



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			ISO Approved Projects & Potential Mitigation Solutions
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2029 CAISO Summer Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	
Pardee - Sylmar 230 kV #1 or #2	Remaining Pardee - Sylmar 230 kV line	P1	L-1	<100	<100	97	129	<100	<100	<100	<100	<100	The ratings of the Pardee–Sylmar lines are currently limited due to terminal elements at Pardee and LADWP’s Sylmar substations. Increasing the ratings to the full rating of the conductors (145% increase) is sufficient to address the P1 and P3 overloads (142%). Omar and Sycamore generating plants, which were assumed to be retired due to the 40-year age criteria, or equivalent replacement local capacity resources along with existing/procured DR and storage in the Big Creek-Ventura area can address the P6 overloads.
	Victorville - Lugo 500 kV line	P1	L-1	<100	<100	<100	100	<100	<100	<100	<100	<100	
	Pastoria Block 1 & Remaining Pardee - Sylmar 230 kV line	P3	G-1/L-1	<100	<100	109	142	<100	<100	<100	<100	<100	
	Remaining Pardee - Sylmar 230 kV line & Victorville - Lugo 500 kV line	P6	L-1/L-1	<100	<100	123	170	<100	<100	<100	<100	<100	
Barre–Villa Park 230 kV	Huntington Beach RP Block & Barre–Lewis 230 kV	P3	G-1/L-1	104	<100	<100	<100	<100	<100	<100	<100	105	Redispatch resources after initial contingency until Mesa 500 kV Substation is in service (2022)
Barre–Lewis 230 kV	Huntington Beach RP Block & Barre–Villa Park 230 kV	P3	G-1/L-1	104	<100	<100	<100	<100	<100	<100	<100	106	
Ellis–Johanna 230 230 kV	Imperial Valley–North Gilla 500 kV & Ellis–Santiago 230 kV	P6	L-1/L-1	<100	<100	<100	<100	<100	<100	<100	101	<100	Redispatch resources after initial contingency
Ellis–Santiago 230 kV	Imperial Valley–North Gilla 500 kV & Ellis–Johanna 230 230 kV	P6	L-1/L-1	<100	<100	<100	<100	<100	<100	<100	107	<100	
Mesa - Laguna Bell 230 kV #1	Mesa - Lighthipe & Mesa - La Fresa 230 kV lines	P6	L-1/L-1	<100	107	110	<100	<100	<100	113	<100	<100	Dispatch energy storage and demand response resources pre-contingency (P7) or after initial contingency (P6); monitor LCR impact in local capacity studies and economic impact in production simulation studies
	Mesa - Lighthipe & Mesa - Laguna Bell #2 230 kV lines	P7	L-2	100	106	108	<100	<100	<100	113	<100	<100	
Mesa - Laguna Bell 230 kV #2	Mesa - Lighthipe & Mesa - Laguna Bell #1 230 kV lines with 230 kV bus tie closed	P6	L-1/L-1	N/A	106	107	<100	<100	<100	115	<100	N/A	
	Mesa - La Fresa 230 kV & Mesa - Laguna Bell #1 230 kV lines with 230 kV bus tie closed	P7	L-2	N/A	99	100	<100	N/A	<100	107	<100	N/A	
Mira Loma 500/230 kV Transformer #1 or #2	Mira Loma - Serrano 500 kV & Mira Loma 500/230 kV Transformer #2 or #1	P6	T-1/L-1	116	<100	<100	<100	<100	<100	<100	<100	115	System adjustment per OP 7580 after initial or second contingency until Mesa 500 kV Substation is in service (2022)
Mira Loma 500/230 kV Transformer #4	Lugo - Rancho Vista & Mira Loma - Serrano 500 kV lines	P6	L-1/L-1	129	<100	<100	<100	<100	<100	<100	<100	129	
Serrano 500/230 kV Transformers	Two Serrano 500/230 kV Transformers	P6	T-1/T-1	130	<100	<100	<100	<100	<100	103	<100	130	System adjustment per OP 7590 after initial or second contingency until Mesa 500 kV Substation is in service (2022)
Vincent 500/230 kV Transformer #2 or #3	Vincent – Mira Loma 500 kV or Vincent–Mesa 230 kV & Vincent 500/230 kV Transformer #3 or #2	P6	L-1/T-1	109	<100	<100	<100	<100	<100	<100	<100	108	System adjustment per OP 7550 after initial or second contingency until Mesa 500 kV Substation is in service (2022)
Vincent 500/230 kV Transformer #1 or #4	Vincent – Mira Loma 500 kV & Vincent 500/230 kV Transformer #4 or #1	P6	L-1/T-1	106	<100	<100	<100	<100	<100	<100	<100	105	

