

2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **SCE North 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 Peak	2022 Summer Peak	

No thermal overloads identified.

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Spring Off-Peak	N/A	
NOL-RPS-T-1	CONTROL - TAP 710 115kV	Line CONTROL 115.0 to INYO 115.0 ck 1,Line CONTROL 115.0 to INYOKERN 115.0 ck 1	C	L-1/L-1	103%	<100%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-T-2	CONTROL - INYOKERN 115kV	Line CONTROL 115.0 to INYO 115.0 ck 1,line CONTROL-COSO-INYOKERN 115 ck 2	C	L-1/L-1	103%	<100%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-T-3	CONTROL - TAP 710 115kV	Line CONTROL 115.0 to INYOKERN 115.0 ck 1,Line INYO 230.0 to COTTONWD 230.0 ck 1	C	L-1/L-1	102%	<100%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-T-4	CONTROL - INYOKERN 115kV	line CONTROL-COSO-INYOKERN 115 ck 2,Line INYO 230.0 to COTTONWD 230.0 ck 1	C	L-1/L-1	102%	<100%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-T-5	CONTROL - TAP 710 115kV	Line CONTROL 115.0 to INYOKERN 115.0 ck 1,Tran INYO 115.00 to INYO PS 115.00 ck 1	C	L-1/T-1	103%	<100%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-T-6	CONTROL - INYOKERN 115kV	line CONTROL-COSO-INYOKERN 115 ck 2,Tran INYO 115.00 to INYO PS 115.00 ck 1	C	L-1/T-1	103%	<100%		Manually switch off shunt reactors in Control area after the first contingency.



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 voltage deviations identified.

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	
NOL-RPS-DV-1	COSO 115kV	Line CONTROL 115.0 to INYO 115.0 ck 1, Line CONTROL 115.0 to INYOKERN 115.0 ck 1	C	L-1/L-1	13.88%	<10%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-DV-2	COSO 115kV	Line CONTROL 115.0 to INYOKERN 115.0 ck 1, Line INYO 230.0 to COTTONWD 230.0 ck 1	C	L-1/L-1	12.83%	<10%		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-DV-3	COSO 115kV	Line CONTROL 115.0 to INYOKERN 115.0 ck 1, Tran INYO 115.00 to INYO PS 115.00 ck 1	C	L-1/T-1	13.83%	<10%		Manually switch off shunt reactors in Control area after the first contingency.

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High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
NOL-RPS-V-1	N/A	Tran CONTROL 115.00 to CONTROL 55.00 ck 1, Tran CONTROL 115.00 to CONTROL 55.00 ck 3	C	T-1/T-1	N/A	DIVERGE	DIVERGE	SPS to shed load at Control 55 kV substation.

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	
NOL-RPS-V-2	CONTROL 55kV	Line CSA DIAB 115.0 to CONTROL 115.0 ck 1, Line CSA DIAB-SHERWIN-CONTROL 115.0 ck 1	C	L-1/L-1	1.10	<1.10		Install shunt reactor in Control area.
NOL-RPS-V-3	CONTROL 115kV	Line CSA DIAB 115.0 to CONTROL 115.0 ck 1, Line CSA DIAB-SHERWIN-CONTROL 115.0 ck 1	C	L-1/L-1	1.11	<1.10		Install shunt reactor in Control area.
NOL-RPS-V-4	INYO 115kV	Line CSA DIAB 115.0 to CONTROL 115.0 ck 1, Line CSA DIAB-SHERWIN-CONTROL 115.0 ck 1	C	L-1/L-1	1.11	<1.10		Install shunt reactor in Control area.
NOL-RPS-V-5	INYO PS 115kV	Line CSA DIAB 115.0 to CONTROL 115.0 ck 1, Line CSA DIAB-SHERWIN-CONTROL 115.0 ck 1	C	L-1/L-1	1.10	<1.10		Install shunt reactor in Control area.
NOL-RPS-V-6	COSO 115kV	Line CONTROL 115.0 to INYO 115.0 ck 1, Line CONTROL 115.0 to INYOKERN 115.0 ck 1	C	L-1/L-1	0.87	<1.10		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-V-7	COSO 115kV	Line CONTROL 115.0 to INYOKERN 115.0 ck 1, Line INYO 230.0 to COTTONWD 230.0 ck 1	C	L-1/L-1	0.88	<1.10		Manually switch off shunt reactors in Control area after the first contingency.
NOL-RPS-V-8	COSO 115kV	Line CONTROL 115.0 to INYOKERN 115.0 ck 1, Tran INYO 115.00 to INYO PS 115.00 ck 1	C	L-1/T-1	0.87	<1.10		Manually switch off shunt reactors in Control area after the first contingency.



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 deviation issues 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 deviation issues 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