Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-1	Lockeford #1 60 kV Line (Harney Lane Jct and Waterloo Jct Section)	B2_74_Hammer - Country Club 60 kV	B	L-1	169.8	<100	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-2	Lockeford #1 60 kV Line (Waterloo Jct and Mosher Section)	B2_74_Hammer - Country Club 60 kV	B	L-1	109.0	<100	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-3	Lockeford 60 kV Line No. 1	B2_74_Hammer - Country Club 60 kV	B	L-1	160.3	<100	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-4	Valley Springs No. 1 60 kV Line	B2_64_Weber - Mormon Jct 60 kV Line	B	L-1	117.1	120.9	128.8	Short Term: Disable Linden Automatics Long Term: Reconductor Valley Springs No. 1 60 kV Line
STOC-SP-T-5	Stockton 'A' - Weber 60 kV Line No. 1 (Weber-Santa Fe Section)	B1_16_COG.NTNL 12.00 Unit ID 1 & B2_67_Stockton 'A' - Weber 60 kV Line No. 2	B	L-1/G-1	103.3	<100	<100	Short term: Action Plan
STOC-SP-T-6	Valley Springs - Martell 60 kV Line No. 2	B1_15_Q481 13.80 Unit ID 1 & B2_60_Valley Springs - Martell 60 kV Line No. 1	B	L-1/G-1	98.9	99.3	102.0	Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-7	Hammer-Country Club 60 kV Line (Hammer-Hammer Jct Section)	C1-39_BUS FAULT AT 33704 STAGG 60.00 Section E	C1	Bus	107.3	<100	105.4	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-8	Kasson-Louise 60 kV Line (Kasson-Calvo Tap Section)	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	105.4	<100	138.4	Short Term: Stockton Action Plan Long Term: Kasson SPS
STOC-SP-T-9	Kasson-Louise 60 kV Line (Mossdale Switches-Calvo Tap Section)	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	110.3	<100	143.3	Short Term: Stockton Action Plan Long Term: Kasson SPS
STOC-SP-T-10	Manteca 115/60 kV Transformer No. 3	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	192.3	<100	238.1	Short Term: Stockton Action Plan Long Term: Kasson SPS
STOC-SP-T-11	Manteca-Louise 60 kV Line (Manteca-Louise Jct Section)	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	147.3	162.6	186.1	Short Term: Stockton Action Plan Long Term: Kasson SPS
STOC-SP-T-12	New Stagg - Hammer 60 kV Line No. 2	C1-39_BUS FAULT AT 33704 STAGG 60.00 Section E	C1	Bus	156.8	115.2	153.0	Explore potential mitigation
STOC-SP-T-13	Hammer-Country Club 60 kV Line (Hammer Jct-Morada Jct Section)	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<100	105.6	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-14	Hammer-Country Club 60 kV Line (Morada Jct-Mosher Section)	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<100	151.9	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-15	Lockeford #1 60 kV Line (Harney Lane Jct and Waterloo Jct Section)	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<100	119.7	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-16	Lockeford #1 60 kV Line (Waterloo Jct and Mosher Section)	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<100	119.8	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-17	Lockeford 60 kV Line No. 1	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<100	119.7	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-18	Riverbank Jct - Manteca 115 kV Line	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	109.4	112.6	113.5	Explore potential mitigation
STOC-SP-T-19	Riverbank Jct SW STA - Manteca 115 kV Line (Valley Home Tap-Ripon Jct)	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	121.0	<100	<100	Short term: Action Plan

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-20	Stanislaus-Melones-Manteca 115 kV Line No. 1 (Avena Tap-Manteca Section)	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	109.5	<100	<100	Short term: Action Plan
STOC-SP-T-21	Stanislaus-Melones-Manteca 115 kV Line No. 1 (Melones Jct-Avena Tap Section)	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	130.3	<100	<100	Short term: Action Plan
STOC-SP-T-22	Hammer - Country Club 60 kV (UOP-West Lane Switches Section)	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-23	Hammer - Country Club 60 kV (UOP-West Lane Switches Section)	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-24	Hammer - Country Club 60 kV (-West Lane Switches-Hammer JCT Section)	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-25	Hammer - Country Club 60 kV (-West Lane Switches-Hammer JCT Section)	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-26	Hammer-Country Club 60 kV Line (Hammer Jct-Morada Jct Section)	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	234.6	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-27	Hammer-Country Club 60 kV Line (Hammer Jct-Morada Jct Section)	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	234.6	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-28	Hammer-Country Club 60 kV Line (Hammer-Hammer Jct Section)	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	152.8	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-T-29	Hammer-Country Club 60 kV Line (Hammer-Hammer Jct Section)	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	152.8	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-30	Hammer-Country Club 60 kV Line (Morada Jct-Mosher Section)	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	298.3	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-31	Hammer-Country Club 60 kV Line (Morada Jct-Mosher Section)	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	298.3	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-32	Hammer-Country Club 60 kV Line Country Club and UOP Section)	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-33	Industrial 60 kV Tap	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	139.2	138.7	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-34	Kasson 115/60 kV Transformer No. 1	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_40_Vierra - Tracy - Kasson 115 kV Line	C3	N-1-1	97.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-35	Kasson 115/60 kV Transformer No. 1	B2_40_Vierra - Tracy - Kasson 115 kV Line & B2_36_Tesla - Kasson - Manteca 115 kV Line	C3	N-1-1	97.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-36	Kasson-Louise 60 kV Line (Kasson-Calvo Tap Section)	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_40_Vierra - Tracy - Kasson 115 kV Line	C3	N-1-1	114.5	<100	<100	Short Term: Stockton Action Plan Long Term: Kasson SPS
STOC-SP-T-37	Kasson-Louise 60 kV Line (Kasson-Calvo Tap Section)	B2_40_Vierra - Tracy - Kasson 115 kV Line & B2_36_Tesla - Kasson - Manteca 115 kV Line	C3	N-1-1	114.5	<100	<100	Short Term: Stockton Action Plan Long Term: Kasson SPS
STOC-SP-T-38	Kasson-Louise 60 kV Line (Mossdale Switches-Calvo Tap Section)	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_40_Vierra - Tracy - Kasson 115 kV Line	C3	N-1-1	110.2	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-39	Lammers-Kasson 115 kV Line (Kasson-Owens Tap Section)	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_44_Tesla - Tracy 115 kV Line	C3	N-1-1	102.7	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-40	Lammers-Kasson 115 kV Line (Kasson-Owens Tap Section)	B2_44_Tesla - Tracy 115 kV Line & B2_36_Tesla - Kasson - Manteca 115 kV Line	C3	N-1-1	102.7	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-41	Lockeford - Lodi 60 kV Line No. 2 (Lockeforde-Victor Section)	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	150.9	150.9	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-42	Lockeford - Lodi 60 kV Line No. 3 (Lockeforde-Lodi JCT Section)	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	161.6	167.6	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-43	Lockeford #1 60 kV Line	B2_4_Lockeford - Bellota 230 kV Line & B2_74_Hammer - Country Club 60 kV	C3	N-1-1	180.9	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays
STOC-SP-T-44	Lockeford #1 60 kV Line (Harney Lane Jct and Waterloo Jct Section)	B2_4_Lockeford - Bellota 230 kV Line & B2_74_Hammer - Country Club 60 kV	C3	N-1-1	191.6	<100	<100	Short Term: Stockton Action Plan Long Term: Reconductor Lockeford No. 1 60 kV Line & Loop Mosher with Overcurrent Relays

