Study Area: **PG&E Central Coast - Summer Peak**

California ISO
Shaping a Renewed Future

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-T-001	MOSLND D-MOSSLND1 115/230 kV #1 Bank	BUS FAULT AT MOSSLND2 230 kV (Bus Section 2D)	C1	BUS	109	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-002	MOSLND D-MOSSLND2 115/230 kV #2 Bank	BUS FAULT AT MOSSLND1 230 kV (Bus Section 1D)	C1	BUS	109	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-003	MOSLND E-MOSSLND1 115/230 kV #8 Bank	BUS FAULT AT MOSSLND2 230 kV (Bus Section 2D)	C1	BUS	108	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-004	MOSLND E-MOSSLND2 115/230 kV #10 Bank	BUS FAULT AT MOSSLND1 230 kV (Bus Section 1D)	C1	BUS	109	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-005	MOSLND D-MOSSLND1 115/230 kV #1 Bank	CB FAULT AT MOSS LANDING SUB 115 kV CB120	C2	CB	113	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-006	MOSLND D-MOSSLND2 115/230 kV #2 Bank	CB FAULT AT MOSS LANDING SUB 115 kV CB110	C2	CB	114	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-007	MOSLND E-MOSSLND1 115/230 kV #8 Bank	CB FAULT AT MOSS LANDING SUB 115 kV CB120	C2	CB	113	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-008	MOSLND E-MOSSLND2 115/230 kV #10 Bank	CB FAULT AT MOSS LANDING SUB 115 kV CB110	C2	CB	114	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-009	MOSLND D-MOSSLND1 115/230 kV #1 Bank	Moss Landing 230/115 kV Bank #8 & 10	C3	T-1-1	199	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-010	MOSLND D-MOSSLND2 115/230 kV #2 Bank	Moss Landing 230/115 kV Bank #1 & 10	C3	T-1-1	109	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-011	MOSLND E-MOSSLND1 115/230 kV #8 Bank	Moss Landing 230/115 kV Bank #1 & 10	C3	T-1-1	108	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-012	MOSLND E-MOSSLND2 115/230 kV #10 Bank	Moss Landing 230/115 kV Bank #1 & 8	C3	T-1-1	109	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-SP-T-013	GRN VLY1-MOSLND D 115 kV # 1 Line	Moss Landing-Green Valley #2 115 kV and Crazy Horse-Watsonville 115 kV Lines	C3	L-1-1	<100	<100	102	Monitor line loading due to lead time
CC-SP-T-014	GRN VLY2-MOSLND D 115 kV # 1 Line	Moss Landing-Green Valley #1 115 kV and Crazy Horse-Watsonville 115 kV Lines	C3	L-1-1	<100	<100	103	Monitor line loading due to lead time

Study Area: **PG&E Central Coast - Summer Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-T-015	GRN VLY1-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	114	125	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-016	CIC JCT-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	115	125	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-017	CIC JCT-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	115	125	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-018	WTSNVLLE-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	115	126	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-019	WTSNVLLE-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	124	136	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-020	BRIGTANO-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	125	136	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-021	CRZY_HRS-BRIGTANO 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	126	137	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Summer Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-T-022	CRZY_HRS-NTVD SW1 115 kV #1 Line	Moss Landing-Salinas #1 & 2 115 kV Lines	C3	L-1-1	108	110	107	Expedite the Natividad Substation Project which is presently on hold.
CC-SP-T-023	CRZY_HRS-NTVD SW2 115 kV #1 Line	Moss Landing-Salinas #1 & 2 115 kV Lines	C3	L-1-1	108	110	107	Expedite the Natividad Substation Project which is presently on hold.
CC-SP-T-024	GRN VLY1-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	116	128	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-025	CIC JCT-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	116	129	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-026	CIC JCT-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	116	129	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-027	WTSNVLLE-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	116	129	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-028	WTSNVLLE-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	126	140	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Summer Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-T-029	BRIGTANO-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	126	140	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-030	CRZY_HRS-BRIGTANO 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	127	142	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-T-031	CRZY_HRS-NTVD SW1 115 kV #1 Line	Moss Landing-Salinas #1 & 2 115 kV Lines	C5 DCTL	L-2	108	110	107	Expedite the Natividad Substation Project which is presently on hold.
CC-SP-T-032	CRZY_HRS-NTVD SW2 115 kV #1 Line	Moss Landing-Salinas #1 & 2 115 kV Lines	C5 DCTL	L-2	108	110	107	Expedite the Natividad Substation Project which is presently on hold.

