

# 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **SCE East of Lugo - Summer Peak with Renewables**



## Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Off-Peak	2022 Summer Peak	
EOP-T-1	PISGAH 230 kV---LUGO 230 kV	Line JASPER 230.0 to LUGO 230.0 Circuit 1	B	L-1	74%	64%	105%	Modify SPS previously identified in GIP to trip generation
EOP-T-2	ELDORDO 500 kV---LUGO 500 kV Ckt #1	Line LUGO 500.0 to VICTORVL 500.0 Ckt 1_Line PALOVRDE 500.0 to COLRIVER 500.0 Ckt 1	C	L-1/L-1	98%	91%	101%	Extend Operating Procedure No. 6610 (SOB T-135)
EOP-T-3	VEA Area - EOP 230 kV System	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Line MEAD S 230.0 to BOB TAP 230.0 Ckt 1	C	T-1/L-1	NA	<100%	Not Solved	Notice VEA. Modify VEA's Crazy Eye SPS identified in Cluster Alpha and Ivanpah-Eldorado SPS identified in GIP to trip generation, or curtail generation after first contingency
EOP-T-4	MEAD S 230 kV---BOB TAP 230 kV Ckt #1	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Line PAHRUMP_1 230.0 to CRAZY EYE TP 230.0 Ckt 1	C	T-1/L-1	6%	98%	153%	Notice VEA. Modify Ivanpah-Eldorado SPS identified in GIP to cover this event, or curtail generation after first contingency
EOP-T-5	PAHRUMP_1 230 kV---PAHRUMP 138 kV Ckt #2	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Tran PAHRUMP_1 230.00 to PAHRUMP 138.00 Ckt 1 0.00	C	T-1/T-1	93%	104%	95%	Notice VEA. Modify Ivanpah-Eldorado SPS identified in GIP
EOP-T-6	PAHRUMP_1 230 kV---PAHRUMP 138 kV Ckt #1	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Tran PAHRUMP_1 230.00 to PAHRUMP 138.00 Ckt 2 0.00	C	T-1/T-1	94%	105%	95%	Notice VEA. Modify Ivanpah-Eldorado SPS identified in GIP

**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Spring Off-Peak	N/A	
EOP-T-7	MEAD S 230 kV---BOB TAP 230 kV Ckt #1	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Line PAHRUMP_1 230.0 to CRAZY EYE TP 230.0 Ckt 1	C	T-1/L-1	6%	101%		Notice VEA. Modify Ivanpah-Eldorado SPS identified in GIP

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## Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
EOP-VD-1	BOB TAP 230 kV Bus	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Line MEAD S 230.0 to BOB TAP 230.0 Ckt 1	C	L-1/L-1	NA	-11.22%	Not Solved	Notice VEA. Modify Crazy Eye SPS identified in Cluster Alpha and Ivanpah-Eldorado SPS identified in GIP, or apply congestion management to curtail generation after first contingency
EOP-VD-2	ELDORDO2 230 kV Bus		C	L-1/L-1	NA	-11.07%	Not Solved	
EOP-VD-3	PAHRUMP_1 230 kV Bus		C	L-1/L-1	-1.61%	-10.36%	Not Solved	

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Spring Off-Peak	N/A	
EOP-VD-4	BOB TAP 230 kV Bus	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Line MEAD S 230.0 to BOB TAP 230.0 Ckt 1	C	L-1/L-1	NA	-10.99%		Notice VEA. Modify Crazy Eye SPS identified in Cluster Alpha and Ivanpah-Eldorado SPS identified in GIP, or apply congestion management to curtail generation after first contingency
EOP-VD-5	ELDORDO2 230 kV Bus		C	L-1/L-1	NA	-10.85%		
EOP-VD-6	PAHRUMP_1 230 kV Bus		C	L-1/L-1	-0.03%	-11.51%		

**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
EOP-V-1	CRAZY EYE TP230 kV Bus	Tran ELDORDO 500.0 to ELDORDO2 230.0 Ckt 1_Line MEAD S 230.0 to BOB TAP 230.0 Ckt 1	C	T-1/L-1	0.98	0.89	Not Solved	Notice VEA. Modify Crazy Eye SPS identified in Cluster Alpha and Ivanpah-Eldorado SPS identified in GIP, or apply congestion management to curtail generation after first contingency
EOP-V-2	PAHRUMP_1 230 kV Bus		C	T-1/L-1	0.98	0.90	Not Solved	

**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Spring Off-Peak	N/A	

No high/low voltage issues identified.



Transient Stability

ID	Contingency	Category	Category Description	Transient Stability Performance			Potential Mitigation Solutions
				2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	

No transient stability issues identified.



Transient Stability

ID	Contingency	Category	Category Description	Transient Stability Performance			Potential Mitigation Solutions
				2014 Summer Light Load	2017 Spring Off-Peak	N/A	

No transient stability issues identified.





**Post-Transient Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	

No post-transient thermal overloads identified.



**Post-Transient Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Spring Off-Peak	N/A	

No post-transient thermal overloads identified.

**Post-Transient Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	

No post-transient voltage deviations identified.



**Post-Transient Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Spring Off-Peak	N/A	

No post-transient voltage deviations identified.

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### Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2014	2017	2022	

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
		2014	2017	2022	

No single source substation with more than 100 MW Load