

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
MN_RM_11 500 kV	300 - Bulk System	1.1082	1.0961	1.0954	1.0737	Action plan until Round Mtn. DRS is in service
MN_RM_22 500 kV	300 - Bulk System	1.1047	1.0674	1.0674	1.0593	Action plan until Round Mtn. DRS is in service
MENDOCNO 115 kV	302 - North Coast	1.043	1.067	1.018	1.069	System adjustments or voltage support if needed
MNDCNO M 115 kV	302 - North Coast	1.042	1.069	1.019	1.072	System adjustments or voltage support if needed
CALPELLA 115 kV	302 - North Coast	1.041	1.063	1.017	1.065	System adjustments or voltage support if needed
GUALALA 60 kV	302 - North Coast	1.024	1.057	1.031	1.063	System adjustments or voltage support if needed
UKIAH 115 kV	302 - North Coast	1.037	1.056	1.016	1.058	System adjustments or voltage support if needed
ANNAPOLS 60 kV	302 - North Coast	1.029	1.057	1.031	1.061	System adjustments or voltage support if needed
FORT RSS 60 kV	302 - North Coast	1.032	1.056	1.031	1.060	System adjustments or voltage support if needed
WHLR JCT 60 kV	302 - North Coast	1.045	1.053	1.035	1.055	System adjustments or voltage support if needed
MIRABEL 60 kV	302 - North Coast	1.045	1.053	1.035	1.055	System adjustments or voltage support if needed
MIRBELTP 60 kV	302 - North Coast	1.045	1.053	1.035	1.055	System adjustments or voltage support if needed
WHLR TAP 60 kV	302 - North Coast	1.046	1.052	1.036	1.054	System adjustments or voltage support if needed
TRNTN JT 60 kV	302 - North Coast	1.046	1.052	1.037	1.054	System adjustments or voltage support if needed
TRNTN_JC 60 kV	302 - North Coast	1.046	1.052	1.037	1.054	System adjustments or voltage support if needed
SLMN JCT 60 kV	302 - North Coast	1.034	1.055	1.031	1.059	System adjustments or voltage support if needed
FULTON 60 kV	302 - North Coast	1.048	1.051	1.040	1.052	System adjustments or voltage support if needed
WOHLER 60 kV	302 - North Coast	1.046	1.052	1.036	1.053	System adjustments or voltage support if needed
MONTE RO 60 kV	302 - North Coast	1.038	1.054	1.030	1.057	System adjustments or voltage support if needed
SLMN CRK 60 kV	302 - North Coast	1.032	1.055	1.030	1.059	System adjustments or voltage support if needed
ER_FTNJT 115 kV	302 - North Coast	1.054	1.045	1.027	1.047	System adjustments or voltage support if needed
MONROE2 115 kV	302 - North Coast	1.056	1.050	1.018	1.051	System adjustments or voltage support if needed
RINCONJ2 115 kV	302 - North Coast	1.054	1.045	1.025	1.047	System adjustments or voltage support if needed
RINCON 115 kV	302 - North Coast	1.054	1.045	1.025	1.047	System adjustments or voltage support if needed
SNTA RSA 115 kV	302 - North Coast	1.054	1.050	1.016	1.051	System adjustments or voltage support if needed
MONROE1 115 kV	302 - North Coast	1.054	1.048	1.018	1.050	System adjustments or voltage support if needed
FULTON 115 kV	302 - North Coast	1.054	1.045	1.025	1.046	System adjustments or voltage support if needed
MOLINO 60 kV	302 - North Coast	1.043	1.049	1.029	1.052	System adjustments or voltage support if needed
LUCERNJ1 115 kV	302 - North Coast	1.043	1.051	1.012	1.058	System adjustments or voltage support if needed
LUCERNE 115 kV	302 - North Coast	1.043	1.051	1.011	1.058	System adjustments or voltage support if needed
CEDR CRK 60 kV	303 - North Valley	1.054	1.044	1.089	1.089	System adjustments or voltage support if needed