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
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2029 CAISO Summer Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 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	0.91	0.90	0.91	>0.9	>0.90	>0.90	0.88	>0.90	0.91	Planned energy storage resources being procured under the Santa Clara area RFO (ISD 2021)

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
				2021 Summer Peak	2024 Summer Peak	2029 Summer Peak	2021 Spring Off-Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	2021 SP Heavy Renewable & Min Gas Gen	

No voltage deviation issues were identified

Study Area: SCE Metro

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
Lugo-Victorville 500 kV, 3-PH Fault @ Lugo 500 kV, Normal Clearing	P1.2	Single contingency	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	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	P6.3	Two overlapping events	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	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Victorville 500 kV & Lugo-Vincent No. 2 500 kV , 1-PH Bus Fault @ Lugo 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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.1 500 kV & Lugo-Rancho Vista 500 kV , 1-PH Bus Fault @ Lugo 500 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Mira Loma No.2 500 kV & Eldorado-Lugo 500 kV , 1-PH Bus Fault @ Lugo 500 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Mira Loma No.3 500 kV & Lugo-Mohave 500 kV , 1-PH Bus Fault @ Lugo 500 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Lugo-Mira Loma No.3 500 kV & Mira Loma 4AA Bank, 1-PH Bus Fault @ Mira Loma 500 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Chino-Mira Loma No.2 230 kV & Mira Loma 4AA Bank, 1-PH Bus Fault @ Mira Loma 230 kV, Delayed Clearing	P4.2	Stuck Breaker	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 & Rancho Vista 4AA Bank, 1-PH Bus Fault @ Rancho Vista 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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 & Serrano 1AA Bank, 1-PH Bus Fault @ Serrano 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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 & Serrano 2AA Bank, 1-PH Bus Fault @ Serrano 500 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano-Alberhill 500 kV & Serrano 3AA Bank, 1-PH Bus Fault @ Serrano 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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	Transient Stability Performance					Potential Mitigation Solutions
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
Chino-Serrano 230 kV & Serrano-Lewis No.1 230 kV, 1-PH Bus Fault @ Serrano 230 kV, Delayed Clearing	P4.2	Stuck Breaker	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 & San Onofre-Santiago No.2 230 kV , 1-PH Bus Fault @ Santiago 230 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Midway-Vincent No.2 500 kV & Mesa-Vincent 500 kV , 1-PH Bus Fault @ Vincent 500 kV, Delayed Clearing	P4.2	Stuck Breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Whirlwind-Vincent 500 kV & Vincent 4AA Bank, 1-PH Bus Fault @ Vincent 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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 No.2 Vincent 500 kV, 1-PH Bus Fault @ Vincent 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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.1 500 kV & Vincent 3AA Bank , 1-PH Bus Fault @ Vincent 500 kV, Delayed Clearing	P4.2	Stuck Breaker	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 Bus Fault @ Alamitos "A" 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Alamitos "B" 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Barre 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Center (N/S bus), 1-PH Bus Fault @ Center 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Chino 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Eagle Rock 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ El Nido 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Harbor 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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	Transient Stability Performance					Potential Mitigation Solutions
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
