

Study Area: SCE East of Lugo

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)						Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	2021 SP Heavy Renewable & Min Gas Gen	
EOL-T-1	19012 MEAD S 230 189040 BOB SS 230 1 1	Tran ELDORDO 500.00 to ELDORDO2 230.00 Circuit 5ELDOR 5T 13.80	P1	N-1	NotCnv	<90	<90	<90	<90	175.36	Ivanpah RAS: trip generator following T-1 outage to mitigate the overload.
EOL-T-2	24086 LUGO 500 26105 VICTORVL 500 1 1	Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P1	N-1	98.42	96.55	<90	<90	<90	101.99	Utilizing Lugo - Victorville RAS, Operating Procedure and Congestion Management is sufficient through 2021; line upgrade needed for future years
EOL-T-3	24086 LUGO 500 26105 VICTORVL 500 1 1	Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 & Line LUGO 500.0 to MOHAVE 500.0 Circuit 1	P6	N-1-1	116.74	126.90	127.37	<90	<90	134.21	Utilizing Lugo - Victorville RAS, Operating Procedure and Congestion Management is sufficient through 2021; line upgrade needed for future years
EOL-T-4	24086 LUGO 500 26105 VICTORVL 500 1 1	Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 & Line MOHAVE 500.0 to ELDORDO 500.0 Circuit 1	P6	N-1-1	118.45	128.27	128.55	<90	<90	135.64	Utilizing Lugo - Victorville RAS, Operating Procedure and Congestion Management is sufficient through 2021; line upgrade needed for future years
EOL-T-5	24086 LUGO 500 26105 VICTORVL 500 1 1	Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 & Line DELANEY 500.0 to COLRIVER 500.0 Circuit 1	P6	N-1-1	<90	101.06	102.34	<90	<90	106.76	Utilizing Lugo - Victorville RAS, Operating Procedure and Congestion Management is sufficient through 2021; line upgrade needed for future years
EOL-T-6	24086 LUGO 500 26105 VICTORVL 500 1 1	Lugo - Mohave 500 kV line and Eldorado - Lugo 500 kV line (with planned Victorville SPS)	P6	N-1-1	115.07	126.26	125.20	<90	<90	Error under investigation	Utilizing Lugo - Victorville RAS, Operating Procedure and Congestion Management is sufficient through 2021; line upgrade needed for future years
EOL-T-7	24647 IVANPAH 230 24648 IVANPAH 115 1 1	Line IVANPAH 115.0 to MTN PASS 115.0 Circuit 1 & Tran IVANPAH 230.00 to IVANPAH 115.00 Circuit 2 0.00	P6	N-1-1	<90	<90	<90	110.83	<90	113.54	Congestion management
EOL-T-8	24647 IVANPAH 230 24648 IVANPAH 115 2 1	Line IVANPAH 115.0 to MTN PASS 115.0 Circuit 1 & Tran IVANPAH 230.00 to IVANPAH 115.00 Circuit 1 0.00	P6	N-1-1	<90	<90	<90	110.83	<90	113.54	Congestion management

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Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %						Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	2021 SP Heavy Renewable & Min Gas Gen	

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High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)						Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	2021 SP Heavy Renewable & Min Gas Gen	

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Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Summer Light Load	2021 SP Heavy Renewable & Min Gas Gen	
X-TS-3	Eld-Cima-Pisgah-1PHfault @ Eldorado	P4.2	Stuck breaker	Cima & Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Cima & Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Cima 230kV transient voltage dip>30%, voltage fails to recover	Cima & Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Cima & Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Cima 230kV transient voltage dip>30%, voltage fails to recover	Install Local Breaker Failure Back-up (LBFB) at Pisgah 230kV bus
X-TS-4	Lugo-Pisgah-1PHfault @ Lugo	P4.2	Stuck breaker	Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	N/A	N/A	Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	N/A	N/A	Install Local Breaker Failure Back-up (LBFB) at Pisgah 230kV bus
X-TS-5	CALCITE-Pisgah-1PHfault @ CALCITE	P4.2	Stuck breaker	N/A	Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	N/A	Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Pisgah 230kV transient voltage dip > 30%, voltage fails to recover	Install Local Breaker Failure Back-up (LBFB) at Pisgah 230kV bus
X-TS-6										
X-TS-7										
X-TS-8										
X-TS-9										
X-TS-10										
X-TS-11										
X-TS-12										
X-TS-13										
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X-TS-27										
X-TS-28										
X-TS-29										
X-TS-30										
X-TS-31										

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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-SLD-1												

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

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

No single source substation with more than 100 MW Load