

2012/2013 ISO Reliability Assessment - Study Results

Study Area: **PG&E Greater Bay Area San Francisco - Summer Peak**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
SF-SP-T-01	Potrero - Mission (AX) 115 kV Cable	Potrero-Larkin #2 (AY-2) 115kV Cable	B	N-1	123%	123%	125%	Existing TBC DC Runback Scheme
SF-SP-T-02	Potrero - Mission (AX) 115 kV Cable	Potrero-Larkin #1 (AY-1) 115 kV Cable	B	N-1	93%	102%	103%	Reduce TBC output and/or update TBC DC Runback scheme
SF-SP-T-03	Potrero - Larkin #2 (AY-2) 115 kV Cable	Potrero-Mission (AX) 115 kV Cable	B	N-1	95%	105%	106%	Reduce TBC output and/or update TBC DC Runback scheme
SF-SP-T-04	Potrero - Mission (AX) 115 kV Cable	BUS FAULT AT 33204 POTRERO 115.00 Sec 1D	C1	Bus	101%	109%	111%	Existing TBC DC Runback Scheme
SF-SP-T-05	Potrero - Larkin #2 (AY-2) 115 kV Cable	CB FAULT AT 33204 POTRERO 115 CB102	C2	Breaker	155%	164%	165%	Develop an action plan to transfer loads among substation (NB: reducing TransBay cable output doesn't solve the problem)
SF-SP-T-06	Potrero - Mission (AX) 115 kV Cable	CB FAULT AT 33204 POTRERO 115 CB412	C2	Breaker	97%	106%	109%	TBC DC Runback will automatically initiate for this contingency, reducing overload (loss of AY-2)
SF-SP-T-07	Potrero - Larkin #1 (AY-1) 115 kV Cable	Mission-Larkin (XY-1) 115kV Cable _Martin-Larkin (HY-1) 115kV Cable	C3	N-1-1	179%	186%	198%	Develop an action plan to transfer loads among substation (NB: reducing TransBay cable output doesn't solve the problem)
SF-SP-T-08	Mission - Larkin (XY-1) 115 kV Cable	Potrero-Larkin #1 (AY-1) 115kV Cable _Potrero-Larkin #2 (AY-2) 115kV Cable	C3	N-1-1	117%	125%	129%	TBC DC Runback will automatically initiate for this contingency, reducing overload (loss of AY-2)

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SF-SP-T-09	Potrero - Larkin #2 (AY-2) 115 kV Cable	Potrero-Larkin #1 (AY-1) 115kV Cable _Potrero-Mission (AX) 115kV Cable	C3	N-1-1	124%	134%	137%	Develop an action plan to transfer loads among substation or reduce TBC output
SF-SP-T-10	Potrero - Mission (AX) 115 kV Cable	Potrero-Larkin #2 (AY-2) 115kV Cable _Hunters Point-Mission #1 (PX-1) 115kV Ca	C3	N-1-1	132%	142%	146%	TBC DC Runback will automatically initiate for this contingency, reducing overload (loss of AY-2)
SF-SP-T-11	Loss of 115kV Load in San Francisco	Martin 115 kV Substation	D8	Substation	Unsolved	Unsolved	Unsolved	Under Review

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Winter Peak	2017 Winter Peak	2022 Winter Peak	
SF-WP-T-01	Potrero - Mission (AX) 115 kV Cable	Potrero-Larkin #2 (AY-2) 115kV Cable	B	N-1	123%	123%	125%	Existing TBC DC Runback Scheme
SF-WP-T-02	Potrero - Mission (AX) 115 kV Cable	Potrero-Larkin #1 (AY-1) 115kV Cable	B	N-1	92%	101%	104%	Reduce TBC output and/or update TBC DC Runback scheme
SF-WP-T-03	Potrero - Larkin #2 (AY-2) 115 kV Cable	Potrero - Mission (AX) 115 kV Cable	B	N-1	94%	103%	106%	Reduce TBC output and/or update TBC DC Runback scheme
SF-WP-T-04	Potrero - Larkin #2 (AY-2) 115 kV Cable	CB FAULT AT 33204 POTRERO 115 CB102	C2	Breaker	153%	161%	166%	Develop an action plan to transfer loads among substation (NB: reducing TransBay cable output doesn't solve the problem)
SF-WP-T-05	Potrero-Martin-Bayshore (A-H-W-1) 115 kV Cable	CB FAULT AT 33204 POTRERO 115 CB422	C2	Breaker	101%	N/A	N/A	Existing TBC DC Runback Scheme
SF-WP-T-06	Potrero - Larkin #1 (AY-1) 115 kV Cable	Mission-Larkin (XY-1) 115kV Cable _Martin-Larkin (HY-1) 115kV Cable	C3	N-1-1	179%	186%	198%	Develop an action plan to transfer loads among substation (NB: reducing TransBay cable output doesn't solve the problem)
SF-WP-T-07	Mission - Larkin (XY-1) 115 kV Cable	Potrero-Larkin #1 (AY-1) 115kV Cable _Potrero-Larkin #2 (AY-2) 115kV Cable	C3	N-1-1	117%	125%	129%	TBC DC Runback will automatically initiate for this contingency, reducing overload (loss of AY-2)
SF-WP-T-08	Potrero - Larkin #2 (AY-2) 115 kV Cable	Potrero-Larkin #1 (AY-1) 115kV Cable _Potrero-Mission (AX) 115kV Cable	C3	N-1-1	124%	134%	137%	Develop an action plan to transfer loads among substation or reduce TBC output

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Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Winter Peak	2017 Winter Peak	2022 Winter Peak	
SF-WP-T-09	Potrero - Mission (AX) 115 kV Cable	Potrero-Larkin #2 (AY-2) 115kV Cable _Hunters Point-Mission #1 (PX-1) 115kV Ca	C3	N-1-1	132%	142%	146%	TBC DC Runback will automatically initiate for this contingency, reducing overload (loss of AY-2)
SF-WP-T-10	Loss of 115kV Load in San Francisco	Martin 115 kV Substation	D8	Substation	Unsolved	Unsolved	Unsolved	Under Review

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	
SF-OP-T-01	LARKIN E - POTRERO 115kV Line 2	CB FAULT AT 33204 POTRERO 115 CB102	C2	Breaker	128%	113%		Develop an action plan to transfer loads among substation, reduce TransBay cable output and if overload still exists, drop load manually or by SPS
SF-OP-T-02	Loss of 115kV Load in San Francisco	Martin 115 kV Substation	D8	Substation	Unsolved	Unsolved		Under Review



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 Winter Peak	2017 Winter Peak	2022 Winter 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 Summer Off-Peak	N/A	

No voltage deviations identified.

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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	
SF-WP-V-01	MARTIN 60kV	Normal	A	N-0	1.05	1.05	1.05	Reactive Support

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High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Winter Peak	2017 Winter Peak	2022 Winter Peak	
SF-WP-V-01	MARTIN 60kV	Normal	A	N-0	1.05	1.05	1.05	Reactive Support

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Study Area: **PG&E Greater Bay Area San Francisco - Summer Light Load & Summer Off-Peak**



High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	
SF-OP-V-01	MARTIN 60kV	Normal	A	N-0	1.06	1.07		Reactive Support

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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