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-45	Lockeford #1 60 kV Line (Waterloo Jct and Mosher Section)	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1	<100	141.2	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-46	Lockeford 230/60 kV Transformer No. 2	B2_74_Hammer - Country Club 60 kV & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	106.6	106.1	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-47	Lockeford 230/60 kV Transformer No. 2	B3_5_Lockeford 230/60 kV Transformer No. 3 & B2_74_Hammer - Country Club 60 kV	C3	N-1-1	106.6	106.1	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-48	Lockeford-Industrial 60 kV Line	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_91_Lodi - Industrial 60 kV Line	C3	N-1-1	138.4	138.0	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-49	Lockeford-Industrial 60 kV Line	B2_91_Lodi - Industrial 60 kV Line & B2_75_Lockeford - Lodi 60 kV Line No. 2	C3	N-1-1	138.4	138.0	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-50	Lockeford-Lodi #1 60 kV Line (Colony Tap-Colony JCT Section)	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	120.5	125.1	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-51	Lockeford-Lodi #1 60 kV Line (Lockeford-Colony Section)	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	130.5	135.3	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-52	Lockeford-Lodi #1 60 kV Line (Lodi-Colony JCT Section)	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	129.5	134.4	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-53	Lockeford-Lodi #2 60 kV Line (Victor-Woodbridge JCT Section)	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	139.2	138.7	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-54	Lockeford-Lodi #2 60 kV Line (Woodbridge JCT-Industrial JCT Section)	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	139.2	138.7	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-55	Lockeford-Lodi #3 60 kV Line (Lodi Aux-Lodi JCT Section)	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	130.7	135.6	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-56	Lockeford No. 3 230/60 kV Transformer	B2_74_Hammer - Country Club 60 kV & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	106.5	105.9	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-57	Lockeford No. 3 230/60 kV Transformer	B3_4_Lockeford 230/60 kV Transformer No. 2 &	C3	N-1-1	106.5	105.9	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-58	Lodi-Industrial 60 kV Line	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1	172.1	173.1	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-59	Lodi-Industrial 60 kV Line	B2_78_Lockeford - Industrial 60 kV Line & B2_75_Lockeford - Lodi 60 kV Line No. 2	C3	N-1-1	172.1	171.9	<100	Short Term: Stockton Action Plan Long Term: New Eight Mile Lodi Industrial - Lockeford 230 kV DCTL
STOC-SP-T-60	Manteca-Louise 60 kV Line (Manteca-Louise Jct Section)	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_40_Vierra - Tracy - Kasson 115 kV Line	C3	N-1-1	113.1	<100	<100	Short Term: Stockton Action Plan Long Term: Kasson SPS

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-61	New Stagg - Hammer 60 kV Line No. 2	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	117.2	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-62	New Stagg - Hammer 60 kV Line No. 2	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	117.2	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-63	New Stagg - Hammer 60 kV Line No. 2	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	<100	98.1	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-64	New Stagg - Hammer 60 kV Line No. 2	B3_5_Lockeford 230/60 kV Transformer No. 3 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1	<100	98.1	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-65	Owens Illinois 115 kV Tap Line (Normally Open Switch 155)	B2_44_Tesla - Tracy 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	128.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-66	Owens Illinois 115 kV Tap Line (Normally Open Switch 155)	B2_49_Schulte - Lammers 115 kV Line & B2_44_Tesla - Tracy 115 kV Line	C3	N-1-1	128.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-67	Riverbank Jct SW STA - Manteca 115 kV Line (Manteca-Ripon JCT Section)	B3_11_Bellota 230/115 kV Transformer No. 1 & B3_12_Belltoa 230/115 kV Transformer No. 2	C3	N-1-1	109.5	112.6	113.6	Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-68	Riverbank Jct SW STA - Manteca 115 kV Line (Manteca-Ripon JCT Section)	B3_12_Belltoa 230/115 kV Transformer No. 2 & B3_11_Bellota 230/115 kV Transformer No. 1	C3	N-1-1	109.5	112.6	113.6	Explore potential mitigation
STOC-SP-T-69	Schulte - Lammers 115 kV Line	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_44_Tesla - Tracy 115 kV Line	C3	N-1-1	99.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-70	Schulte - Lammers 115 kV Line	B2_44_Tesla - Tracy 115 kV Line & B2_36_Tesla - Kasson - Manteca 115 kV Line	C3	N-1-1	99.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-71	Schulte SW STA - Kasson - Manteca 115 kV Line (Schulte-Owens Tap Section)	B2_44_Tesla - Tracy 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	128.2	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-72	Schulte SW STA - Kasson - Manteca 115 kV Line (Schulte-Owens Tap Section)	B2_49_Schulte - Lammers 115 kV Line & B2_44_Tesla - Tracy 115 kV Line	C3	N-1-1	128.2	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-73	Schulte Sw Sta - Kasson 115 kV Line	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_44_Tesla - Tracy 115 kV Line	C3	N-1-1	108.1	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-74	Schulte Sw Sta - Kasson 115 kV Line	B2_44_Tesla - Tracy 115 kV Line & B2_36_Tesla - Kasson - Manteca 115 kV Line	C3	N-1-1	108.1	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-75	Stagg - Country Club 60 kV Line No. 1	B2_72_Stagg - Country Club 60 kV Line No. 2 & B2_73_Stagg - Hammer 60 kV Line No. 1	C3	N-1-1	157.5	<100	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-76	Stagg - Country Club 60 kV Line No. 1	B2_73_Stagg - Hammer 60 kV Line No. 1 & B2_72_Stagg - Country Club 60 kV Line No. 2	C3	N-1-1	157.5	<100	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-77	Stagg - Country Club 60 kV Line No. 1	B2_71_Stagg - Country Club 60 kV Line No. 1 & B2_73_Stagg - Hammer 60 kV Line No. 1	C3	N-1-1	157.5	<100	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-78	Stagg - Country Club 60 kV Line No. 1	B2_73_Stagg - Hammer 60 kV Line No. 1 & B2_71_Stagg - Country Club 60 kV Line No. 1	C3	N-1-1	157.5	<100	<100	Short Term: Stockton Action Plan Long Term: New Stagg - Hammer 60 kV Line
STOC-SP-T-79	Stanislaus - Manteca 115 kV Line No. 2	B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_3_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	111.0	112.0	112.3	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-80	Stanislaus - Manteca 115 kV Line No. 2	B2_3_Stanislaus - Melones Sw 115 kV Line & B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	111.0	112.0	112.3	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-81	Stanislaus - Manteca 115 kV Line No. 2	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_34_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	111.0	112.0	112.3	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-82	Stanislaus - Manteca 115 kV Line No. 2	B2_34_Stanislaus - Melones Sw 115 kV Line & B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	111.0	112.0	112.3	Stanislaus – Manteca 115 kV Line Load Limit Scheme