CLOV TAP 60 kV	303 - North Valley	1.056	1.044	1.089	1.089	System adjustments or voltage support if needed
KILARC 60 kV	303 - North Valley	1.056	1.044	1.088	1.088	System adjustments or voltage support if needed

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Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
OLSEN JT 60 kV	303 - North Valley	1.053	1.043	1.083	1.084	System adjustments or voltage support if needed
WHITMORE 60 kV	303 - North Valley	1.051	1.042	1.080	1.082	System adjustments or voltage support if needed
WILLOWS 60 kV	303 - North Valley	1.038	1.071	1.053	1.074	System adjustments or voltage support if needed
ELKCREEK 60 kV	303 - North Valley	1.038	1.071	1.052	1.074	System adjustments or voltage support if needed
ELKCRKJT 60 kV	303 - North Valley	1.039	1.070	1.053	1.072	System adjustments or voltage support if needed
ANITA 60 kV	303 - North Valley	1.022	1.064	1.062	1.069	System adjustments or voltage support if needed
CHICO JT 60 kV	303 - North Valley	1.033	1.056	1.055	1.059	System adjustments or voltage support if needed
HMLTN JT 60 kV	303 - North Valley	1.047	1.057	1.057	1.058	System adjustments or voltage support if needed
HAMILTON 60 kV	303 - North Valley	1.047	1.057	1.057	1.058	System adjustments or voltage support if needed
JACINTO 60 kV	303 - North Valley	1.044	1.054	1.058	1.057	System adjustments or voltage support if needed
HEADGATE 60 kV	303 - North Valley	1.038	1.053	1.051	1.054	System adjustments or voltage support if needed
ESQUON 60 kV	303 - North Valley	1.050	1.051	1.049	1.056	System adjustments or voltage support if needed
TKO TAP 60 kV	303 - North Valley	1.044	1.039	1.068	1.071	System adjustments or voltage support if needed
COWCK TP 60 kV	303 - North Valley	1.043	1.039	1.068	1.071	System adjustments or voltage support if needed
LS MLNSJ 60 kV	303 - North Valley	1.034	1.076	1.047	1.083	System adjustments or voltage support if needed
LS ML JT 60 kV	303 - North Valley	1.034	1.075	1.047	1.082	System adjustments or voltage support if needed
VINA 60 kV	303 - North Valley	1.033	1.074	1.045	1.081	System adjustments or voltage support if needed
DIRYVLE 60 kV	303 - North Valley	1.037	1.071	1.045	1.077	System adjustments or voltage support if needed
GERBER 60 kV	303 - North Valley	1.035	1.069	1.034	1.076	System adjustments or voltage support if needed
RED BLFF 60 kV	303 - North Valley	1.038	1.070	1.043	1.075	System adjustments or voltage support if needed
RED B JT 60 kV	303 - North Valley	1.038	1.069	1.043	1.074	System adjustments or voltage support if needed
LP FB SP 60 kV	303 - North Valley	1.038	1.066	1.024	1.071	System adjustments or voltage support if needed
GRBR JCT 60 kV	303 - North Valley	1.039	1.065	1.029	1.070	System adjustments or voltage support if needed
TYLERJT 60 kV	303 - North Valley	1.039	1.065	1.025	1.070	System adjustments or voltage support if needed
RWSN J2 60 kV	303 - North Valley	1.039	1.064	1.028	1.069	System adjustments or voltage support if needed
CLMN JCT 60 kV	303 - North Valley	1.039	1.064	1.042	1.068	System adjustments or voltage support if needed
CASCADE 115 kV	303 - North Valley	1.044	1.055	1.043	1.062	System adjustments or voltage support if needed
OREGNTRL 115 kV	303 - North Valley	1.043	1.053	1.042	1.060	System adjustments or voltage support if needed
CORNING 60 kV	303 - North Valley	1.036	1.061	1.049	1.064	System adjustments or voltage support if needed
