B"), 1-PH Fault @ Alamitos "B" 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Barre (N/S bus), 1-PH Fault @ Barre 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off- Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
Center (N/S bus), 1-PH Fault @ Center 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Chino (E/W bus), 1-PH Fault @ Chino 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Eagle Rock (N/S bus), 1-PH Fault @ Eagle Rock 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
El Nido (N/S bus), 1-PH Fault @ El Nido 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Harborgen, 1-PH Fault @ Harbor 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Hinson, 1-PH Fault @ Hinson 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Laguna Bell, 1-PH Fault @ Laguna Bell 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lewis, 1-PH Fault @ Lewis 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lighthipe, 1-PH Fault @ Lighthipe 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Olinda, 1-PH Fault @ Olinda 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Walnut , 1-PH Fault @ Walnut 230 kV , Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
El Segundo (N/S bus), 1-PH Fault @ El Segundo 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Goodrich, 1-PH Fault @ Goodrich 230 kV, Bus diff relay failure	P5.5	DCTL	29	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Antelope-Whirlwind 500 kV & Antelope-Vincent No.1 500 kV, 3-PH Fault @ Antelope 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Antelope-Whirlwind 500 kV & Antelope-Windhub 500 kV, 3-PH Fault @ Antelope 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Eldorado-Lugo 500 kV & Eldorado Mohave 500 kV , 3-PH Fault @ Eldorado 500kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
Eldorado-Lugo 500 kV & Lugo-Mohave 500 kV , 3-PH Fault @ Lugo 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Devers-Red Bluff No.1 & No.2 500 kV, 3-PH Fault @ Devers 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Devers-Valley No.1 & No.2 500 kV, 3-PH Fault @ Devers 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
ECO-Miguel 500 kV & Ocotillo-Suncrest 500 kV, 3-PH Fault @ ECO 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Mira Loma 500 kV & Mira Loma 4AA bank, 3-PH Fault @ Mira Loma 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Serrano No.2 500 kV & Mira Loma 4AA bank, 3-PH Fault @ Mira Loma 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Rancho Vista-Serrano 500 kV & Lugo-Rancho Vista 500 kV, 3-PH Fault @ Rancho Vista 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Rancho Vista 3AA & 4AA bank, 3-PH Fault @ Rancho Vista 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano-Valley/Alberhill 500 kV & Rancho Vista-Serrano 500 kV, 3-PH Fault @ Serrano 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano- Valley/Alberhill 500 kV & Mira Loma-Serrano No. 2 500 kV, 3-PH Fault @ Serrano 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano 2AA bank & Serrano 3AA bank, 3-PH Fault @ Serrano 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
SONGS-San Luis Rey No.1 & No.2 230 kV, 3-PH Fault @ SONGS 230 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Vincent No.1 & No.2 500 kV, 3-PH Fault @ Vincent 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Vincent 500 kV & Mesa-Mira Loma 500 kV , 3-PH Fault @ Mesa 500 kV, Normal Clearing	P6.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Loss of IPPDC Bipole with North-to-South flow, 1-PH Fault @ Adelanto 500 kV, Normal Clearing	P7.2	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Loss of PDCI Bipole Converters with North-to-South flow, 1-PH Fault @ Sylmar(SCE) 230 kV, Normal Clearing	P7.2	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off- Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
Alamitos-Center 230 kV & Center-Del Amo 230 kV, 1-PH Fault @ Center 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Center-Mesa 230 kV & Center-Olinda 230 kV, 1-PH Fault @ Center 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Ellis-Santiago 230 kV & Ellis-Johanna 230 kV , 1-PH Fault @ Johanna 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Center-Mesa 230 kV & Mesa-Walnut 230 kV, 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Goodrich-Mesa 230 kV & Mesa-Vincent No. 1 230 kV, 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Center-Olinda 230 kV & Mesa-Walnut 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Redondo 230 kV & Lighthipe-Harrison 230 kV, 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Redondo 230 kV & Harrison-Redondo 230 kV, 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Redondo 230 kV & La Fresa-Laguna Bell 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Fault Duration (cycles)	Transient Stability Performance					Potential Mitigation Solutions
				2025 Summer Peak	2030 Summer Peak	2022 Spring Off- Peak	2025 SP High CEC Forecast	2022 Spring OP Hi Renew & Min Gas Gen	
La Fresa-Laguna Bell 230 kV & Lighthipe-Mesa 230 kV, 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lighthipe-Mesa 230 kV & Del Amo-Laguna Bell 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Redondo 230 kV & Laguna Bell-Mesa No.1 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lighthipe-Mesa 230 kV & Laguna Bell-Mesa No.2 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Rio Hondo No.1 & No.2 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Goodrich-Gould 230 kV & Mesa-Vincent No.2 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Vincent No.1 230 kV & Goodrich-Mesa 230 kV , 1-PH Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Mira Loma 500 kV & Chino-Mira Loma No.3 230 kV, 1-PH Fault @ Mira Loma 500 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Walnut 230 kV & Mira Loma-Olinda 230 kV , 1-PH Fault @ Mira Loma 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Rancho Vista No.1 & No.2 230 kV, 1-PH Fault @ Rancho Vista 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Ellis-Santiago 230 kV & Johanna-Santiago 230 kV , 1-PH Fault @ Santiago 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma Serrano No.2 500 kV & Rancho Vista-Serrano 500 kV, 1-PH Fault @ Serrano 500 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano-Villa Park No.1 & No.2 230 kV, 1-PH Fault @ Serrano 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
San Onofre-Serrano 230 kV & Chino-Viejo 230 kV, 1-PH Fault @ Viejo 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Rio Hondo-Vincent No.1 & No.2 230 kV, 1-PH Fault @ Vincent 230 kV, Normal Clearing	P7.1	DCTL	4	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation

Note: The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

Study Area: SCE Metro



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)								Potential Mitigation Solutions
			Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

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

Note: The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.

Study Area: SCE Metro



Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)								Potential Mitigation Solutions
	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	

No single source substation with more than 100 MW

Note: The off-peak sensitivity case with heavy renewable output and minimum gas generation commitment is based on the 2022 Spring Off-Peak Case rather than the 2025 Spring Off-Peak Case as indicated in the study plan.