

2013/2014 ISO Reliability Assessment - Study Results

Study Area: **PG&E Los Padres - 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	
LP_SP_T_001	MORRO BAY 230/115 kV # 6 Bank	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	111	<100	<100	Action plan/drop load in the interim until Morro Bay transformer Addition Project is in service
LP_SP_T_002	SN LS OB-SNTA MRA 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	184	190	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_003	SNTA MRA-FRWAYTP 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	104	108	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_004	S.YNZ JT-ZACA 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	102	104	<100	Modify Divide SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_005	MORRO BY-GLDTRJC1 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	107	107	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_006	MORRO BY-GLDTRJC2 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	105	105	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_007	GLDTRJC2-FTHILTP1 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	105	105	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

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LP_SP_T_008	SAN MIGL-PSA RBLS 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	88	113	115	Build Estrella Substation Project with only a single 230 kV line loop-in.
LP_SP_T_009	TEMPL7-TEMPL J2 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	121	129	135	Build Estrella Substation Project with only a single 230 kV line loop-in.
LP_SP_T_010	TEMPL J2-ATASCDRO 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	120	129	134	Build Estrella Substation Project with only a single 230 kV line loop-in.
LP_SP_T_011	ATASCDRO-CACOS J2 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	150	136	141	Build Estrella Substation Project with only a single 230 kV line loop-in.
LP_SP_T_012	CACOS J2-CAYUCOS 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	138	125	130	Build Estrella Substation Project with only a single 230 kV line loop-in.
LP_SP_T_013	MUSTNG J-SN LS OB 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	115	112	116	Build Estrella Substation Project with only a single 230 kV line loop-in.
LP_SP_T_014	S.YNZ JT-CABRILLO 115 kV #1 Line	Andrew-Sisquoc 115 kV #1 & 2 Lines	C3	L-1-1	N/A	N/A	101	Monitor facility loading due to long lead time
LP_SP_T_015	ATASCDRO-SN LS OB 70 kV #1 Line	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	142	<100	<100	Drop load. Estrella Substation Project strengthens the area.
LP_SP_T_016	MORRO BAY 230/115 kV #6 Bank	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	135	<100	<100	Action plan/drop load in the interim until Morro Bay transformer Addition Project is in service

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LP_SP_T_017	MORRO BY-GLDTRJC1 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	113	128	<100	Modify Santa Maria SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_018	FTHILTP2-SN LS OB 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	105	120	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_019	SN LS OB-OCEANO 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	126	157	<100	Activate existing Mesa/Santa Maria SPS/UVLS until Midway-Andrew Project is in service in 2019
LP_SP_T_020	OCEANO-UNION OL 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	116	159	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_021	MESA_PGE-UNION OL 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	108	149	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_022	SN LS OB-SNTA MRA 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	168	212	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_023	SNTA MRA-FRWAYTP 115 kV #1 Line	Mesa-Divide 115kV #1 & 2 Lines	C3	L-1-1	107	109	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

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Thermal Overloads



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LP_SP_T_024	SISQUOC-PALMR 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	150	153	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP_SP_T_025	PALMR-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	148	151	<100	Activate existing Divide SPS until Andrew Project is in service in 2019
LP_SP_T_026	S.YNZ JT-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	161	164	<100	Activate existing Divide SPS until Andrew Project is in service in 2019
LP_SP_T_027	S.YNZ JT-CABRILLO 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	116	117	<100	Activate existing Divide SPS until Andrew Project is in service in 2019
LP_SP_T_028	S.YNZ JT-CABRILLO 115 kV #1 Line	Andrew-Sisquoc No.1 and 2 115 kV Line	C5 DCTL	L-2	N/A	N/A	101	Monitor facility loading due to long lead time/Rerate/Reconductor
LP_SP_T_029	FTHILTP2-SN LS OB 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	105	120	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_030	MORRO BAY 230/115 kV Bank #6	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	135	<100	<100	Action plan/drop load in the interim until Morro Bay transformer Addition Project is in service
LP_SP_T_031	MORRO BY-GLDTRJC1 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	113	128	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