SYCAMORE 115 kV	303 - North Valley	1.041	1.055	1.048	1.059	System adjustments or voltage support if needed
NORD 1 115 kV	303 - North Valley	1.041	1.054	1.049	1.058	System adjustments or voltage support if needed
NDAME J 115 kV	303 - North Valley	1.041	1.052	1.048	1.056	System adjustments or voltage support if needed
ORL B JT 60 kV	303 - North Valley	1.044	1.055	1.048	1.056	System adjustments or voltage support if needed

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Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
OROVILLE 60 kV	303 - North Valley	1.021	1.058	1.031	1.061	System adjustments or voltage support if needed
KLLY RDE 60 kV	303 - North Valley	1.030	1.058	1.032	1.061	System adjustments or voltage support if needed
OROVLENRGJCT 60 kV	303 - North Valley	1.022	1.058	1.032	1.061	System adjustments or voltage support if needed
OROVLENRG 60 kV	303 - North Valley	1.022	1.058	1.032	1.061	System adjustments or voltage support if needed
ELGN JCT 60 kV	303 - North Valley	1.023	1.058	1.032	1.061	System adjustments or voltage support if needed
LSNA PCC 60 kV	303 - North Valley	1.022	1.058	1.031	1.061	System adjustments or voltage support if needed
APT ORVC 60 kV	303 - North Valley	1.022	1.058	1.031	1.061	System adjustments or voltage support if needed
PALERMO 60 kV	303 - North Valley	1.023	1.059	1.032	1.061	System adjustments or voltage support if needed
CAPAY 60 kV	303 - North Valley	1.042	1.050	1.049	1.051	System adjustments or voltage support if needed
CAPAYJCT 60 kV	303 - North Valley	1.042	1.050	1.049	1.051	System adjustments or voltage support if needed
ROCKCK 1 230 kV	303 - North Valley	1.033	1.052	1.034	1.056	System adjustments or voltage support if needed
POE 230 kV	303 - North Valley	1.033	1.053	1.034	1.057	System adjustments or voltage support if needed
HONCUT 115 kV	303 - North Valley	1.018	1.046	1.055	1.049	System adjustments or voltage support if needed
HONC JT3 115 kV	303 - North Valley	1.018	1.045	1.055	1.049	System adjustments or voltage support if needed
WYANDTTE 115 kV	303 - North Valley	1.011	1.038	1.055	1.041	System adjustments or voltage support if needed
WYANDJT1 115 kV	303 - North Valley	1.011	1.038	1.055	1.041	System adjustments or voltage support if needed
SLYCREEK 115 kV	303 - North Valley	1.034	1.034	1.057	1.036	System adjustments or voltage support if needed
WODLF TP 115 kV	303 - North Valley	1.030	1.034	1.057	1.036	System adjustments or voltage support if needed
FRBSTNTP 115 kV	303 - North Valley	1.025	1.034	1.057	1.036	System adjustments or voltage support if needed
FORBSTWN 115 kV	303 - North Valley	1.026	1.034	1.057	1.036	System adjustments or voltage support if needed
KANAKAJT 115 kV	303 - North Valley	1.023	1.034	1.057	1.036	System adjustments or voltage support if needed
OWID 115 kV	303 - North Valley	1.024	1.034	1.057	1.036	System adjustments or voltage support if needed
PALERMO 115 kV	303 - North Valley	1.014	1.033	1.055	1.036	System adjustments or voltage support if needed
CHALLNGE 60 kV	303 - North Valley	1.042	1.050	1.048	1.052	System adjustments or voltage support if needed
NOTRDAME 115 kV	303 - North Valley	1.041	1.052	1.048	1.055	System adjustments or voltage support if needed
CHICOTP2 115 kV	303 - North Valley	1.041	1.052	1.048	1.055	System adjustments or voltage support if needed
