

**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
AB-RPS-T-1	LANCASTER - TAP 69 66kV ck.1	Line ANTELOPE/LANCASTER/OASIS 66.0/TAP 68 66.0 Circuit 1,Line DEL SUR/LANCASTER/RITEAID/TAP 50 66.0 Circuit 1	C	L-1/L-1	105%	109%	111%	SPS to shed load at Lancaster 66kV substation.

**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 thermal overloads identified.

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Study Area: **SCE Antelope-Bailey - Summer Peak with Renewables**



**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	
AB-RPS-DV-1	SHUTTLE 66kV	Line ANTELOPE/LANCSTR/LANPRI/SHUTTLE/TAP 70/69 66.0 Circuit 1,Line ANTELOPE/QUARTZHILL/SHUTTLE/TAP 93 66.0 Circuit 1	C	L-1/L-1	<10%	14.14%	14.07%	Manually switch in shunt caps in Antelope-Bailey area after the first contingency.

**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	
AB-RPS-DV-2	BREEZE 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.08%	6.21%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-3	CORUM 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.39%	6.53%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-4	CUMMINGS 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	9.67%	5.39%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-5	MONOLITH 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.08%	6.20%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-6	LORAIN 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.12%	5.52%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-7	WALKERBN 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.12%	<5%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-8	HAVILAH 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.13%	<5%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-9	CALCMENT 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.26%	6.51%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-10	GOLDTOWN 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.36%	6.52%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-11	BOREL 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.13%	<5%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-12	ARBWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.22%	6.36%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-13	ENCANWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.31%	6.50%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-14	FLOWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.23%	6.50%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-15	DUTCHWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.22%	6.49%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-16	SOUTHWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.54%	6.64%		Review shunt caps switching solution in Windhub area.

**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	
AB-RPS-DV-17	NORTHWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.58%	6.66%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-18	ZONDWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.58%	6.66%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-19	MIDWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.26%	6.37%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-20	MORWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.35%	6.46%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-21	CORRECT 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	9.05%	5.05%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-22	OAKWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.54%	6.64%		Review shunt caps switching solution in Windhub area.
AB-RPS-DV-23	VARWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck.1 or ck.2	B	T-1	11.30%	6.50%		Review shunt caps switching solution in Windhub area.

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Study Area: **SCE Antelope-Bailey - Summer Peak with Renewables**



**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
AB-RPS-V-1	SHUTTLE 66kV	Line ANTELOPE/LANCSTR/LANPRI/SHUTTLE/TAP 70/69 66.0 Circuit 1,Line ANTELOPE/QUARTZHILL/SHUTTLE/TAP 93 66.0 Circuit 1	C	L-1/L-1	>.90	0.87	0.88	Manually switch in shunt caps in Antelope-Bailey area after the first contingency.

**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	
AB-RPS-V-2	ENCANWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck 1 or ck2	B	T-1	0.90	>.95		Review shunt caps switching solution in Windhub area.
AB-RPS-V-3	SOUTHWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck 1 or ck2	B	T-1	0.89	>.95		Review shunt caps switching solution in Windhub area.
AB-RPS-V-4	NORTHWND 66kV	tran WINDHUB 230 to WINDHUB 66 ck 1 or ck2	B	T-1	0.90	>.95		Review shunt caps switching solution in Windhub area.
AB-RPS-V-5	ZONDWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck 1 or ck2	B	T-1	0.90	>.95		Review shunt caps switching solution in Windhub area.
AB-RPS-V-6	OAKWIND 66kV	tran WINDHUB 230 to WINDHUB 66 ck 1 or ck2	B	T-1	0.89	>.95		Review shunt caps switching solution in Windhub area.



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.

## 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **SCE Antelope-Bailey - with Renewables**



### 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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Study Area: **SCE Antelope-Bailey - with Renewables**



*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