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					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
LP_SP_T_03_2	SN LS OB-OCEANO 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	126	157	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_03_3	OCEANO-UNION OL 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	116	159	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_03_4	MESA_PGE-UNION OL 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	108	148	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_03_5	SN LS OB-SNTA MRA 115 kV #1 Line	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C5 DCTL	L-2	168	212	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_03_6	SNTA MRA-FRWAYTP 115 kV #1 Line	Mesa-Divide 115kV #1 & 2 Lines	C5 DCTL	L-2	10680%	10950%	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP_SP_T_03_7	SISQUOC-PALMR 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C5 DCTL	L-2	14950%	15220%	<100	Activate existing Divide SPS until Andrew Project is in service in 2019
LP_SP_T_03_8	PALMR-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C5 DCTL	L-2	14760%	15040%	<100	Activate existing Divide SPS until Andrew Project is in service in 2019

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LP_SP_T_039	S.YNZ JT-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C5 DCTL	L-2	16100%	16370%	<100	Activate existing Divide SPS until Andrew Project is in service in 2019
LP_SP_T_040	S.YNZ JT-CABRILLO 115 kV #1 Line	Mesa-Divide 115 kV #1 & #2 Lines	C5 DCTL	L-2	11630%	11730%	<100	Activate existing Divide SPS until Andrew Project is in service in 2019

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High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
LP-SP-V-001	PURISIMA 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.88	0.89	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-002	SURF 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.87	0.88	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-003	LMPC-CTY 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.87	0.88	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-004	CABRILLO 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.88	0.89	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-005	MANVILLE 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.87	0.88	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-006	BUELLTON 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.88	0.89	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-007	SNTA YNZ 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.88	0.88	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-008	ZACA 115 kV	Bus 1 Fault at MESA_PGE 115 kV Sub	C1	BUS	0.88	0.89	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-009	PURISIMA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.41	0.41	0.84	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-010	SURF 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.43	0.43	0.83	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019

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					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
LP-SP-V-011	LMPC-CTY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.40	0.41	0.83	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-012	CABRILLO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.44	0.44	0.84	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-013	MANVILLE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.40	0.41	0.83	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-014	BUELLTON 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.47	0.47	0.84	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-015	SNTA YNZ 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.46	0.47	0.84	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-016	ZACA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.49	0.50	0.85	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-017	PALMR 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.56	0.57	0.88	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-018	SISQUOC 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.58	0.59	0.89	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-019	SN LS OB 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.86	0.88	-	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-020	SNTA MRA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.62	0.63	0.89	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019

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					2015 Summer Peak	2018 Summer Peak	2023 Summer Peak	
LP-SP-V-021	FAIRWAY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.61	0.62	0.88	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-022	OCEANO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.83	0.85	-	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-023	UNION OL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.83	0.85	-	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-024	MORRO BY 115 kV	CB FAULT AT MORRO BAY SUB 230 kV CB622	C2	CB Fault	0.86	-	-	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-025	GOLDTREE 115 kV	CB FAULT AT MORRO BAY SUB 230 kV CB622	C2	CB Fault	0.84	0.86	-	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-026	FOOTHILL 115 kV	CB FAULT AT MORRO BAY SUB 230 kV CB622	C2	CB Fault	0.86	-	-	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-027	MESA PGE 230 kV	CB FAULT AT MORRO BAY SUB 230 kV CB622	C2	CB Fault	0.88	-	-	Action plan/modify existing Santa Maria/Mesa SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-028	DIVIDE 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.43	0.44	0.89	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-029	VAFB SSA 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus-tie)	0.42	0.43	0.88	Action plan/modify existing Divide SPS/UVLS until Midway-Andrew Project is in service in 2019
LP-SP-V-030	TEMPLETN 230 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.63	0.64	0.63	Activate existing Paso Robles UVLS until Estrella Substation Project is built
LP-SP-V-031	SAN MIGL 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.77	0.76	0.76	Activate existing Paso Robles UVLS until Estrella Substation Project is built

