

2014-2015 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Coast - 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	
KRN-C-SP-T-01	7STNDRD-KERN PWR 115 kV #1 Line	BUS 2E FAULT AT 34752 KERN PWR 115 kV Sub	C1	BUS	106	107	<100	Summer operation solution setup until the Wheeler Ridge Junction Station Project is in service
KRN-C-SP-T-02	TPMNTP1-TUPMAN 115 kV #1 Line	BKR FAILURE MIDWAY CB 392 115KV	C2	CB	136	141	153	Summer setup in the nterim. Open CB 182 to sectionalize Tupman 115kV sub or reconductor.
KRN-C-SP-T-03	TPMNTP2-TUPMAN 115 kV #1 Line	BKR FAILURE MIDWAY CB 392 115KV	C2	CB	<100	<100	100	Summer setup in the nterim/open CB 182 to sectionalize Tupman 115kV sub. Rerate/reconductor.
KRN-C-SP-T-04	KERN PWR 115/230 kV #3 Bank	BKR FAILURE KERN PP CB 102 115KV	C2	CB	<100	<100	106	Replace terminal limiting equipment to benefit from the full 420MVA transformer rating. Refer to the approved Kern PP 230kV Area Reinforcement Project.
KRN-C-SP-T-05	KERN PP-STCKDLJ1 230 kV #1 Line	Midway-Kern 230 kV #3 & #4 Lines	C3	L-1-1	103	<100	<100	Mitigated by the approved Midway-Kern PP #1, #3 & #4 230 kV Line Project
KRN-C-SP-T-06	KERN PP-STCKDLJ2 230 kV #1 Line	Midway-Kern 230 kV #1 & #4 Lines	C3	L-1-1	103	<100	<100	Rerate/drop load in the interim. Mitigated by the approved Midway-Kern PP #1, #3 & #4 230 kV Line Project
KRN-C-SP-T-07	KERN PP-BKRSFDJ2 230 kV #1 Line	Midway-Kern 230 kV #1 & #3 Lines	C3	L-1-1	103	<100	<100	Mitigated by the approved Midway-Kern PP #1, #3 & #4 230 kV Line Project

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KRN-C-SP-T-08	MIDWAY-STCKDLJ1 230 kV #1 Line	Midway-Kern 230 kV #3 & #4 Lines	C3	L-1-1	120	<100	<100	Mitigated by the approved Midway-Kern PP #1, #3 & #4 230 kV Line Project
KRN-C-SP-T-09	MIDWAY-STCKDLJ2 230 kV #1 Line	Midway-Kern 230 kV #1 & #4 Lines	C3	L-1-1	151	<100	<100	Mitigated by the approved Midway-Kern PP #1, #3 & #4 230 kV Line Project
KRN-C-SP-T-10	WESTPARK-KERN PWR 115 kV #1 Line	Kern PP-Westpark 115 kV #2 and Kern-Mgunden-Witco 115 kV Lines	C3	L-1-1	119	122	<100	Mitigated by the approved Kern PP 115 kV Area Reinforcement Project
KRN-C-SP-T-11	LIVE OAK-KERN PWR 115 kV #1 Line	Live Oak 115/9.11 kV GSU & Kern Oil-Witco 115 kV Line	C3	T-1/L-1	98	100	105	Monitor facility loading/load growth. Rerate/reconductor. Will benefit from the proposed conversion of the Semitropic-Famoso-Kern PP-Kern Oil 70 kV to 115 kV system
KRN-C-SP-T-12	LRDO JCT-KERN OIL 115 kV #1 Line	Kern PP-Seventh Standard 115 kV Line & Mt Poso Gen Unit #1	C3	L-1/G-1	100	<100	<100	Mitigated by the approved Kern PP 115 kV Area Reinforcement Project
KRN-C-SP-T-13	KRN OL J-KERNWATR 115 kV #1 Line	Kern PP-Seventh Standard & Live Oak-Kern Oil 115 kV Lines	C3	L-1-1	102	<100	<100	Mitigated by the approved Kern PP 115 kV Area Reinforcement Project
KRN-C-SP-T-14	KRN OL J-KERNWATR 115 kV #1 Line	Kern-Live Oak 115 kV Line & Live Oak 115/9.11 kV GSU	C3	L-1/T-1	100	100	<100	Summer operation solution setup until the Wheeler Ridge Junction Station Project is in service
KRN-C-SP-T-15	LIVE OAK-KERN PWR 115 kV #1 Line	Kern PP-Seventh Standard 115 & Kern Oil-Witco 115 kV Lines	C3	L-1-1	103	<100	<100	Mitigated by the approved Kern PP 115 kV Area Reinforcement Project

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					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
KRN-C-SP-T-16	KERN PWR 115/230 kV #3 Bank	Kern PP 230/115 kV #4 & #5 Banks	C3	T-1-1	153	159	108	Install SPS as part of the approved Kern PP 230 kV Area Reinforcement Project for a double bank outage
KRN-C-SP-T-17	KERN PWR 115/230 kV #4 Bank	Kern PP 230/115 kV #3 & #5 Banks	C3	T-1-1	170	176	<100	Install SPS as part of the approved Kern PP 230 kV Area Reinforcement Project for a double bank outage
KRN-C-SP-T-18	KERN PWR 115/230 kV #5 Bank	Kern PP 230/115 kV #3 & #4 Banks	C3	T-1-1	110	114	<100	Install SPS as part of the approved Kern PP 230 kV Area Reinforcement Project for a double bank outage
KRN-C-SP-T-19	KERN PWR-TEVISJ2 115 kV #1 Line	Lamont-Q559 & Kern-Stockdale 115 kV Lines	C3	L-1-1	105	107	<100	Summer operation solution setup until the Wheeler Ridge Junction Station Project is in service
KRN-C-SP-T-20	KERN PWR-KERNWATR 115 kV #1 Line	Kern PP-Seventh Standard & Live Oak-Kern Oil 115 kV Lines	C3	L-1-1	105	<100	<100	Mitigated by the approved Kern PP 115 kV Area Reinforcement Project
KRN-C-SP-T-21	KERN PWR-KERNWATR 115 #1 Line	Kern-Live Oak 115 kV Line & Live Oak 115/9.11 kV GSU	C3	L-1/T-1	102	103	<100	Mitigated by the approved Kern PP 115 kV Area Reinforcement Project
KRN-C-SP-T-22	KERN PW2-KERN PW1 70 kV #1 Line	Kern-Old River 70 kV #1 Line & Kern PP 115/70 kV Bank #2	C3	L-1/T-1	129	134	105	Rerate/drop load/reconductor

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Study Area: **PG&E Kern Central - Summer Off-Peak & Summer Light Load**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
KRN-C-NPK-T-01	MIDWAY 230/500 kV #12 Bank	BKR FAILURE MIDWAY CB 662 230 kV Sub	C2	CB	117	<100	N/A	Drop load/congestion management/SPS



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 were 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 were identified.



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

No high/low voltage concerns were 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 were identified.

Study Area: **PG&E Kern Central - 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.

Study Area: **PG&E Kern Central - 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