Study Area: **PG&E Central Coast - Summer Peak**

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-V-001	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	-	0.85	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-SP-V-002	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	-	0.86	Activate Paul Sweet STATCOM
CC-SP-V-003	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	0.90	0.85	Activate Paul Sweet STATCOM
CC-SP-V-004	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	0.90	0.85	Avtivate Paul Sweet STATCOM
CC-SP-V-005	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	0.90	0.85	Avtivate Paul Sweet STATCOM
CC-SP-V-006	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.90	0.85	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-007	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.90	0.86	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-008	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	-	0.86	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-009	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	0.89	0.82	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-SP-V-010	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	0.89	0.82	Avtivate Paul Sweet STATCOM
CC-SP-V-011	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	0.88	0.82	Avtivate Paul Sweet STATCOM
CC-SP-V-012	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	0.88	0.82	Avtivate Paul Sweet STATCOM
CC-SP-V-013	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	0.88	0.82	Avtivate Paul Sweet STATCOM

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-V-014	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	0.88	0.83	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-015	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	0.89	0.84	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-016	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	0.89	0.84	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-017	GRANT RK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	-	0.89	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-V-018	BRIGTANO 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	-	0.89	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Summer Peak**

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-VD-001	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	12	15	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-SP-VD-002	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	12	14	Activate Paul Sweet STATCOM
CC-SP-VD-003	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	12	15	Activate Paul Sweet STATCOM
CC-SP-VD-004	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	12	15	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-005	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	12	15	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-006	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	12	15	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-007	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	12	15	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-008	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	12	15	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-009	GRANT RK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	-	11	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-010	BRIGTANO 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	-	11	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-011	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	14	18	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-SP-VD-012	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	13	18	Activate Paul Sweet STATCOM

Study Area: **PG&E Central Coast - Summer Peak**

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
CC-SP-VD-013	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	14	19	Activate Paul Sweet STATCOM
CC-SP-VD-014	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	14	19	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-015	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	14	19	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-016	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	14	19	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-017	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	14	18	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-018	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	14	18	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-019	GRANT RK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	10	13	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-SP-VD-020	BRIGTANO 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	10	13	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

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

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Summer Off-Peak	2018 Summer Light Load	2023 Summer Off-Peak	
CC-NP-T-001	MOSLND D-MOSSLND1 115/230 kV #1 Bank	Moss Landing 230/115 kV Bank #8 & 10	C3	T-1-1	106	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-NP-T-002	MOSLND D-MOSSLND2 115/230 kV #2 Bank	Moss Landing 230/115 kV Bank #8 & 10	C3	T-1-1	106	<100	<100	Action Plan/drop load until Moss Landing Bank upgrade

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

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Summer Off-Peak	2018 Summer Light Load	2023 Summer Off-Peak	
CC-NP-V-001	ERTA 60 kV	N/A	A	Normal	1.07	N/A	N/A	Review for possible exemption
CC-NP-V-002	AGRILINK 60 kV	N/A	A	Normal	1.07	N/A	N/A	Review for possible exemption
CC-NP-V-003	WTSNVLLE 60 kV	N/A	A	Normal	1.07	N/A	N/A	Review for possible exemption
CC-NP-V-004	GRANT RK 60 kV	N/A	A	Normal	1.06	N/A	N/A	Review for possible exemption
CC-NP-V-005	BRIGTANO 60 kV	N/A	A	Normal	1.06	N/A	N/A	Review for possible exemption
CC-NP-V-006	CMP EVRS 115 kV	N/A	A	Normal	-	1.07	-	Review for possible exemption
CC-NP-V-007	PAUL SWT 115 kV	N/A	A	Normal	-	1.07	-	Review for possible exemption
CC-NP-V-008	ROB ROY 115 kV	N/A	A	Normal	-	1.08	-	Review for possible exemption
CC-NP-V-009	GRN VLY1 115 kV	N/A	A	Normal	-	1.08	-	Review for possible exemption
CC-NP-V-010	GRN VLY2 115 kV	N/A	A	Normal	-	1.08	-	Review for possible exemption
CC-NP-V-011	ERTA 115 kV	N/A	A	Normal	N/A	1.08	-	Review for possible exemption
CC-NP-V-012	AGRILINK 115 kV	N/A	A	Normal	N/A	1.08	-	Review for possible exemption
CC-NP-V-013	WTSNVLLE 115 kV	N/A	A	Normal	N/A	1.08	-	Review for possible exemption
CC-NP-V-014	GRANT RK 115 kV	N/A	A	Normal	N/A	1.08	-	Review for possible exemption
CC-NP-V-015	BRIGTANO 115 kV	N/A	A	Normal	N/A	1.08	-	Review for possible exemption