Hinson, 1-PH Bus Fault @ Hinson 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Laguna Bell 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Lewis 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Lighthipe 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa, 1-PH Bus Fault @ Mesa 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Olinda 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Walnut 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ El Segundo 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Goodrich 230 kV, Delayed Clearing	P5.5	Non-Redundant Bus Diff Relay Failure	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 Bus Fault @ Mesa 500 kV, Normal Clearing	P6.1	Two overlapping events	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 Bus Fault @ ECO 500 kV, Normal Clearing	P6.1	Two overlapping events	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Mesa 500 kV & Mira Loma 4AA bank, 3-PH Bus Fault @ Mira Loma 500 kV, Normal Clearing	P6.1	Two overlapping events	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 Bus Fault @ Mira Loma 500 kV, Normal Clearing	P6.1	Two overlapping events	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 Bus Fault @ Rancho Vista 500 kV, Normal Clearing	P6.1	Two overlapping events	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	Transient Stability Performance					Potential Mitigation Solutions
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
Rancho Vista 3AA & 4AA bank, 3-PH Bus Fault @ Rancho Vista 500 kV, Normal Clearing	P6.1	Two overlapping events	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano-Alberhill 500 kV & Rancho Vista-Serrano 500 kV, 3-PH Bus Fault @ Serrano 500 kV, Normal Clearing	P6.1	Two overlapping events	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Serrano- Alberhill 500 kV & Mira Loma-Serrano No. 2 500 kV, 3-PH Bus Fault @ Serrano 500 kV, Normal Clearing	P6.1	Two overlapping events	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 Bus Fault @ Serrano 500 kV, Normal Clearing	P6.1	Two overlapping events	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 Bus Fault @ SONGS 230 kV, Normal Clearing	P6.1	Two overlapping events	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 Bus Fault @ Vincent 500 kV, Normal Clearing	P6.1	Two overlapping events	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, 1-PH Bus Fault @ Sylmar(SCE) 230 kV, Normal Clearing	P7.2	Bipolar DC	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, 1-PH Bus Fault @ Adelanto 500 kV, Normal Clearing	P7.2	Bipolar DC	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Alamitos-Center 230 kV & Center-Del Amo 230 kV, 1-PH Bus Fault @ Center 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Center 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Johanna 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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	Transient Stability Performance					Potential Mitigation Solutions
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
La Fresa-Mesa 230 kV & Lighthipe-Harrison 230 kV, 1-PH Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Mesa 230 kV & Harrison-La Fresa 230 kV, 1-PH Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Mesa 230 kV & La Fresa-Laguna Bell 230 kV , 1-PH Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Laguna Bell 230 kV & Lighthipe-Mesa 230 kV, 1-PH Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Mesa 230 kV & Laguna Bell-Mesa No.1 230 kV , 1-PH Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mira Loma-Mesa 500 kV & Chino-Mira Loma No.3 230 kV, 1-PH Bus Fault @ Mira Loma 500 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Mira Loma 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Rancho Vista 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Santiago 230 kV, Normal Clearing	P7.1	DCTL	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	Transient Stability Performance					Potential Mitigation Solutions
			2024 Summer Peak	2029 Summer Peak	2024 Spring Off-Peak	2024 SP High CEC Forecast	2024 SpOP Hi Renew & Min Gas Gen	
Mira Loma Serrano No.2 500 kV & Rancho Vista-Serrano 500 kV, 1-PH Bus Fault @ Serrano 500 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Serrano 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Viejo 230 kV, Normal Clearing	P7.1	DCTL	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 Bus Fault @ Vincent 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Laguna Bell No.2 230 kV & Lighthipe-Harrison 230 kV, 1-PH Bus Fault @ La Fresa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Laguna Bell No.2 230 kV & La Fresa-Harrison 230 kV, 1-PH Bus Fault @ La Fresa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Mesa-Lighthipe No.1 & No.2 500kV, 1-PH Bus Fault @ Mesa 500 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
Laguna Bell-Lighthipe No1 & No.2 230 kV, 1-PH Bus Fault @ Laguna Bell 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Laguna Bell No.2 230 kV & Del Amo-Laguna Bell 230 kV, 1-PH Bus Fault @ Laguna Bell 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Lighthipe 230 kV & La Fresa-Hinson 230 kV, 1-PH Bus Fault @ La Fresa 230 kV, Normal Clearing	P7.1	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	No violation
La Fresa-Lighthipe 230 kV & Del Amo-Hinson 230 kV, 1-PH Bus Fault @ La Fresa 230 kV, Normal Clearing	P7.1	DCTL	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 & Eagle Rock-Mesa 230 kV, 1-PH Bus Fault @ Mesa 230 kV, Normal Clearing	P7.1	DCTL	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



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

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