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LP-SP-V-032	PSA RBLS 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.74	0.75	0.74	Activate existing Paso Robles UVLS until Estrella Substation Project is built
LP-SP-V-033	ATASCDRO 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.82	0.85	0.84	Activate existing Paso Robles UVLS until Estrella Substation Project is built
LP-SP-V-034	MUSTANG 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.87	0.86	0.87	Action plan until Estrella Substation Project is in service
LP-SP-V-035	CAYUCOS 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.90	-	-	Action plan until Cayucos 70 kV Shunt Caps are in service. Also Estrella Substation Project alleviate the concern
LP-SP-V-036	PERRY 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.89	-	-	Action plan until Cayucos 70 kV Shunt Caps are in service. Also Estrella Substation Project alleviate the concern
LP-SP-V-037	CAMBRIA 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	0.89	-	-	Action plan until Cayucos 70 kV Shunt Caps are in service. Also Estrella Substation Project alleviate the concern
LP-SP-V-038	DIVIDE 70 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.68	0.69	-	Activate existing Divide SPS until Andrew Project is in service in 2019
LP-SP-V-039	VAFB SSA 70 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.67	0.67	-	Activate existing Divide SPS until Andrew Project is in service in 2019
LP-SP-V-040	PURISIMA 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.64	0.64	-	Activate existing Divide SPS until Andrew Project is in service in 2019
LP-SP-V-041	SURF 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.67	0.68	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-042	LMPC-CTY 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.67	0.67	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-043	CABRILLO 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.67	0.68	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019

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LP-SP-V-044	MANVILLE 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.67	0.67	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-045	BUELLTON 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.67	0.68	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-046	SNTA YNZ 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.67	0.67	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-047	ZACA 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.68	0.68	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-048	PALMR 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.70	0.70	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-049	SISQUOC 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.70	0.71	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-050	SNTA MRA 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.71	0.72	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-051	FAIRWAY 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.70	0.71	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-052	SN LS OB 115 kV	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.85	0.86	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-V-053	UNION OL 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	0.74	0.75	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019

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	
LP-SP-VD-001	ZACA 115 kV	N/A	A	Normal	-	-	5	Monitor voltage deviation due to longer lead time
LP-SP-VD-002	MORRO BY 115 kV	Morro Bay 230/115 kV Bank #6	B	T-1	8	-	-	Develop action plan. Morro Bay Transformer Addition
LP-SP-VD-003	GOLDTREE 115 kV	Morro Bay 230/115 kV Bank #6	B	T-1	7	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-004	FOOTHILL 115 kV	Morro Bay 230/115 kV Bank #6	B	T-1	7	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-005	SN LS OB 115 kV	Morro Bay 230/115 kV Bank #6	B	T-1	6	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-006	VAFB SSA 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	59	59	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-007	VAFB SSB 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	59	59	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-008	DIVIDE 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	59	60	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-009	PURISIMA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	56	56	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-010	SURF 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	53	53	14	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-011	LMPC-CTY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	56	56	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area

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Study Area: **PG&E Los Padres - 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	
LP-SP-VD-012	CABRILLO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	53	53	14	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-013	MANVILLE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	56	56	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-014	BUELLTON 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	50	50	14	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-015	SNTA YNZ 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	50	50	14	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-016	ZACA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	48	48	13	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-017	PALMR 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	42	42	12	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-018	SISQUOC 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	41	40	11	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-019	GAREY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	56	56	15	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-020	FAIRWAY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	38	37	12	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-021	SNTA MRA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	37	36	11	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area

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Study Area: **PG&E Los Padres - 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	
LP-SP-VD-022	S. MASSO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	37	36	11	Modify Santa Maria/Mesa SPS/UVLS in the interim. 2019 Midway-Andrew Project strengthens the area
LP-SP-VD-023	ANDREW 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	-	-	11	Monitor due to long lead time. 2019 Midway-Andrew Project will help
LP-SP-VD-024	SN LS OB 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	13	11	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-025	UNION OL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	16	15	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-026	OCEANO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	15	14	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-027	MESA PGE 230 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	12	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-028	MORRO BY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	14	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-029	GOLDTREE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	15	13	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-030	FOOTHILL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	15	14	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-SP-VD-031	CAMBRIA 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	12	10	10	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project