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-83	Stanislaus_Melones SW STA-Manteca #1 115 kV Line (Melones-Melones Jct Section)	B3_11_Bellota 230/115 kV Transformer No. 1 & B3_12_Belltoa 230/115 kV Transformer No. 2	C3	N-1-1	95.8	100.2	99.3	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-84	Stanislaus-Manteca #2 115 kV Line (Riverbank JCT-Valley Home Tap Section)	B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_3_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	105.0	105.8	106.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-85	Stanislaus-Manteca #2 115 kV Line (Riverbank JCT-Valley Home Tap Section)	B2_3_Stanislaus - Melones Sw 115 kV Line & B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	105.0	105.8	106.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-86	Stanislaus-Manteca #2 115 kV Line (Riverbank JCT-Valley Home Tap Section)	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_34_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	105.0	105.8	106.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-87	Stanislaus-Manteca #2 115 kV Line (Riverbank JCT-Valley Home Tap Section)	B2_34_Stanislaus - Melones Sw 115 kV Line & B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	105.0	105.8	106.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-88	Stanislaus-Manteca #2 115 kV Line (Valley Home Tap-Avena Tap Section)	B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_3_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	105.0	105.7	106.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-89	Stanislaus-Manteca #2 115 kV Line (Valley Home Tap-Avena Tap Section)	B2_3_Stanislaus - Melones Sw 115 kV Line & B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	105.0	105.7	106.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-90	Stanislaus-Manteca #2 115 kV Line (Valley Home Tap-Avena Tap Section)	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_34_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	105.0	105.7	106.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-91	Stanislaus-Manteca #2 115 kV Line (Valley Home Tap-Avena Tap Section)	B2_34_Stanislaus - Melones Sw 115 kV Line & B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	105.0	105.7	106.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-92	Stanislaus-Melones SW STA Riververbank JCT SW STA 115 kV (Stanislaus-Cataract Section)	B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_4_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	110.4	110.7	111.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-93	Stanislaus-Melones SW STA Riververbank JCT SW STA 115 kV (Stanislaus-Cataract Section)	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_35_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	110.4	110.7	111.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-94	Stanislaus-Melones SW STA-Manteca #1 115 kV Line (Stanislaus-Frogtown Jct Section)	B2_3_Stanislaus - Melones Sw 115 kV Line & B2_4_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	110.6	111.0	111.4	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-95	Stanislaus-Melones SW STA-Manteca #1 115 kV Line (Stanislaus-Frogtown Jct Section)	B2_34_Stanislaus - Melones Sw 115 kV Line & B2_35_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	110.6	111.0	111.4	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-96	Stanislaus-Melones SW STA-Manteca #1 115 kV Line (Stanislaus-Frogtown Jct Section)	B2_35_Stanislaus - Manteca 115 kV Line No. 2 & B2_34_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	110.6	111.0	111.4	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-97	Stanislaus-Melones SW STA-Manteca #1 115 kV Line (Stanislaus-Frogtown Jct Section)	B2_4_Stanislaus - Manteca 115 kV Line No. 2 & B2_3_Stanislaus - Melones Sw 115 kV Line	C3	N-1-1	110.6	111.0	111.4	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-98	Stanislaus-Melones SW STA-Manteca #1 115 kV Line Cataract-Frogtown Tap Section)	B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_4_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	110.3	110.6	111.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-99	Stanislaus-Melones SW STA-Manteca #1 115 kV Line Cataract-Frogtown Tap Section)	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_35_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	110.3	110.6	111.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-100	Stanislaus-Melones SW STA-Manteca #1 115 kV Line Cataract-Frogtown Tap Section)	B2_35_Stanislaus - Manteca 115 kV Line No. 2 & B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	110.3	110.6	111.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-101	Stanislaus-Melones SW STA-Manteca #1 115 kV Line Cataract-Frogtown Tap Section)	B2_4_Stanislaus - Manteca 115 kV Line No. 2 & B2_13_Stanislaus-Melones-Manteca 115 kV Line No. 1	C3	N-1-1	110.3	110.6	111.0	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-102	Tesla - Kasson - Manteca 115 kV Line	B2_44_Tesla - Tracy 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	147.2	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-103	Tesla - Kasson - Manteca 115 kV Line	B2_49_Schulte - Lammers 115 kV Line & B2_44_Tesla - Tracy 115 kV Line	C3	N-1-1	147.2	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-104	Tesla - Tracy 115 kV Line	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	138.4	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-105	Tesla - Tracy 115 kV Line	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	118.3	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-106	Tesla-Schulte SW STA #2 115 kV (Tesla-AEC Tap Section)	B2_42_Tesla - Schulte 115 kV Line No. 2 & B2_50_GWF Tracy - Schulte 115 kV Line	C3	N-1-1	104.4	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-107	Vierra - Tracy - Kasson 115 kV Line	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	137.7	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project

Study Area: **PG&E Central Valley Stockton - 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	
STOC-SP-T-108	Vierra - Tracy - Kasson 115 kV Line	B2_36_Tesla - Kasson - Manteca 115 kV Line & B2_49_Schulte - Lammers 115 kV Line	C3	N-1-1	135.4	<100	<100	Short Term: Stockton Action Plan Long Term: Vierra Looping Project
STOC-SP-T-109	Weber No. 2a 230/60 kV Transformer	B1_16_COG.NTNL 12.00 Unit ID 1 & B3_13_Weber 230/60 kV Transformer No. 1	C3	N-1-1	<100	<100	<100	Replace Weber 230/60 kV Transformer Nos. 2 & 2A
STOC-SP-T-110	Stanislaus-Melones SW STA Riververbank JCT SW STA 115 kV (Stanislaus-Cataract Section)	C5_17_Stanislaus-Melones-Manteca No.1 115 kV & Stanislaus-Mante	C5	DCTL	110.4	110.7	111.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-111	Stanislaus-Melones SW STA-Manteca #1 115 kV Line (Stanislaus-Frogtown Jct Section)	C5_14_Stanislaus-Manteca No.2 115 kV & Stanislaus-Melones-River	C5	DCTL	110.6	111.0	111.4	Stanislaus – Manteca 115 kV Line Load Limit Scheme
STOC-SP-T-112	Stanislaus-Melones SW STA-Manteca #1 115 kV Line Cataract-Frogtown Tap Section)	C5_17_Stanislaus-Melones-Manteca No.1 115 kV & Stanislaus-Mante	C5	DCTL	110.4	110.7	111.1	Stanislaus – Manteca 115 kV Line Load Limit Scheme

Study Area: PG&E Central Valley Stockton - Spring Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-T-1	33610 VLLY SPS 60.0 33634 PRDESWS 60.0 1	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		102.1		Rerate or reconductor
STOC-SpP-T-2	33742 MANTECA 60.0 33514 MANTECA 115 3	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus		163.6		Explore potential mitigation
STOC-SpP-T-3	33850 CAMANCHE 4.16 33566 CAMANCHE 115 1	C1-28_BUS FAULT AT 33562 BELLOTA 115.00 Bus 1	C1	Bus		101.9		Explore potential mitigation
STOC-SpP-T-4	33850 CAMANCHE 4.16 33566 CAMANCHE 115 1	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB		101.7		Explore potential mitigation
STOC-SpP-T-5	33932 MELONES 115 33934 TULLOCH 115 1	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB		134.5		Explore potential mitigation
STOC-SpP-T-6	33950 RVRBK TP 115 33934 TULLOCH 115 1	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB		157.4		Explore potential mitigation
STOC-SpP-T-7	C1_33_BUS FAULT AT 33704 STAGG 60.00	B2_4_Lockeford - Bellota 230 kV Line & C1_33_BUS FAULT AT 33704 STAGG 60.00	C3	N-1-1		116.9		Explore potential mitigation
STOC-SpP-T-8	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		171.6		Explore potential mitigation
STOC-SpP-T-9	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		112.1		Explore potential mitigation
STOC-SpP-T-10	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		156.7		Explore potential mitigation
STOC-SpP-T-11	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		110.5		Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Spring Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-T-12	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		137.7		Explore potential mitigation
STOC-SpP-T-13	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		106.1		Explore potential mitigation
STOC-SpP-T-14	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_49_Schulte - Lammers 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		100.1		Explore potential mitigation
STOC-SpP-T-15	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_36_Tesla - Kasson - Manteca 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		100.0		Explore potential mitigation
STOC-SpP-T-16	C1_19_BUS FAULT AT 33529 LAMMERS 115.00	B2_42_Tesla - Schulte 115 kV Line No. 2 & C1_19_BUS FAULT AT 33529 LAMMERS 115.00	C3	N-1-1		100.0		Explore potential mitigation
STOC-SpP-T-17	B2_43_Tesla - Schulte 115 kV Line No. 1	C1_18_BUS FAULT AT 33528 KASSON 115.00 & B2_43_Tesla - Schulte 115 kV Line No. 1	C3	N-1-1		100.0		Explore potential mitigation
STOC-SpP-T-18	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_19_BUS FAULT AT 33529 LAMMERS 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		100.1		Explore potential mitigation
STOC-SpP-T-19	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		130.3		Explore potential mitigation
STOC-SpP-T-20	B2_60_Valley Springs - Martell 60 kV Line No. 1	B1_15_Q481 13.80 Unit ID 1 & B2_60_Valley Springs - Martell 60 kV Line No. 1	C3	N-1-1		102.1		Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Spring Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-T-21	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		130.1		Explore potential mitigation
STOC-SpP-T-22	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		130.1		Explore potential mitigation
STOC-SpP-T-23	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	B2_99_New Stagg - Hammer 60 kV Line No. 2 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		144.6		Explore potential mitigation
STOC-SpP-T-24	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	B2_73_Stagg - Hammer 60 kV Line No. 1 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		144.8		Explore potential mitigation
STOC-SpP-T-25	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		153.8		Explore potential mitigation
STOC-SpP-T-26	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		148.7		Explore potential mitigation
STOC-SpP-T-27	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1		148.7		Explore potential mitigation
STOC-SpP-T-28	B2_8_Stagg - Tesla 230 kV Line	C1_11_BUS FAULT AT 30622 EIGHT MI 230.00 & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1		119.3		Explore potential mitigation
STOC-SpP-T-29	B2_4_Lockeford - Bellota 230 kV Line	B2_1_Rio Oso - Lockeford 230 kV Line & B2_4_Lockeford - Bellota 230 kV Line	C3	N-1-1		173.0		Explore potential mitigation
STOC-SpP-T-30	B2_4_Lockeford - Bellota 230 kV Line	B2_1_Rio Oso - Lockeford 230 kV Line & B2_4_Lockeford - Bellota 230 kV Line	C3	N-1-1		226.9		Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Spring Peak

