

2014-2015 ISO Reliability Assessment - Study Results

Study Area: **SCE Metro - Summer Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
Metro-SP-T-1	Mesa-Laguna Bell 230 kV #1 line	Mesa-Laguna Bell #2 230 kV line	B	L-1	<100%	<100%	102%	Increase emergency rating of the line and utilize available Preferred Resources and Energy Storage (PR&ES) after initial contingency as needed
		Mesa-Laguna Bell #2 230 kV line & Malburg CC Module	B	G-1/L-1	<100%	<100%	111%	
		Mesa-Laguna Bell #2 & Mesa-Litehipte 230 kV lines	C	L-2	<100%	<100%	128%	
		Mesa-Litehipte & Mesa-Redondo 230 kV lines (multiple other N-1/N-1 contingencies)	C	L-1/L-1	<100%	<100%	137%	
Metro-SP-T-2	Mesa-Laguna Bell 230 kV #2 line	Mesa-Litehipte & Mesa-Laguna Bell #1230 kV lines	C	L-2	<100%	<100%	110%	Increase emergency rating of the line
Metro-SP-T-3	Mesa-Litehipte 230 kV line	Mesa-Laguna Bell #1 230 kV line & Orange County Area Proxy CC Module	B	G-1/L-1	<100%	<100%	101%	Increase emergency rating of the line
		Mesa-Laguna Bell #1 & Mesa-Redondo 230 kV lines	C	L-2	<100%	<100%	106%	
		Mesa-Laguna Bell #1 & Mesa-Litehipte 230 kV lines	C	L-1/L-1	<100%	<100%	110%	
Metro-SP-T-4	Vincent 500/230 kV #1 transformer	Vincent-Mesa 500 kV line & Vincent 500/230 kV #4 transformer	C	L-1/T-1	<100%	<100%	113%	System adjustments after second contingency including closing Vincent 230 kV bus tie .
Metro-SP-T-5	Ellis-Santiago 230 kV line	Ellis-Johanna 230 kV & Imperial Valley-N.Gila 500 kV lines	C	L-1/L-1	<100%	102%	< 100%	Dispatch generation in the San Diego area after initial contingency.
Metro-SP-T-6	Mira Loma 500/230 kV #4 transformer	Lugo-Rancho Vista & Mira Loma-Serrano 500 kV lines	C	L-1/L-1	119%	107%	95%	System adjustments after second contingency including closing Mira Loma-Rancho Vista 500 kV tie.

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					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
Metro-SP-T-7	Serrano 500/230 kV transformers	Two Serrano 500/230 kV transformers	C	T-1/T-1	<100%	<100%	111%	System adjustments after second contingency including dispatching PR&ES.



Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No thermal overload concerns identified.



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No voltage deviation concerns identified.



Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No voltage deviation concerns identified.



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

Nohigh/low voltage concerns identified.



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No high/low voltage concerns identified.



Transient Stability

ID	Contingency	Category	Category Description	Transient Stability Performance			Potential Mitigation Solutions
				2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No transient stability concerns identified.



Transient Stability

ID	Contingency	Category	Category Description	Transient Stability Performance			Potential Mitigation Solutions
				2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No transient stability concerns identified.



Post-Transient Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No post-transient thermal overload concerns identified.



Post-Transient Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No post-transient thermal overload concerns identified.



Post-Transient Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No post-transient voltage deviation concerns identified.

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Study Area: **SCE Metro - Summer Off-Peak & Summer Light Load**

Post-Transient Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
Metro-NP-PTVD-1	El Casco 230/115 kV System	El Casco – San Bernardino 230 kV line	B	L-1	5.20%	< 5%	N/A	Temporary exemption from applicable ISO voltage deviation standard until WOD Project is in service.

Study Area: **SCE Metro - Summer Peak**



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

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

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Study Area: **SCE Metro - Summer Off-Peak & Summer Light Load**



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2016 Summer Off-Peak	2019 Summer Light Load	N/A	

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

Study Area: **SCE Metro - Summer Peak**

Single Source Substation with more than 100 MW Load



ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	

No single source substation with more than 100 MW Load

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Study Area: **SCE Metro - Summer Off-Peak & Summer Light Load**

Single Source Substation with more than 100 MW Load



ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		2016 Summer Off-Peak	2019 Summer Light Load	N/A	

No single source substation with more than 100 MW Load