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

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Summer Off-Peak	2018 Summer Light Load	2023 Summer Off-Peak	
CC-NP-V-016	SNBENITO 115 kV	N/A	A	Normal	-	1.08	-	Review for possible exemption
CC-NP-V-017	SALINAS 115 kV	N/A	A	Normal	-	1.08	-	Review for possible exemption
CC-NP-V-018	SOLEDAD 115 kV	N/A	A	Normal	-	1.08	-	Review for possible exemption
CC-NP-V-019	DEL MNTE 115 kV	N/A	A	Normal	-	1.07	-	Review for possible exemption
CC-NP-V-020	HOLLISTR 115 kV	N/A	A	Normal	1.05	1.09	-	Review for possible exemption
CC-NP-V-021	BIG BASN 60 kV	N/A	A	Normal	1.06	1.09	1.05	Review for possible exemption
CC-NP-V-022	CRUSHER 60 kV	N/A	A	Normal	1.05	1.09	1.05	Review for possible exemption
CC-NP-V-023	LONE STR 60 kV	N/A	A	Normal	1.05	1.09	1.05	Review for possible exemption
CC-NP-V-024	PT MRTTI 60 kV	N/A	A	Normal	1.05	1.09	1.05	Review for possible exemption
CC-NP-V-025	CSTRVLLE 115 kV	N/A	A	Normal	1.06	1.09	1.06	Review for possible exemption
CC-NP-V-026	DOLAN RD 115 kV	N/A	A	Normal	1.06	1.09	1.06	Review for possible exemption
CC-NP-V-027	PRUNEDLE 115 kV	N/A	A	Normal	1.05	1.08	1.05	Review for possible exemption

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

California ISO
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Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2015 Summer Off-Peak	2018 Summer Light Load	2023 Summer Off-Peak	
CC-NP-VD-001	VIEJO 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-002	HATTON 60 Kv	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-003	DEL MNTE 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-004	FORT ORD 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-005	MANZANTA 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-006	MONTEREY 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-007	NAVY LAB 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-008	NVY SCHL 60 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-7	-	Action plan for summer light load conditions/Monitor voltage profile
CC-NP-VD-009	PAUL SWT 115 kV	Del Monte 115/60 kV Bank #4	B	T-1	-	-	-5	Action plan for summer light load conditions/Monitor voltage profile

Study Area: **PG&E Central Coast - Summer Peak**

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				Select..	Select..	Select..	

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

Study Area: **PG&E Central Coast - Winter Peak**

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				Select..	Select..	Select..	

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

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

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				Select..	Select..	Select..	

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

Study Area: **PG&E Central Coast - Summer Peak**

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		Select..	Select..	Select..	

No single source substation with more than 100 MW Load

Study Area: **PG&E Central Coast - Winter Peak**

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		Select..	Select..	Select..	