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-T-31	C1_33_BUS FAULT AT 33704 STAGG 60.00	B3_5_Lockeford 230/60 kV Transformer No. 3 & C1_33_BUS FAULT AT 33704 STAGG 60.00	C3	N-1-1		126.5		Explore potential mitigation
STOC-SpP-T-32	B3_4_Lockeford 230/60 kV Transformer No. 2	C1_33_BUS FAULT AT 33704 STAGG 60.00 & B3_4_Lockeford 230/60 kV Transformer No. 2	C3	N-1-1		126.7		Explore potential mitigation
STOC-SpP-T-33	B2_78_Lockeford - Industrial 60 kV Line	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		115.1		Explore potential mitigation
STOC-SpP-T-34	B2_75_Lockeford - Lodi 60 kV Line No. 2	B2_78_Lockeford - Industrial 60 kV Line & B2_75_Lockeford - Lodi 60 kV Line No. 2	C3	N-1-1		132.0		Explore potential mitigation
STOC-SpP-T-35	B2_8_Stagg - Tesla 230 kV Line	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1		156.1		Explore potential mitigation
STOC-SpP-T-36	B2_75_Lockeford - Lodi 60 kV Line No. 2	B2_91_Lodi - Industrial 60 kV Line & B2_75_Lockeford - Lodi 60 kV Line No. 2	C3	N-1-1		126.1		Explore potential mitigation
STOC-SpP-T-37	B2_78_Lockeford - Industrial 60 kV Line	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		125.4		Explore potential mitigation
STOC-SpP-T-38	B2_78_Lockeford - Industrial 60 kV Line	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		105.7		Explore potential mitigation
STOC-SpP-T-39	B2_78_Lockeford - Industrial 60 kV Line	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		122.5		Explore potential mitigation
STOC-SpP-T-40	B2_78_Lockeford - Industrial 60 kV Line	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		105.7		Explore potential mitigation
STOC-SpP-T-41	B2_78_Lockeford - Industrial 60 kV Line	B2_75_Lockeford - Lodi 60 kV Line No. 2 & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		116.1		Explore potential mitigation
STOC-SpP-T-42	B2_78_Lockeford - Industrial 60 kV Line	B2_91_Lodi - Industrial 60 kV Line & B2_78_Lockeford - Industrial 60 kV Line	C3	N-1-1		105.7		Explore potential mitigation
STOC-SpP-T-43	B2_8_Stagg - Tesla 230 kV Line	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1		156.2		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - Spring Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-T-44	B2_8_Stagg - Tesla 230 kV Line	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1		156.1		Explore potential mitigation
STOC-SpP-T-45	B2_85_Kasson - Carbona 60 kV Line	C1_18_BUS FAULT AT 33528 KASSON 115.00 & B2_85_Kasson - Carbona 60 kV Line	C3	N-1-1		153.1		Explore potential mitigation
STOC-SpP-T-46	C1_18_BUS FAULT AT 33528 KASSON 115.00	C1_20_BUS FAULT AT 33540 TESLA 115.00 & C1_18_BUS FAULT AT 33528 KASSON 115.00	C3	N-1-1		129.0		Explore potential mitigation
STOC-SpP-T-47	B1_11_GWFTRCY3 13.80 Unit ID 1	C1_13_BUS FAULT AT 30625 TESLA D 230.00 & B1_11_GWFTRCY3 13.80 Unit ID 1	C3	N-1-1		100.5		Explore potential mitigation
STOC-SpP-T-48	C1_13_BUS FAULT AT 30625 TESLA D 230.00	B1_11_GWFTRCY3 13.80 Unit ID 1 & C1_13_BUS FAULT AT 30625 TESLA D 230.00	C3	N-1-1		100.4		Explore potential mitigation
STOC-SpP-T-49	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		185.5		Explore potential mitigation
STOC-SpP-T-50	C1_7_BUS FAULT AT 30500 BELLOTA 230.00	B1_24_CAMANCHE 4.16 Unit ID 1 & C1_7_BUS FAULT AT 30500 BELLOTA 230.00	C3	N-1-1		101.7		Explore potential mitigation
STOC-SpP-T-51	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		184.4		Explore potential mitigation
STOC-SpP-T-52	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		181.8		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - Spring Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-T-53	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		103.6		Explore potential mitigation
STOC-SpP-T-54	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		181.5		Explore potential mitigation
STOC-SpP-T-55	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		105.9		Explore potential mitigation
STOC-SpP-T-56	C1_7_BUS FAULT AT 30500 BELLOTA 230.00	B1_26_CAMANCHE 4.16 Unit ID 3 & C1_7_BUS FAULT AT 30500 BELLOTA 230.00	C3	N-1-1		128.0		Explore potential mitigation
STOC-SpP-T-57	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		159.3		Explore potential mitigation
STOC-SpP-T-58	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1		105.9		Explore potential mitigation
STOC-SpP-T-59	33530 KSSN-JC2 115 33550 HJ HEINZ 115 1	C5_18_Tesla-Schulte 115 kV Line No. 1 & Tesla-Schulte 115 kV Li	C5	DCTL		109.6		Explore potential mitigation
STOC-SpP-T-60	33850 CAMANCHE 4.16 33566 CAMANCHE 115 1	C5_10_Rancho Seco-Bellota No. 1 230 kV Line & Rancho Seco-Bello	C5	DCTL		101.9		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - 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	
STOC-NP-T-1	33836 USWP_#4 9.11 30570 USWP-RLF 230 1	B1_21_USWP_#4 9.11 Unit ID 3	B	G-1	<100	129.2		Explore potential mitigation
STOC-NP-T-2	33840 FLOWD3-6 9.11 30595 FLOWIND2 230 1	B1_22_FLOWD3-6 9.11 Unit ID 1	B	G-1	<100	113.5		Explore potential mitigation
STOC-NP-T-3	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_34_Stanislaus - Melones Sw 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	250.7	165.4		Explore potential mitigation
STOC-NP-T-4	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	124.5	100.1		Explore potential mitigation
STOC-NP-T-5	B2_35_Stanislaus - Manteca 115 kV Line No. 2	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & B2_35_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	99.9	100.0		Explore potential mitigation
STOC-NP-T-6	B2_35_Stanislaus - Manteca 115 kV Line No. 2	B2_34_Stanislaus - Melones Sw 115 kV Line & B2_35_Stanislaus - Manteca 115 kV Line No. 2	C3	N-1-1	98.8	100.0		Explore potential mitigation
STOC-NP-T-7	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_34_Stanislaus - Melones Sw 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	155.1	103.7		Explore potential mitigation
STOC-NP-T-8	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_34_Stanislaus - Melones Sw 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	236.8	157.9		Explore potential mitigation
STOC-NP-T-9	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	115.9	91.7		Explore potential mitigation
STOC-NP-T-10	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_42_BUS FAULT AT 33520 RIPON 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	131.6	102.2		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - 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	
STOC-NP-T-11	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_35_Stanislaus - Manteca 115 kV Line No. 2 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	196.4	111.3		Explore potential mitigation
STOC-NP-T-12	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	106.0	<100		Short term: Action Plan
STOC-NP-T-13	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	136.3	<100		Short term: Action Plan
STOC-NP-T-14	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	156.5	100.9		Explore potential mitigation
STOC-NP-T-15	C1_13_BUS FAULT AT 30625 TESLA D 230.00	C1_7_BUS FAULT AT 30500 BELLOTA 230.00 & C1_13_BUS FAULT AT 30625 TESLA D 230.00	C3	N-1-1	<100	100.1		Explore potential mitigation
STOC-NP-T-16	C1_20_BUS FAULT AT 33540 TESLA 115.00	B1_27_STANISLS 13.80 Unit ID 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	100.7	113.3		Explore potential mitigation
STOC-NP-T-17	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1	<100	108.8		Explore potential mitigation
STOC-NP-T-18	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1	<100	104.6		Explore potential mitigation
STOC-NP-T-19	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C1_35_BUS FAULT AT 33714 HAMMER 60.00 & C1_1_BUS FAULT AT 30482 LOCKFORD 230.00	C3	N-1-1	<100	104.6		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - 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	
STOC-NP-T-20	C1_34_BUS FAULT AT 33706 CNTRY CB 60.00	C1_1_BUS FAULT AT 30482 LOCKFORD 230.00 & C1_34_BUS FAULT AT 33706 CNTRY CB 60.00	C3	N-1-1	<100	135.5		Explore potential mitigation
STOC-NP-T-21	B2_4_Lockeford - Bellota 230 kV Line	B2_1_Rio Oso - Lockeford 230 kV Line & B2_4_Lockeford - Bellota 230 kV Line	C3	N-1-1	<100	114.3		Explore potential mitigation
STOC-NP-T-22	B2_4_Lockeford - Bellota 230 kV Line	B2_1_Rio Oso - Lockeford 230 kV Line & B2_4_Lockeford - Bellota 230 kV Line	C3	N-1-1	<100	146.9		Explore potential mitigation
STOC-NP-T-23	B2_75_Lockeford - Lodi 60 kV Line No. 2	B2_78_Lockeford - Industrial 60 kV Line & B2_75_Lockeford - Lodi 60 kV Line No. 2	C3	N-1-1	90.4	<100		Short term: Action Plan
STOC-NP-T-24	B2_75_Lockeford - Lodi 60 kV Line No. 2	B2_91_Lodi - Industrial 60 kV Line & B2_75_Lockeford - Lodi 60 kV Line No. 2	C3	N-1-1	96.7	<100		Short term: Action Plan
STOC-NP-T-25	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_42_BUS FAULT AT 33520 RIPON 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	<100	100.0		Explore potential mitigation
STOC-NP-T-26	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_42_BUS FAULT AT 33520 RIPON 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	<100	100.0		Explore potential mitigation
STOC-NP-T-27	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_34_Stanislaus - Melones Sw 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	294.4	182.3		Explore potential mitigation
STOC-NP-T-28	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	116.2	<100		Short term: Action Plan
STOC-NP-T-29	C1_20_BUS FAULT AT 33540 TESLA 115.00	B1_1_0227-WD 230.00 Unit ID FW & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	100.0	126.5		Explore potential mitigation