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	
LP-SP-VD-032	PERRY 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	12	10	10	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-033	CAYUCOS 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	12	10	10	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-034	BAYWOOD 70 kV	Templeton-Gates and Morro Bay-Templeton 230 kV Lines	C3	L-1-1	12	10	10	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-035	ATASCDRO 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	19	16	16	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-036	TEMPLETN 230 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	36	35	36	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-037	PSA RBLS 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	24	23	23	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-038	SAN MIGL 70 kV	Morro Bay-Templeton and Templeton-Gates 230 kV Lines	C3	L-1-1	21	21	21	Action plan/ctivate Cayucos 70kV Shunt Caps/Paso Robles UVLS. Build Estrella Substation Project
LP-SP-VD-039	VAFB SSA 70 kV	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	32	32	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-040	VAFB SSB 70 kV	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	32	32	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-041	DIVIDE 70 kV	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	32	32	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-042	DIVVIDE 115 kV	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	30	30	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-043	PURISIMA 115 kV	Mesa 230/115 kV #2 & #3 Bank	C3	T-1-1	30	30	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019

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Study Area: **PG&E Los Padres - 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	
LP-SP-VD-044	LMPC-CTY 115 kV	Mesa 230/115 kV #2 & #3 Bank	C3	T-1-1	28	28	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-045	CABRILLO 115 kV	Mesa 230/115 kV #2 & #3 Bank	C3	T-1-1	28	28	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-046	MANVILLE 115 kV	Mesa-Divide 115 kV #1 & #2 Lines	C3	L-1-1	30	30	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-SP-VD-047	SURF 115 kV	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	29	28	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-VD-048	BUELLTON 115 kV	Morro Bay-Diablo and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	29	21	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019
LP-SP-VD-049	SNTA YNZ 115 kV	Diablo-Mesa and Morro Bay-Mesa 230 kV Lines	C3	L-1-1	28	28	-	Activate existing Santa Maria/Mesa SPS until Andrew Project is in service in 2019

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	
LP-NP-T-001	SN LS OB-SNTA MRA 115 kV #1 Line	CB Fault at Mesa Sub 115 kV CB102	C2	CB Fault (Bus tie)	124	118	<100	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-T-002	S.YNZ JT-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 and 2 Lines	C3	L-1-1	115	<100	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-T-003	PALMR-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 and 2 Lines	C3	L-1-1	103	<100	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-T-004	SISQUOC-PALMR 115 kV #1 Line	Mesa-Divide 115 kV #1 and 2 Lines	C3	L-1-1	103	<100	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-T-005	S.YNZ JT-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 and 2 Lines	C5 DCTL	L-2	115	<100	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-T-006	PALMR-ZACA 115 kV #1 Line	Mesa-Divide 115 kV #1 and 2 Lines	C5 DCTL	L-2	102	<100	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-T-007	SISQUOC-PALMR 115 kV #1 Line	Mesa-Divide 115 kV #1 and 2 Lines	C5 DCTL	L-2	103	<100	<100	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019

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Study Area: **PG&E Los Padres - 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	
LP-NP-V-001	DIVIDE 70 kV	N/A	A	Normal	1.06	1.07	1.07	Review for possible exemption
LP-NP-V-002	VAFB SSA 70 kV	N/A	A	Normal	-	1.06	1.06	Review for possible exemption
LP-NP-V-003	VAFB SSB 70 kV	N/A	A	Normal	1.06	1.07	1.07	Review for possible exemption
LP-NP-V-004	FOOTHILL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.90	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-005	GOLDTREE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.90	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-006	SN LS OB 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.88	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-007	OCEANO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.89	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-008	UNION OL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.89	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-009	DIVIDE 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.59	0.75	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-010	VAFB SSA 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.58	0.74	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-011	LMPC-CTY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.56	0.71	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

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Study Area: **PG&E Los Padres - 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	
LP-NP-V-012	FAIRWAY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.75	0.85	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-013	SNTA MRA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.75	0.86	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-014	MANVILLE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.56	0.70	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-015	PURISIMA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.56	0.71	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-016	SURF 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.58	0.72	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-017	CABRILLO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.59	0.73	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-018	SNTA YNZ 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.62	0.75	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-019	BUELLTON 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.62	0.75	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-020	ZACA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.64	0.77	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-021	PALMR 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.70	0.82	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