No single source substation with more than 100 MW Load

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

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		Select..	Select..	Select..	
X-NP-SS-1					

No single source substation with more than 100 MW Load

Study Area: **PG&E Central Coast - Winter Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-T-001	GRN VLY1-MOSLND D 115 kV # 1 Line	Moss Landing-Green Valley #2 115 kV Line	B	L-1	101	<100	<100	Monitor facility loading/rerate/interim action plan. Green Valley 115 kV Bus Upgrade (BAAH scheme)
CC-WP-T-002	GRN VLY2-MOSLND D 115 kV # 1 Line	Moss Landing-Green Valley #1 115 kV Line	B	L-1	101	<100	<100	Monitor facility loading/rerate/interim action plan. Green Valley 115 kV Bus Upgrade (BAAH scheme)
CC-WP-T-003	GRN VLY2-MOSLND D 115 kV # 1 Line	BUS FAULT AT MOSSLND2 115 kV Bus Section 1D	C1	BUS	102	<100	<100	Monitor facility loading/rerate/interim action plan. Green Valley 115 kV Bus Upgrade (BAAH scheme)
CC-WP-T-004	GRN VLY2-MOSLND D 115 kV # 1 Line	CB FAULT AT MOSS LANDING SUB 115 kV CB110	C2	CB	104	<100	<100	Monitor facility loading/rerate/interim action plan. Green Valley 115 kV Bus Upgrade (BAAH scheme)
CC-WP-T-005	MOSLND D-MOSSLND1 115/230 kV #1 Bank	Moss Landing 230/115 kV Bank #8 & 10	C3	T-1-1	171	174	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-WP-T-006	MOSLND D-MOSSLND2 115/230 kV #2 Bank	Moss Landing 230/115 kV Bank #8 & 10	C3	T-1-1	171	173	<100	Action Plan/drop load until Moss Landing Bank upgrade
CC-WP-T-007	GRN VLY1-MOSLND D 115 kV # 1 Line	Moss Landing-Green Valley #2 115 kV and Crazy Horse-Watsonville 115 kV Lines	C3	L-1-1	<100	102	110	Monitor line loading due to lead time/Modify Watsonville 115 kV Voltage Conversion Project scope. Also Green Valley 115 kV Bus Upgrade (BAAH scheme)

Study Area: **PG&E Central Coast - Winter Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-T-008	GRN VLY2-MOSLND D 115 kV # 1 Line	Moss Landing-Green Valley #1 115 kV and Crazy Horse-Watsonville 115 kV Lines	C3	L-1-1	<100	102	110	Monitor line loading due to lead time/Modify Watsonville 115 kV Voltage Conversion Project scope. Also Green Valley 115 kV Bus Upgrade (BAAH scheme)
CC-WP-T-009	GRN VLY1-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	127	134	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-010	CIC JCT-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	127	134	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-011	CIC JCT-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	127	134	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-012	WTSNVLLE-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	127	134	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-013	WTSNVLLE-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	138	145	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Winter Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-T-014	BRIGTANO-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	138	145	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-015	CRZY_HRS-BRIGTANO 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C3	L-1-1	N/A	139	146	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-016	GRN VLY1-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	127	140	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-017	CIC JCT-ERTA JCT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	127	140	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-018	CIC JCT-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	127	140	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-019	WTSNVLLE-AGRILINK 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	127	141	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-020	WTSNVLLE-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	138	152	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Winter Peak**

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-T-021	BRIGTANO-GRANT JT 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	138	152	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-T-022	CRZY_HRS-BRIGTANO 115 kV #1 Line	Moss Landing - Green Valley #1 and #2 115 kV Lines	C5 DCTL	L-2	N/A	139	154	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Winter Peak**

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-V-001	ERTA 60 kV	N/A	A	Normal	1.06	N/A	N/A	Review for possible exemption
CC-WP-V-002	AGRILINK 60 kV	N/A	A	Normal	1.05	N/A	N/A	Review for possible exemption
CC-WP-V-003	WTSNVLLE 60 kV	N/A	A	Normal	1.05	N/A	N/A	Review for possible exemption
CC-WP-V-004	PRUNEDLE 115 kV	N/A	A	Normal	1.05	-	-	Review for possible exemption
CC-WP-V-005	CSTRVLLE 115 kV	N/A	A	Normal	1.06	1.05	1.05	Review for possible exemption
CC-WP-V-006	DOLAN RD 115 kV	N/A	A	Normal	1.06	1.05	1.05	Review for possible exemption
CC-WP-V-007	CAMPHORA 60 kV	Metcalf-Moss Landing 230 kV #1 Line & Moss Landing 500/230 kV #9 Bank	C3	L-1/T-1	0.90	-	-	Monitor voltage/action plan
CC-WP-V-008	GONZALES 60 kV	Metcalf-Moss Landing 230 kV #1 Line & Moss Landing 500/230 kV #9 Bank	C3	L-1/T-1	0.89	-	-	Monitor voltage/action plan
CC-WP-V-009	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.85	0.85	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-WP-V-010	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.85	0.85	Activate Paul Sweet STATCOM
CC-WP-V-011	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.85	0.85	Activate Paul Sweet STATCOM. Santa Cruz Reinforcement Project rebuilds Green Valley-Rob Roy 115 kV Line into DCTL with 20 MVAr Shunt Caps at Camp Evers
CC-WP-V-012	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.85	0.85	Activate Paul Sweet STATCOM
CC-WP-V-013	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.85	0.85	Activate Paul Sweet STATCOM