Study Area: PG&E Central Valley Stockton - 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	
STOC-NP-T-30	C1_20_BUS FAULT AT 33540 TESLA 115.00	B1_10_SP CMPNY 13.80 Unit ID 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	179.9	<100		Short term: Action Plan
STOC-NP-T-31	C1_20_BUS FAULT AT 33540 TESLA 115.00	B1_27_STANISLS 13.80 Unit ID 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	186.0	142.1		Explore potential mitigation
STOC-NP-T-32	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	115.1	<100		Short term: Action Plan
STOC-NP-T-33	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_15_Bellota - Tesla 230 kV Line No. 2 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	209.0	116.3		Explore potential mitigation
STOC-NP-T-34	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	129.4	107.2		Explore potential mitigation
STOC-NP-T-35	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_15_Bellota - Tesla 230 kV Line No. 2 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	209.1	116.2		Explore potential mitigation
STOC-NP-T-36	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_50_GWF Tracy - Schulte 115 kV Line & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	128.6	107.0		Explore potential mitigation
STOC-NP-T-37	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_94_Riverbank Jct-Ripon 115 kV Line from RPNJN2 to BRKR RIPON & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	166.0	105.0		Explore potential mitigation
STOC-NP-T-38	C1_20_BUS FAULT AT 33540 TESLA 115.00	B1_27_STANISLS 13.80 Unit ID 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	137.2	158.2		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - 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	
STOC-NP-T-39	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_15_Bellota - Tesla 230 kV Line No. 2 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	184.4	103.5		Explore potential mitigation
STOC-NP-T-40	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_33_Stanislaus-Melones-Manteca 115 kV Line No. 1 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	235.2	151.4		Explore potential mitigation
STOC-NP-T-41	C1_20_BUS FAULT AT 33540 TESLA 115.00	C1_23_BUS FAULT AT 33551 GWFTRACY 115.00 & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	115.4	<100		Short term: Action Plan
STOC-NP-T-42	C1_20_BUS FAULT AT 33540 TESLA 115.00	B2_94_Riverbank Jct-Ripon 115 kV Line from RPNJN2 to BRKR RIPON & C1_20_BUS FAULT AT 33540 TESLA 115.00	C3	N-1-1	165.9	105.0		Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Summer Peak

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	
STOC-SP-VD-1	LODI 60kV	B2_76_Lockeford - Lodi 60 kV Line No. 3	B	L-1	<5.0	<5.0	5.741	Explore potential mitigation
STOC-SP-VD-2	LINDEN 60kV	B2_64_Weber - Mormon Jct 60 kV Line	B	L-1	<5.0	<5.0	5.531	Explore potential mitigation
STOC-SP-VD-3	MARTELL 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1	B	L-1	<5.0	5.093	5.386	Explore potential mitigation
STOC-SP-VD-4	MONDAVI 60kV	B2_76_Lockeford - Lodi 60 kV Line No. 3	B	L-1	<5.0	<5.0	5.745	Explore potential mitigation
STOC-SP-VD-5	WESTLEY 60kV	B3_17_Manteca 115/60 kV Transformer No. 3	B	T-1	<5.0	<5.0	5.415	Explore potential mitigation
STOC-SP-VD-6	BNTA CRB 60kV	B3_17_Manteca 115/60 kV Transformer No. 3	B	T-1	<5.0	<5.0	5.154	Explore potential mitigation
STOC-SP-VD-7	LODI AUX 60kV	B2_76_Lockeford - Lodi 60 kV Line No. 3	B	L-1	<5.0	<5.0	5.753	Explore potential mitigation
STOC-SP-VD-8	MARTELTP 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1	B	L-1	<5.0	5.082	5.375	Explore potential mitigation
STOC-SP-VD-9	MNTCA JT 60kV	B3_17_Manteca 115/60 kV Transformer No. 3	B	T-1	<5.0	<5.0	5.125	Explore potential mitigation
STOC-SP-VD-10	MSHR 60V 60kV	B2_74_Hammer - Country Club 60 kV	B	L-1	6.867	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-11	P.GRVEJ. 60kV	B1_17_WEST PNT 11.50 Unit ID 1	B	G-1	5.506	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-12	PNE GRVE 60kV	B1_17_WEST PNT 11.50 Unit ID 1	B	G-1	5.537	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-13	WATRLJCT 60kV	B2_74_Hammer - Country Club 60 kV	B	L-1	7.077	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-14	WEST PNT 60kV	B1_17_WEST PNT 11.50 Unit ID 1	B	G-1	6.789	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-15	WINERY J 60kV	B2_76_Lockeford - Lodi 60 kV Line No. 3	B	L-1	<5.0	<5.0	5.741	Explore potential mitigation
STOC-SP-VD-16	CLAY 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	6.122	<5.0	<5.0	Short term: Action Plan

Study Area: PG&E Central Valley Stockton - Summer Peak

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	
STOC-SP-VD-17	Q481 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	5.726	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-18	INE_TP 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	6.504	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-19	LINDEN 60kV	B2_64_Weber - Mormon Jct 60 kV Line & B1_17_WEST PNT 11.50 Unit ID 1	B	L-1/G-1	5.12	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-20	MARTELL 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	9.541	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-21	Q481JCT 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	5.726	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-22	INE PRSN 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	6.53	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-23	MARTELTP 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1	9.526	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-24	MSHR 60V 60kV	B2_74_Hammer - Country Club 60 kV & B1_1_0227-WD 230.00 Unit ID FW	B	L-1/G-1	7.002	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-25	WATRLJCT 60kV	B2_74_Hammer - Country Club 60 kV & B1_9_SJ COGEN 13.80 Unit ID 1	B	L-1/G-1	7.111	<5.0	<5.0	Short term: Action Plan
STOC-SP-VD-26	BANTA 60kV	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	<10.0	<10.0	10.8	Explore potential mitigation
STOC-SP-VD-27	KASSON 60kV	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	<10.0	<10.0	10.787	Explore potential mitigation
STOC-SP-VD-28	CARBONA 60kV	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	<10.0	<10.0	11.039	Explore potential mitigation
STOC-SP-VD-29	BNTA JCT 60kV	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	<10.0	<10.0	10.791	Explore potential mitigation
STOC-SP-VD-30	CRBNA JC 60kV	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	<10.0	<10.0	10.8	Explore potential mitigation
STOC-SP-VD-31	LYOTH-SP 60kV	C1-21_BUS FAULT AT 33528 KASSON 115.00	C1	Bus	<10.0	<10.0	10.8	Explore potential mitigation
STOC-SP-VD-32	UOP 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	62.313	<10.0	Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Summer Peak