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Study Area: **PG&E Los Padres - 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	
LP-NP-V-022	SISQUOC 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	0.72	0.83	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-V-023	SURF 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.79	-	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-024	ZACA 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.87	-	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-025	DIVIDE 70 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.80	-	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-026	BUELLTON 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.84	-	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-027	CABRILLO 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.80	-	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-028	LMPC-CTY 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.75	0.89	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-029	MANVILLE 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.75	0.89	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-030	PURISIMA 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.75	0.89	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-V-031	SNTA YNZ 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.84	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-V-032	VAFB SSA 70 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	0.79	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps

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Study Area: **PG&E Los Padres - 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	
LP-NP-V-033	SURF 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	0.79	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-V-034	ZACA 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	0.87	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-V-035	DIVIDE 70 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	0.80	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-V-036	BUELLTON 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	0.84	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-V-037	CABRILLO 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	0.80	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-V-038	LMPC-CTY 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	0.75	0.89	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019

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	
LP-NP-VD-001	FOOTHILL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	12	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-002	GOLDTREE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	11	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-003	OCEANO	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	12	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-004	UNION OL 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	12	-	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-005	DIVIDE 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	46	33	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-006	DIVVIDE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	44	31	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-007	VAFB SSA 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	46	33	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-008	VAFB SSB 70 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	46	33	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-009	LMPC-CTY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	44	31	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-010	FAIRWAY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	27	17	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

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	
LP-NP-VD-011	SNTA MRA	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	26	17	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-012	S.M.ASSO	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	30	20	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-013	MANVILLE 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	44	31	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-014	PURISIMA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	44	31	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-015	SURF 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	41	29	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-016	CABRILLO 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	41	29	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-017	SNTA YNZ 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	38	27	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-018	BUELLTON 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	38	27	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-019	ZACA 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	36	25	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-020	PALMR 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	31	21	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019

2013/2014 ISO Reliability Assessment - Study Results

Study Area: **PG&E Los Padres - Summer Off-Peak & Summer Light Load**

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	
LP-NP-VD-021	SISQUOC 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	30	19	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-022	GAREY 115 kV	CB Fault at Mesa Sub 115 kV CB102	C2	CB FAULT (Bus tie)	30	19	-	Modify Santa Maria/Mesa SPS/UVLS in the interim until Midway-Andrew Project is in service in 2019
LP-NP-VD-023	VAFB SSA 70 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	24	13	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-024	DIVIDE 70 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	24	13	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-025	PURISIMA 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	23	12	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-026	SURF 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	20	11	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-027	LMPC-CTY 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	23	12	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-028	CABRILLO 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	19	10	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-029	MANVILLE 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	23	12	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-030	BUELLTON 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	15	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-VD-031	SNTA YNZ 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	15	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-VD-032	ZACA 115 kV	Mesa-Divide 115 kV #1 Lines	C3	L-1-1	13	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-VD-033	VAFB SSA 70 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	26	14	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-034	VAFB SSB 70 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	26	14	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019

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	
LP-NP-VD-035	DIVIDE 70 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	26	14	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-036	PURISIMA 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	24	13	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-037	SURF 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	21	11	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-038	LMPC-CTY 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	24	13	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-039	CABRILLO 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	20	11	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-040	MANVILLE 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	24	13	-	Activate existing Divide SPS until Midway-Andrew Project is in service in 2019
LP-NP-VD-041	BUELLTON 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	16	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-VD-042	SNTA YNZ 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	16	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps
LP-NP-VD-043	ZACA 115 kV	Mesa-Divide 115 kV #1 Lines	C5 DCTL	L-2	14	-	-	Activate existing Divide SPS. 2019 Midway-Andrew Project also helps



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.

2013/2014 ISO Reliability Assessment - Study Results

Study Area: **PG&E Los Padres - 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.

2013/2014 ISO Reliability Assessment - Study Results

Study Area: **PG&E Los Padres - 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 Los Padres - 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



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

2013/2014 ISO Reliability Assessment - Study Results

Study Area: **PG&E Los Padres - 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