Study Area: **PG&E Central Coast - Winter Peak**

High/Low Voltage

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-V-014	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.85	0.85	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-V-015	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.86	0.86	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-V-016	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	0.86	0.86	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-V-017	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5	L-2	-	0.85	0.79	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-WP-V-018	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5	L-2	-	0.85	0.80	Activate Paul Sweet STATCOM
CC-WP-V-019	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5	L-2	-	0.85	0.80	Activate Paul Sweet STATCOM
CC-WP-V-020	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5	L-2	-	0.85	0.80	Activate Paul Sweet STATCOM
CC-WP-V-021	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5	L-2	-	0.85	0.80	Activate Paul Sweet STATCOM

Study Area: **PG&E Central Coast - Winter Peak**

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-VD-001	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	17.5	15.2	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-WP-VD-002	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	17.3	14.9	Activate Paul Sweet STATCOM
CC-WP-VD-003	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	17.4	15.8	Activate Paul Sweet STATCOM
CC-WP-VD-004	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	17.4	16.1	Activate Paul Sweet STATCOM
CC-WP-VD-005	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	-	17.5	16.1	Activate Paul Sweet STATCOM
CC-WP-VD-006	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	17.1	15.9	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-007	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	16.6	15.5	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-008	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	16.5	15.4	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-009	GRANT RK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	12.3	11.6	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-010	BRIGTANO 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C3	L-1-1	N/A	12.1	11.4	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-011	CMP EVRS 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	17.7	20.8	Avtivate Camp Evers 20 MVAr Shunt Caps (Santa Cruz Reinforcement project)
CC-WP-VD-012	PAUL SWT 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	17.3	20.3	Activate Paul Sweet STATCOM
CC-WP-VD-013	ROB ROY 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	18.0	21.5	Activate Paul Sweet STATCOM

Study Area: **PG&E Central Coast - Winter Peak**

Voltage Deviations

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2015 Winter Peak	2018 Winter Peak	2023 Winter Peak	
CC-WP-VD-014	GRN VLY1 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	18.2	21.9	Activate Paul Sweet STATCOM
CC-WP-VD-015	GRN VLY2 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	-	18.3	22.0	Activate Paul Sweet STATCOM
CC-WP-VD-016	ERTA 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	17.9	21.5	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-017	AGRILINK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	17.4	20.8	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-018	WTSNVLLE 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	17.3	20.6	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-019	GRANT RK 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	12.9	15.0	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support
CC-WP-VD-020	BRIGTANO 115 kV	Moss Landing-Green Valley #1 & 2 115 kV Lines	C5 DCTL	L-2	N/A	12.6	14.7	Resize conductors for the Watsonville 115 kV Voltage Conversion Project/ add reactive support

Study Area: **PG&E Central Coast - Summer Peak**

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				Select..	Select..	Select..	

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

Study Area: **PG&E Central Coast - Winter Peak**

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				Select..	Select..	Select..	

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

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

Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				Select..	Select..	Select..	

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

Study Area: **PG&E Central Coast - Summer Peak**

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		Select..	Select..	Select..	

No single source substation with more than 100 MW Load

Study Area: **PG&E Central Coast - Winter Peak**

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		Select..	Select..	Select..	

No single source substation with more than 100 MW Load

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

Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		Select..	Select..	Select..	

No single source substation with more than 100 MW Load