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	
STOC-SP-VD-33	AVENA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	13.581	11.183	11.858	Explore potential mitigation
STOC-SP-VD-34	RIPON 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	12.302	<10.0	10.478	Explore potential mitigation
STOC-SP-VD-35	STAGG 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	62.235	<10.0	Explore potential mitigation
STOC-SP-VD-36	CH.STN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	29.141	27.14	28.445	Explore potential mitigation
STOC-SP-VD-37	HAMMER 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	61.385	<10.0	Explore potential mitigation
STOC-SP-VD-38	MILLER 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.123	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-39	MI-WUK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	24.329	22.053	23.465	Explore potential mitigation
STOC-SP-VD-40	PEORIA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	29.435	27.444	28.744	Explore potential mitigation
STOC-SP-VD-41	RPNJN2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	13.99	11.562	12.258	Explore potential mitigation
STOC-SP-VD-42	BELLOTA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	59.926	59.366	61.175	Explore potential mitigation
STOC-SP-VD-43	CDCRSTN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	61.823	61.382	63.049	Explore potential mitigation
STOC-SP-VD-44	CURTISS 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	27.011	24.833	26.215	Explore potential mitigation
STOC-SP-VD-45	GRANITE 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.96	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-46	GUSTINE 60kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.114	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-47	MELONES 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	30.334	28.425	29.684	Explore potential mitigation
STOC-SP-VD-48	METTLER 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	59.671	<10.0	Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Summer Peak

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	
STOC-SP-VD-49	R.TRACK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	30.417	28.501	29.767	Explore potential mitigation
STOC-SP-VD-50	RVRBANK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	56.502	55.869	57.581	Explore potential mitigation
STOC-SP-VD-51	SANDBAR 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	20.804	18.486	19.895	Explore potential mitigation
STOC-SP-VD-52	TULLOCH 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	39.224	37.762	39.176	Explore potential mitigation
STOC-SP-VD-53	AVENATP1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	13.58	11.182	11.857	Explore potential mitigation
STOC-SP-VD-54	AVENATP2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	10.975	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-55	BEARDSLY 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	20.3	17.977	19.386	Explore potential mitigation
STOC-SP-VD-56	BLLTAJCT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.5	59.968	61.842	Explore potential mitigation
STOC-SP-VD-57	BRDSLY J 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	20.32	17.994	19.405	Explore potential mitigation
STOC-SP-VD-58	CAMANCHE 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.359	59.803	61.776	Explore potential mitigation
STOC-SP-VD-59	CATARACT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	23.16	20.859	21.944	Explore potential mitigation
STOC-SP-VD-60	CDCRSTNT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	61.714	61.267	62.947	Explore potential mitigation
STOC-SP-VD-61	CH.STNJT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	29.213	27.205	28.513	Explore potential mitigation
STOC-SP-VD-62	CMNCHETP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.508	59.967	61.874	Explore potential mitigation
STOC-SP-VD-63	CNTRY CB 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	62.427	<10.0	Explore potential mitigation
STOC-SP-VD-64	CPC STCN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	61.933	61.503	63.167	Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Summer Peak

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	
STOC-SP-VD-65	DONNELLS 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	18.78	16.449	17.853	Explore potential mitigation
STOC-SP-VD-66	FRGTNTP1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	24.573	22.353	23.467	Explore potential mitigation
STOC-SP-VD-67	FRGTNTP2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	24.414	22.206	23.31	Explore potential mitigation
STOC-SP-VD-68	FROGTOWN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	24.577	22.356	23.47	Explore potential mitigation
STOC-SP-VD-69	HMMR JCT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	60.425	<10.0	Explore potential mitigation
STOC-SP-VD-70	KYOHOTAP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.714	60.188	61.976	Explore potential mitigation
STOC-SP-VD-71	LCKFRDJA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	61.296	60.821	62.533	Explore potential mitigation
STOC-SP-VD-72	LCKFRDJB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.575	60.044	61.842	Explore potential mitigation
STOC-SP-VD-73	LOCKFORD 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.585	60.062	61.928	Explore potential mitigation
STOC-SP-VD-74	MDSTO CN 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.751	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-75	MELNS JA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	25.728	23.621	24.744	Explore potential mitigation
STOC-SP-VD-76	MELNS JB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	25.659	23.547	24.669	Explore potential mitigation
STOC-SP-VD-77	MILER TP 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.122	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-78	MORADAJT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	59.029	<10.0	Explore potential mitigation
STOC-SP-VD-79	MSHR 60V 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	48.095	<10.0	Explore potential mitigation
STOC-SP-VD-80	RCTRK J. 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	28.118	26.023	27.369	Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Summer Peak

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	
STOC-SP-VD-81	RIVRBKJT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	17.605	15.263	16.096	Explore potential mitigation
STOC-SP-VD-82	RPN JNCN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	10.551	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-83	RVRBK J1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	58.12	57.523	59.296	Explore potential mitigation
STOC-SP-VD-84	RVRBK J2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	13.246	10.797	11.479	Explore potential mitigation
STOC-SP-VD-85	RVRBK TP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	54.47	53.731	55.421	Explore potential mitigation
STOC-SP-VD-86	SALDO TP 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.096	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-87	SNDBR JT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	20.949	18.628	20.04	Explore potential mitigation
STOC-SP-VD-88	SPRNG GJ 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	21.013	18.692	20.105	Explore potential mitigation
STOC-SP-VD-89	SPRNG GP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	20.946	18.626	20.038	Explore potential mitigation
STOC-SP-VD-90	STANISLS 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	22.621	20.281	21.358	Explore potential mitigation
STOC-SP-VD-91	STCKTNJB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	60.994	60.482	62.244	Explore potential mitigation
STOC-SP-VD-92	STKTON A 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	62.162	61.75	63.393	Explore potential mitigation
STOC-SP-VD-93	STKTON B 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	61.036	60.526	62.285	Explore potential mitigation
STOC-SP-VD-94	STN COGN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	61.933	61.503	63.167	Explore potential mitigation
STOC-SP-VD-95	TCHRT_T1 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.94	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-96	TCHRTJCT 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.945	<10.0	<10.0	Short term: Action Plan

Study Area: **PG&E Central Valley Stockton - Summer Peak**

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	
STOC-SP-VD-97	TEICHERT 115kV	C2-6_TESLA 115 kV Bus 1 and Bus 2 - CB 102 Failure	C2	CB	10.964	<10.0	<10.0	Short term: Action Plan
STOC-SP-VD-98	VALLY HM 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	16.707	14.341	15.141	Explore potential mitigation
STOC-SP-VD-99	VLYHMTP1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	16.706	14.34	15.14	Explore potential mitigation
STOC-SP-VD-100	VLYHMTP2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	12.73	10.275	10.934	Explore potential mitigation
STOC-SP-VD-101	WATRLJCT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	30.522	<10.0	Explore potential mitigation
STOC-SP-VD-102	WSTLNESW 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	<10.0	61.398	<10.0	Explore potential mitigation
STOC-SP-VD-103	LOCKFORD 230kV	C5_11_Lockeford-Bellota 230 kV Line & Brighton-Bellota 230 kV L	C5	DCTL	9.82	8.383	<10.0	Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Spring Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-VD-1	OLETA 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1	B	L-1		6.059		Explore potential mitigation
STOC-SpP-VD-2	MARTELL 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1	B	L-1		5.994		Explore potential mitigation
STOC-SpP-VD-3	LOCKFORD 230kV	B2_4_Lockeford - Bellota 230 kV Line	B	L-1		5.015		Explore potential mitigation
STOC-SpP-VD-4	MARTELTP 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1	B	L-1		5.982		Explore potential mitigation
STOC-SpP-VD-5	CLAY 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		6.88		Explore potential mitigation
STOC-SpP-VD-6	Q481 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		6.426		Explore potential mitigation
STOC-SpP-VD-7	OLETA 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		10.819		Explore potential mitigation
STOC-SpP-VD-8	INE_TP 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		7.308		Explore potential mitigation
STOC-SpP-VD-9	MARTELL 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		10.69		Explore potential mitigation
STOC-SpP-VD-10	PRDESWS 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		5.076		Explore potential mitigation
STOC-SpP-VD-11	Q481JCT 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		6.426		Explore potential mitigation
STOC-SpP-VD-12	INE PRSN 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		7.331		Explore potential mitigation
STOC-SpP-VD-13	MARTELTP 60kV	B2_60_Valley Springs - Martell 60 kV Line No. 1 & B1_15_Q481 13.80 Unit ID 1	B	L-1/G-1		10.675		Explore potential mitigation
STOC-SpP-VD-14	UOP 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		22.182		Explore potential mitigation
STOC-SpP-VD-15	STAGG 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		22.251		Explore potential mitigation
STOC-SpP-VD-16	HAMMER 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		21.651		Explore potential mitigation

