



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
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
BLYTHE 161 kV	Open CB372 BLYTHE 161 kV Bus Tie (WALC - SCE), Jh Shunt Reactor	P2/P4	Bus-Tie-Breaker	<1.05	<1.05	<1.05	<1.05	1.11	<1.05	<1.05	<1.05	Reactive device switching
	Open CB372 BLYTHE 161 kV Bus Tie (WALC - SCE), Eagle Shunt Reactor	P2/P4	Bus-Tie-Breaker	<1.05	<1.05	<1.05	<1.05	1.11	<1.05	<1.05	<1.05	Reactive device switching
EAGLE Mtn 161 kV	DEVERS - RED BLUFF 500 kV #1 and DEVERS - RED BLUFF 500 kV #2	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	>0.9	System adjustments after the first contingency

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Voltage Deviation

[illegible]

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Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 SP High CEC Forecast	2023 OP Heavy Renewable & Min Gas Gen	
10-Second No-Fault Run	P0	Base Case	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-BlytheSCE 161 kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-BlytheSCE 161 kV & Blythe 1CT	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-IronMTN 230 kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-EagleMTN 230 kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-Mirage 230 kV	P1	N-1	No Issues	No Issues	WECC criteria not met	No Issues	Diverge	Rely on existing Blythe RAS
Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	Rely on existing Blythe RAS
Colorado River-Palo Verde 500 kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Colorado River - Red Bluff 500 kV #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Red Bluff 500 kV #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers-Valley 500 kV #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Valley-Serrano/Alberhill 500 kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers 500/230 AA #2	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds Bus tie CB faul, loss Julian Hinds	P2.4	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	
BlytheSCE-EagleMTN 161 kV, CB 872 stuck at BlytheSCE	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
BlytheSCE-EagleMTN 161 kV, CB 872 stuck at BlytheSCE & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
BlytheSCE-EagleMTN 161 kV, CB 70 stuck at EagleMTN	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
BlytheSCE-EagleMTN 161 kV, CB 70 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-IronMTN 230 kV, CB 407 stuck at EagleMTN	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-IronMTN 230 kV, CB 407 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-IronMTN 230 kV, CB 307 stuck (close to Iron)	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-EagleMTN 230 kV, CB 405 stuck at EagleMTN	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-EagleMTN 230 kV, CB 405 stuck at EagleMTN & Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-Mirage 230 kV, Stuck CB 509 at J.Hinds	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN 230/161 kV Transformer #5, Stuck CB432 at EagleMTN	P4.3	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN 230/161 kV Transformer #5, Stuck CB432 at EagleMTN & Blythe 1CT trip (RAS)	P4.3	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Valley-Serrano/Alberhill 500 kV with stuck breaker followed by Valley 4AA Bank	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Red Bluff 500 kV #1 with stuck breaker followed by Devers-Valley 500 kV #1	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Red Bluff 500 kV #2 with stuck breaker followed by Devers 1AA bank	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Mirage 230 kV with stuck breaker followed by Coachell Valley-Mirage 230 kV	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Vista 230 kV #1 with stuck breaker followed by Devers 3A bank	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Vista 230 kV #2 with stuck breaker followed by Devers-San Bernardino 230 kV	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - El Casco 230 kV with stuck breaker followed by El Casco 2A bank	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	
Mirage-J.Hinds 230 kV with stuck breaker followed by Mirage-Ramon 230 kV	P4.2	Breaker Failure	No Issues	No Issues	WECC criteria not met	No Issues	Diverge	Rely on existing Blythe RAS
Mirage-J.Hinds 230 kV with stuck breaker followed by Mirage-Ramon 230 kV Blythe 1CT trip (RAS)	P4.2	Breaker Failure	No Issues	No Issues	No Issues	No Issues	No Issues	Rely on existing Blythe RAS
BlytheSCE-EagleMTN 161 kV, non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
BlytheSCE-EagleMTN 161 kV, non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-IronMTN 230 kV, non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN-IronMTN 230 kV, non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN Bus, non-redundant relayfail	P5.5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
EagleMTN Bus & Blythe 1CT trip, non-redundant relay fail	P5.5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-EagleMTN 230 kV, non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-EagleMTN 230 kV & Blythe 1CT trip (RAS), non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-Mirage 230 kV, non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	WECC criteria not met	No Issues	Diverge	Rely on existing Blythe RAS
Julian Hinds-Mirage 230 kV & Blythe 1CT trip (RAS),non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	Rely on existing Blythe RAS
Julian Hinds-Mirage 230 kV, , non-redundant pilot relay fail	P5.2	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
Etiwata 230 kV Bus, non-redundant relay fail	P5.5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Julian Hinds-Mirage & EagleMTN-IronMTN 230 kV & ISO7720 (OP)	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Colorado River - Red Bluff 500 kV #1 & #2	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Colorado River - Red Bluff 500 kV #1 & #2 (RAS)	P6.1	N-1-1	No Issues	No Issues	x	No Issues	x	

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Transient Stability



Contingency	Category	Category Description	Transient Stability Performance					Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios		
			2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 SP High CEC Forecast	2023 OP Heavy Renewable & Min Gas Gen	
Devers - Red Bluff 500 kV #1 & #2	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Red Bluff 500 kV #1 & #2 (RAS)	P6.1	N-1-1	No Issues	No Issues	x	No Issues	x	
Devers - Valley 500 kV #1 & #2	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Etiwanda - San Bernardino & El Casco-San Bernardino 230kV	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
San Bernardino - Vista & Devers - San Bernardino 230kV	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Colorado River - Palo Verde & Colorado River - Delaney 500 kV	P6.1	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers - Mirage 230 kV #1 & #2	P7.1	DCTL	No Issues	Unstable	No Issues	No Issues	No Issues	Path 42 RAS
Devers - Mirage 230 kV #1 & #2 with RAS	P7.1	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	Path 42 RAS
Devers-San Bernardino & Devers-El Casco 230 kV	P7.1	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers-San Bernardino & San Bernardino-El Casco 230 kV	P7.1	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	
Devers-Glimmer & Devers-Vista #2 230kV lines	P7.1	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	
Etiwanda-San Bernardino & San Bernardino-Vista 230 kV	P7.1	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	
Mira Loma-Vista #2 & Mira Loma-Vista #1/Vista-Wildlife 230 kV	P7.1	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	
Mirage-Ramon & Coachella Valley-Mirage 230 kV	P6.1	DCTL	No Issues	No Issues	Diverge	No Issues	No Issues	System adjustments after the first contingency
Mirage-Ramon & Coachella Valley-Mirage 230 kV with RAS	P6.1	DCTL	No Issues	No Issues	Diverge	No Issues	No Issues	

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Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)												Potential Mitigation Solutions
			2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	

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

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Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)												Potential Mitigation Solutions
	2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	

No single source substation with more than 100 MW