

Study Area: SCE Eastern area
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			Project & 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 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
Devers 500/230 kV Transformer ck 1	line_10172_Line SERRANO - VALLEYSC 500.0 #1 AND tran_10039_Tran DEVERS 500/230/13.8 #2	P6	N-1-1	<90	<90	<90	<90	<90	<90	<90	127.59	Congestion Management, Generation Re-dispatch
Devers 500/230 kV Transformer ck 2	line_10172_Line SERRANO - VALLEYSC 500.0 #1 AND tran_10038_Tran DEVERS 500/230/13.8 #1	P6	N-1-1	<90	<90	<90	<90	<90	<90	<90	125.59	Congestion Management, Generation Re-dispatch
Devers-Red Bluff 500 kV ck 1	line_10025_Line DEVERS - REDBLUFF 500.0 #2 AND line_10030_Line N.GILA 500.0 to IMPRLVLY 500.0 Ckt 1	P6	N-1-1	93.56	97.40	<90	<90	<90	97.22	93.12	128.19	Congestion Management, Generation Re-dispatch
Devers-Red Bluff 500 kV ck 2	line_10024_Line DEVERS - REDBLUFF 500.0 # 1 AND line_10030_Line N.GILA 500.0 to IMPRLVLY 500.0 Ckt 1	P6	N-1-1	90.92	94.65	<90	<90	<90	94.47	90.43	124.45	Congestion Management, Generation Re-dispatch
Julian Hinds MWD - Julian Hinds 230 kV ck 1	line_10007_Line DEVERS 230.0 to MIRAGE 230.0 Ckt 1 AND line_10008_Line DEVERS 230.0 to MIRAGE 230.0 Ckt 2	P7	N-2	93.69	<90	NConv	138.60	<90	<90	135.62	<90	Existing RAS to trip generation at Blythe and IID. Further analysis with IID.

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 Eastern area

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)			Project & 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 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
None	None											

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Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)					Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & 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 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	
None	None											

Study Area: SCE Eastern area

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	
3 Phase Fault at BlytheSCE 230 Bus, tripping BlytheSCE-BlytheWALC 161 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Colorado River 500 kV, tripping Colorado River - Palo Verde 500 kV & Delaney-Colorado River 500 kV	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Colorado River 500 kV, tripping Delaney-Colorado River 500 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Devers 230 kV, tripping Devers - El Cosco & Devers - Vista 230kV #2	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Devers 230 kV, tripping Devers-San Bernardino & Devers-El Casco 230 kV	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Devers 500 kV, tripping Devers - Red Bluff 500 kV #1	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Devers 500 kV, tripping Devers - Red Bluff 500 kV #1 & #2	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Devers 500 kV, tripping Devers - Red Bluff 500 kV #1 & #2 with CRC RAS	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Devers 500 kV, tripping Devers 500/230 AA #2	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at EagleMTN 161 kV Bus, tripping EagleMTN 230/161 kV Transformer #5	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at EagleMTN 161 kV Bus, tripping EagleMTN-BlytheSCE 161 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at EagleMTN 161 kV Bus, tripping EagleMTN-BlytheSCE 161 kV & Blythe 1CT	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at EagleMTN 230 kV Bus, tripping EagleMTN-IronMTN 230 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at El Casco 230 kV, tripping Etiwanda - San Bernardino & Devers - El Cosco 230kV	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS)	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Unstable	Stable after tripping generators through Blythe RAS
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV & Blythe 2CTs trip (RAS)	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV & ISO7720 1CT off (OP)	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Unstable	Stable after tripping generators through Blythe RAS
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage 230 kV	P1	Normal Clearing	Stable	Stable	Unstable	Stable	Unstable	Stable after tripping generators through Blythe RAS
3 Phase Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS)	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Palo Verde 500 kV Bus, tripping Colorado River-Palo Verde 500 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Rud Bed Bulff 500 kV, tripping Colorado River - Red Bluff 500 kV #1	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Rud Bed Bulff 500 kV, tripping Colorado River - Red Bluff 500 kV #1 & #2	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Rud Bed Bulff 500 kV, tripping Colorado River - Red Bluff 500 kV #1 & #2 with CRC RAS	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at San Bernardino 230 kV, tripping Devers-San Bernardino & Etiwanda-San Bernardino 230 kV	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at San Bernardino 230 kV, tripping Devers-San Bernardino & San Bernardino-El Casco 230 kV	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at San Bernardino 230 kV, tripping El Casco-San Bernardino & San Bernardino - Vista 230 kV	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation

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Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	
3 Phase Fault at San Bernardino 230 kV, tripping Etiwanda - San Bernardino & El Casco-San Bernardino 230kV	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at San Bernardino 230 kV, tripping Etiwanda-San Bernardino & San Bernardino-Vista 230 kV	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at San Bernardino 230 kV, tripping Etiwanda-San Bernardino & San Bernardino-Vista230 kV & trip MV #3 (RAS)	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at San Bernardino 230 kV, tripping San Bernardino - Vista & Devers - San Bernardino 230kV	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Valley 500 kV, tripping Devers - Valley 500 kV #1 & #2	P6.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Valley 500 kV, tripping Devers-Valley 500 kV #1	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Valley 500 kV, tripping Valley-Serrano/Alberhill 500 kV	P1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Vista 230 kV, tripping Devers - Vista 230 kV # 1 & #2	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
3 Phase Fault at Vista 230 kV, tripping Mira Loma-Vista #2 & Mira Loma-Vista #1/Vista-Wildlife 230 kV	P7.1	Normal Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from BlytheSCE 161 Bus, tripping BlytheSCE-EagleMTN 161 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from EagleMTN 161 kV Bus, tripping BlytheSCE-EagleMTN 161 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from EagleMTN 230 kV Bus, tripping EagleMTN-IronMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from EagleMTN 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS), non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from EagleMTN 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from IronMTN 230 kV Bus, tripping EagleMTN-IronMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from Julian Hinds 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS), non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from Julian Hinds 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS),non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from Mirage 230 kV Bus, tripping Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS), non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at 20% from Mirage 230 kV Bus, tripping Julian Hinds-Mirage 230 kV, non-redundant pilot relay fail	P5.2	Zone2 Clearing	Stable	Stable	Unstable	Stable	Unstable	Stable after tripping generators through Blythe RAS
SLG Fault at BlytheSCE 161 kV, tripping BlytheSCE-EagleMTN 161 kV, CB 872 stuck at BlytheSCE	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at BlytheSCE 161 kV, tripping BlytheSCE-EagleMTN 161 kV, CB 872 stuck at BlytheSCE & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Devers 230 kV, tripping Devers - Mirage 230 kV #1 & #2	P7.1	Normal Clearing	Stable	Unstable	Stable	Stable	Stable	Further analysis with IID
SLG Fault at Devers 230 kV, tripping Devers - Mirage 230 kV #1 & #2 with Blythe RAS and IID RAS	P7.1	Normal Clearing	Stable	Unstable	Stable	Stable	Stable	Further analysis with IID
SLG Fault at Devers 230 kV, tripping Devers - Vista 230 kV #1 with stuck breaker followed by Devers 3A bank	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation

Study Area: SCE Eastern area

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2025 Summer Peak	2030 Summer Peak	2022 Spring Off-Peak	2025 SP High CEC Forecast	2022 SpOP Hi Renew & Min Gas Gen	
SLG Fault at Devers 230 kV, tripping Devers - Vista 230 kV #2 with stuck breaker followed by Devers-San Bernardino 230 kV	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Devers 500 kV, tripping Devers - Red Bluff 500 kV #1 with stuck breaker followed by Devers-Valley 500 kV #1	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Devers 500 kV, tripping Devers - Red Bluff 500 kV #2 with stuck breaker followed by Devers 1AA bank	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 161 kV , tripping BlytheSCE-EagleMTN 161 kV, CB 70 stuck at EagleMTN	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 161 kV , tripping BlytheSCE-EagleMTN 161 kV, CB 70 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping EagleMTN 230/161 kV Transformer #5, Stuck CB432 at EagleMTN	P4.3	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping EagleMTN 230/161 kV Transformer #5, Stuck CB432 at EagleMTN & Blythe 1CT trip (RAS)	P4.3	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping EagleMTN Bus & Blythe 1CT trip, non-redundant relay fail	P5.5	Bus relay Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping EagleMTN Bus, non-redundant relayfail	P5.5	Bus relay Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping EagleMTN-IronMTN 230 kV, CB 407 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping EagleMTN-IronMTN 230 kV, CB 407 stuck at EagleMTN	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV, CB 405 stuck at EagleMTN	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at EagleMTN 230 kV Bus, tripping Julian Hinds-EagleMTN 230 kV, CB 405 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at El Casco 230 kV, tripping Devers - El Casco 230 kV with stuck breaker followed by El Casco 2A bank	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Etiwata 230 kV, tripping Etiwata 230 kV Bus, non-redundant relay fail	P5.5	Bus relay Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at IronMTN 230 kV Bus, tripping EagleMTN-IronMTN 230 kV, CB 307 stuck (close to Iron)	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds Bus tie CB faul, loss Julian Hinds	P2.4	Breaker Fault	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Julian Hinds 230 kV Bus, tripping Julian Hinds-Mirage 230 kV, Stuck CB 509 at J.Hinds	P4.2	Breaker Failure	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Mirage 230 kV, tripping Devers - Mirage 230 kV with stuck breaker followed by Coachell Valley-Mirage 230 kV	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Mirage 230 kV, tripping Mirage-J.Hinds 230 kV with stuck breaker followed by Mirage-Ramon 230 kV	P4.2	Delayed Clearing	Stable	Stable	Unstable	Stable	Unstable	Stable after tripping generators through Blythe RAS
SLG Fault at Mirage 230 kV, tripping Mirage-J.Hinds 230 kV with stuck breaker followed by Mirage-Ramon 230 kV Blythe 1CT trip (RAS)	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Valley 500 kV, tripping Valley-Serrano 500 kV with stuck breaker followed by Valley 4AA Bank	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation
SLG Fault at Valley 500 kV, tripping Valley-Serrano/Alberhill 500 kV with stuck breaker followed by Valley 4AA Bank	P4.2	Delayed Clearing	Stable	Stable	Stable	Stable	Stable	No Violation

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 Eastern area



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..	Select..	Select..	

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

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

No single source substation with more than 100 MW