Study Area: PG&E Central Valley Stockton - Spring Peak

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-VD-17	CDCRSTN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.939		Explore potential mitigation
STOC-SpP-VD-18	RVRBANK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		14.914		Explore potential mitigation
STOC-SpP-VD-19	CDCRSTNT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.91		Explore potential mitigation
STOC-SpP-VD-20	CNTRY CB 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		22.255		Explore potential mitigation
STOC-SpP-VD-21	CPC STCN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.959		Explore potential mitigation
STOC-SpP-VD-22	HMMR JCT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		21.133		Explore potential mitigation
STOC-SpP-VD-23	KYOHOTAP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.611		Explore potential mitigation
STOC-SpP-VD-24	LCKFRDJA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.819		Explore potential mitigation
STOC-SpP-VD-25	MORADAJT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		20.42		Explore potential mitigation
STOC-SpP-VD-26	MSHR 60V 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		15.756		Explore potential mitigation
STOC-SpP-VD-27	RVRBK J1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		15.734		Explore potential mitigation
STOC-SpP-VD-28	RVRBK TP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		14.232		Explore potential mitigation
STOC-SpP-VD-29	STCKTNJB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.663		Explore potential mitigation
STOC-SpP-VD-30	STKTON A 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		17.016		Explore potential mitigation
STOC-SpP-VD-31	STKTON B 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.671		Explore potential mitigation
STOC-SpP-VD-32	STN COGN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		16.959		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - Spring Peak**

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					N/A	2019 Spring Off-Peak	N/A	
STOC-SpP-VD-33	WSTLNESW 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		21.656		Explore potential mitigation

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

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.

Study Area: PG&E Central Valley Stockton - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-V-1	WESTLEY 60kV	B3_17_Manteca 115/60 kV Transformer No. 3 & B1_11_GWFTRCY3 13.80 Unit ID 1	B	L-1/G-1	0.8988	>0.95	>0.95	Dispatch local generation or voltage support
STOC-SP-V-2	LOCKFORD 230kV	B2_4_Lockeford - Bellota 230 kV Line & B1_1_0227-WD 230.00 Unit ID FW	B	L-1/G-1	0.8962	>0.95	>0.95	Dispatch local generation or voltage support
STOC-SP-V-3	LOCKFORD 230kV	C1-8_BUS FAULT AT 30500 BELLOTA 230.00 Bus 2	C1	Bus	0.8982	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-4	AVENA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8661	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-5	RIPON 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8709	>0.90	0.8967	Dispatch local generation or voltage support
STOC-SP-V-6	CH.STN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7257	0.7501	0.736	Dispatch local generation or voltage support
STOC-SP-V-7	MI-WUK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7738	0.7993	0.7845	Dispatch local generation or voltage support
STOC-SP-V-8	PEORIA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.721	0.7454	0.7314	Dispatch local generation or voltage support
STOC-SP-V-9	RPNJN2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.855	0.8897	0.8794	Dispatch local generation or voltage support
STOC-SP-V-10	BELLOTA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4421	0.4504	0.4304	Dispatch local generation or voltage support
STOC-SP-V-11	CDCRSTN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.401	0.4078	0.3884	Dispatch local generation or voltage support
STOC-SP-V-12	CURTISS 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7405	0.7658	0.7511	Dispatch local generation or voltage support
STOC-SP-V-13	MELONES 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7143	0.7383	0.7247	Dispatch local generation or voltage support
STOC-SP-V-14	R.TRACK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.712	0.736	0.7223	Dispatch local generation or voltage support
STOC-SP-V-15	RVRBANK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4663	0.4753	0.4557	Dispatch local generation or voltage support

Study Area: PG&E Central Valley Stockton - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-V-16	SANDBAR 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8239	0.8488	0.8342	Dispatch local generation or voltage support
STOC-SP-V-17	TULLOCH 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.6304	0.649	0.6342	Dispatch local generation or voltage support
STOC-SP-V-18	AVENATP1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8662	>0.90	0.8911	Dispatch local generation or voltage support
STOC-SP-V-19	AVENATP2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8988	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-20	BEARDSLY 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8289	0.8538	0.8393	Dispatch local generation or voltage support
STOC-SP-V-21	BLLTAJCT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4322	0.44	0.4187	Dispatch local generation or voltage support
STOC-SP-V-22	BRDSLY J 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8275	0.8524	0.8379	Dispatch local generation or voltage support
STOC-SP-V-23	CAMANCHE 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4356	0.4437	0.4215	Dispatch local generation or voltage support
STOC-SP-V-24	CATARACT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7956	0.8237	0.8115	Dispatch local generation or voltage support
STOC-SP-V-25	CDCRSTNT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4038	0.4106	0.3912	Dispatch local generation or voltage support
STOC-SP-V-26	CH.STNJT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7231	0.7476	0.7335	Dispatch local generation or voltage support
STOC-SP-V-27	CMNCHETP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4326	0.4405	0.4189	Dispatch local generation or voltage support
STOC-SP-V-28	CPC STCN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.3987	0.4053	0.3859	Dispatch local generation or voltage support
STOC-SP-V-29	DONNELLS 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8454	0.8699	0.8556	Dispatch local generation or voltage support
STOC-SP-V-30	FRGTNTP1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7724	0.8	0.7875	Dispatch local generation or voltage support
STOC-SP-V-31	FRGTNTP2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7777	0.8052	0.7928	Dispatch local generation or voltage support

Study Area: PG&E Central Valley Stockton - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-V-32	FROGTOWN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7722	0.7999	0.7873	Dispatch local generation or voltage support
STOC-SP-V-33	KYOHOTAP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4273	0.4352	0.4151	Dispatch local generation or voltage support
STOC-SP-V-34	LCKFRDJA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.413	0.4202	0.4006	Dispatch local generation or voltage support
STOC-SP-V-35	LCKFRDJB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4301	0.438	0.4178	Dispatch local generation or voltage support
STOC-SP-V-36	LOCKFORD 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4302	0.4379	0.4167	Dispatch local generation or voltage support
STOC-SP-V-37	LOCKFORD 230kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8869	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-38	MELNS JA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.759	0.7859	0.7732	Dispatch local generation or voltage support
STOC-SP-V-39	MELNS JB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7597	0.7867	0.7739	Dispatch local generation or voltage support
STOC-SP-V-40	RCTRK J. 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.7317	0.7567	0.7422	Dispatch local generation or voltage support
STOC-SP-V-41	RIVRBKJT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8233	0.8557	0.8445	Dispatch local generation or voltage support
STOC-SP-V-42	RPN JNCN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8914	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-43	RVRBK J1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4545	0.4632	0.4435	Dispatch local generation or voltage support
STOC-SP-V-44	RVRBK J2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8811	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-45	RVRBK TP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4905	0.5009	0.4819	Dispatch local generation or voltage support
STOC-SP-V-46	SNDBR JT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8205	0.8455	0.8309	Dispatch local generation or voltage support
STOC-SP-V-47	SPRNG GJ 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.819	0.844	0.8294	Dispatch local generation or voltage support

Study Area: PG&E Central Valley Stockton - Summer Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-V-48	SPRNG GP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8206	0.8456	0.831	Dispatch local generation or voltage support
STOC-SP-V-49	STANISLS 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8032	0.8315	0.8195	Dispatch local generation or voltage support
STOC-SP-V-50	STCKTNJB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4213	0.4291	0.4092	Dispatch local generation or voltage support
STOC-SP-V-51	STKTON A 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.3929	0.3992	0.3798	Dispatch local generation or voltage support
STOC-SP-V-52	STKTON B 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.4203	0.4281	0.4082	Dispatch local generation or voltage support
STOC-SP-V-53	STN COGN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.3987	0.4053	0.3859	Dispatch local generation or voltage support
STOC-SP-V-54	VALLY HM 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8303	0.8632	0.8522	Dispatch local generation or voltage support
STOC-SP-V-55	VLYHMTP1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8304	0.8633	0.8523	Dispatch local generation or voltage support
STOC-SP-V-56	VLYHMTP2 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	CB	0.8851	>0.90	>0.90	Dispatch local generation or voltage support
STOC-SP-V-57	WATRLJCT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	CB	>0.90	0.7281	>0.90	Dispatch local generation or voltage support
STOC-SP-V-58	SHW 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2133	>0.90	Dispatch local generation or voltage support
STOC-SP-V-59	UOP 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2467	>0.90	Dispatch local generation or voltage support
STOC-SP-V-60	SHWSS 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2133	>0.90	Dispatch local generation or voltage support
STOC-SP-V-61	STAGG 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2404	>0.90	Dispatch local generation or voltage support

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-V-62	HAMMER 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2541	>0.90	Dispatch local generation or voltage support
STOC-SP-V-63	METTLER 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2816	>0.90	Dispatch local generation or voltage support
STOC-SP-V-64	METTLER 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B3_9_Stagg 230/60 kV Transformer No. 1	C3	N-1-1	>0.90	0.3369	>0.90	Dispatch local generation or voltage support
STOC-SP-V-65	METTLER 60kV	B3_9_Stagg 230/60 kV Transformer No. 1 & B3_10_Stagg 230/60 kV Transformer No. 4	C3	N-1-1	>0.90	0.3368	>0.90	Dispatch local generation or voltage support
STOC-SP-V-66	STAGG-D 230kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.1998	>0.90	Dispatch local generation or voltage support
STOC-SP-V-67	STAGG-E 230kV	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1	>0.90	0.2041	>0.90	Dispatch local generation or voltage support
STOC-SP-V-68	STAGG-F 230kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.1993	>0.90	Dispatch local generation or voltage support
STOC-SP-V-69	STAGG-H 230kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.199	>0.90	Dispatch local generation or voltage support
STOC-SP-V-70	WESTLEY 60kV	B2_49_Schulte - Lammers 115 kV Line & B3_17_Manteca 115/60 kV Transformer No. 3	C3	N-1-1	0.8964	0.8997	0.8817	Dispatch local generation or voltage support
STOC-SP-V-71	CNTRY CB 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2454	>0.90	Dispatch local generation or voltage support
STOC-SP-V-72	HMMR JCT 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.27	>0.90	Dispatch local generation or voltage support

Study Area: **PG&E Central Valley Stockton - Summer Peak**

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Peak	2019 Summer Peak	2024 Summer Peak	
STOC-SP-V-73	MORADAJT 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2912	>0.90	Explore potential mitigation
STOC-SP-V-74	MSHR 60V 60kV	B2_4_Lockeford - Bellota 230 kV Line & B2_74_Hammer - Country Club 60 kV	C3	N-1-1	0.8282	>0.90	>0.90	Short term: Action Plan
STOC-SP-V-75	NEW HOPE 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.204	>0.90	Explore potential mitigation
STOC-SP-V-76	SEBASTIA 60kV	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1	>0.90	0.2137	>0.90	Explore potential mitigation
STOC-SP-V-77	STAGG JT 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2402	>0.90	Explore potential mitigation
STOC-SP-V-78	TERMNOUS 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.219	>0.90	Explore potential mitigation
STOC-SP-V-79	TERMNS J 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2222	>0.90	Explore potential mitigation
STOC-SP-V-80	WSTLNESW 60kV	B3_10_Stagg 230/60 kV Transformer No. 4 & B2_10_Eight Mile - Stagg 230 kV Line	C3	N-1-1	>0.90	0.2579	>0.90	Explore potential mitigation
STOC-SP-V-81	LOCKFORD 230kV	C5_11_Lockeford-Bellota 230 kV Line & Brighton-Bellota 230 kV L	C5	DCTL	0.89	>0.90	>0.90	Short term: Action Plan

Study Area: PG&E Central Valley Stockton - Spring Peak

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
STOC-SpP-V-1	UOP 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8267		Explore potential mitigation
STOC-SpP-V-2	STAGG 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8305		Explore potential mitigation
STOC-SpP-V-3	HAMMER 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8305		Explore potential mitigation
STOC-SpP-V-4	CDCRSTN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8635		Explore potential mitigation
STOC-SpP-V-5	RVRBANK 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8932		Explore potential mitigation
STOC-SpP-V-6	CDCRSTNT 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8653		Explore potential mitigation
STOC-SpP-V-7	CNTRY CB 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8264		Explore potential mitigation
STOC-SpP-V-8	CPC STCN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8626		Explore potential mitigation
STOC-SpP-V-9	HMMR JCT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8347		Explore potential mitigation
STOC-SpP-V-10	KYOHOTAP 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8792		Explore potential mitigation
STOC-SpP-V-11	LCKFRDJA 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8701		Explore potential mitigation
STOC-SpP-V-12	MORADAJT 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8403		Explore potential mitigation
STOC-SpP-V-13	MSHR 60V 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.878		Explore potential mitigation
STOC-SpP-V-14	RVRBK J1 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8885		Explore potential mitigation
STOC-SpP-V-15	STCKTNJB 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8763		Explore potential mitigation
STOC-SpP-V-16	STKTON A 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8593		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - Spring Peak**

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					N/A	2019 Spring Peak	N/A	
STOC-SpP-V-17	STKTON B 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8757		Explore potential mitigation
STOC-SpP-V-18	STN COGN 115kV	C2-1_BELLOTA 230 kV Bus 1 and Bus 2 - CB 200 Failure	C2	Bus		0.8626		Explore potential mitigation
STOC-SpP-V-19	WSTLNESW 60kV	C2-8_STAGG 60 kV Bus Sections D and E - CB 2 Failure	C2	Bus		0.8307		Explore potential mitigation
STOC-SpP-V-20	STAGG-H 230kV	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1		0.271		Explore potential mitigation
STOC-SpP-V-21	NW HPE J 60kV	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1		0.2844		Explore potential mitigation

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

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2016 Summer Off-Peak	2019 Summer Light Load	N/A	
STOC-NP-V-1	LODI 60kV	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	>0.90	0.8712		Explore potential mitigation
STOC-NP-V-2	MONDAVI 60kV	B2_1_Rio Oso - Lockeford 230 kV Line & B2_4_Lockeford - Bellota 230 kV Line	C3	N-1-1	>0.90	0.8583		Explore potential mitigation
STOC-NP-V-3	STAGG-H 230kV	B2_10_Eight Mile - Stagg 230 kV Line & B2_8_Stagg - Tesla 230 kV Line	C3	N-1-1	>0.90	0.809		Explore potential mitigation
STOC-NP-V-4	HNYLNJCT 60kV	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	>0.90	0.8859		Explore potential mitigation
STOC-NP-V-5	INDSTR J 60kV	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	>0.90	0.8723		Explore potential mitigation
STOC-NP-V-6	LOCKEFRD 60kV	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	>0.90	0.8814		Explore potential mitigation
STOC-NP-V-7	LODI AUX 60kV	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	>0.90	0.8712		Explore potential mitigation
STOC-NP-V-8	LODI JCT 60kV	B3_4_Lockeford 230/60 kV Transformer No. 2 & B3_5_Lockeford 230/60 kV Transformer No. 3	C3	N-1-1	>0.90	0.8733		Explore potential mitigation

Study Area: **PG&E Central Valley Stockton - Summer Peak**

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.

Study Area: **PG&E Central Valley Stockton - 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 Central Valley Stockton - Spring Peak**

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				N/A	2019 Spring Peak	N/A	

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

Study Area: **PG&E Central Valley Stockton - 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: **PG&E Central Valley Stockton - 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

Study Area: **PG&E Central Valley Stockton - Spring Peak**

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		N/A	2019 Spring Peak	N/A	

No single source substation with more than 100 MW Load

Study Area: **PG&E Central Valley Stockton - 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