BUTTE 115 kV	303 - North Valley	1.041	1.051	1.048	1.054	System adjustments or voltage support if needed
COLEMAN 60 kV	303 - North Valley	1.043	1.047	1.041	1.051	System adjustments or voltage support if needed
CLMN TAP 60 kV	303 - North Valley	1.043	1.047	1.041	1.051	System adjustments or voltage support if needed
PARADSE 115 kV	303 - North Valley	1.042	1.050	1.048	1.053	System adjustments or voltage support if needed
CLMN FSH 60 kV	303 - North Valley	1.042	1.047	1.040	1.050	System adjustments or voltage support if needed
ORLAND B 60 kV	303 - North Valley	1.041	1.047	1.052	1.049	System adjustments or voltage support if needed
DRHM JCB 60 kV	303 - North Valley	1.050	1.050	1.048	1.054	System adjustments or voltage support if needed



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COTTONWD 60 kV	303 - North Valley	1.043	1.047	1.046	1.050	System adjustments or voltage support if needed
BCKS CRK 230 kV	303 - North Valley	1.036	1.051	1.039	1.053	System adjustments or voltage support if needed
ROCKCK 2 230 kV	303 - North Valley	1.036	1.051	1.039	1.053	System adjustments or voltage support if needed
RK C JT2 230 kV	303 - North Valley	1.036	1.051	1.039	1.053	System adjustments or voltage support if needed
CRESTA 230 kV	303 - North Valley	1.035	1.051	1.039	1.054	System adjustments or voltage support if needed
RK C JT1 230 kV	303 - North Valley	1.033	1.052	1.034	1.056	System adjustments or voltage support if needed
BELDEN 230 kV	303 - North Valley	1.033	1.052	1.033	1.055	System adjustments or voltage support if needed
VACA-CB 115 kV	304 - Sacramento	1.088	1.092	1.066	1.095	System adjustments or voltage support if needed
WILLIAMS 60 kV	304 - Sacramento	1.053	1.058	1.034	1.066	System adjustments or voltage support if needed
WESCOT2 60 kV	304 - Sacramento	1.055	1.057	1.033	1.065	System adjustments or voltage support if needed
WADHMJCT 60 kV	304 - Sacramento	1.055	1.055	1.032	1.062	System adjustments or voltage support if needed
GRAND IS 115 kV	304 - Sacramento	1.053	1.054	1.045	1.060	Action plan until Rio Oso Tx and SVC project
MERIDIAN 60 kV	304 - Sacramento	1.046	1.083	1.047	1.097	System adjustments or voltage support if needed
MERIDJCT 60 kV	304 - Sacramento	1.046	1.081	1.046	1.095	System adjustments or voltage support if needed
COLUSA 60 kV	304 - Sacramento	1.044	1.080	1.045	1.093	System adjustments or voltage support if needed
CLSA JCT 60 kV	304 - Sacramento	1.045	1.078	1.045	1.091	System adjustments or voltage support if needed
WESCOT1 60 kV	304 - Sacramento	1.047	1.074	1.042	1.085	System adjustments or voltage support if needed
DUNNIGAN 60 kV	304 - Sacramento	1.031	1.066	1.041	1.078	System adjustments or voltage support if needed
RICE 60 kV	304 - Sacramento	1.036	1.061	1.042	1.073	System adjustments or voltage support if needed
CLSA CRS 60 kV	304 - Sacramento	1.042	1.060	1.042	1.071	System adjustments or voltage support if needed
WILSONAV 60 kV	304 - Sacramento	1.042	1.060	1.042	1.071	System adjustments or voltage support if needed
DRAKE 60 kV	304 - Sacramento	1.036	1.063	1.037	1.073	System adjustments or voltage support if needed
ARBUCKLE 60 kV	304 - Sacramento	1.040	1.063	1.037	1.073	System adjustments or voltage support if needed
HARINTON 60 kV	304 - Sacramento	1.038	1.063	1.036	1.073	System adjustments or voltage support if needed
DUNNTAP 60 kV	304 - Sacramento	1.040	1.063	1.037	1.073	System adjustments or voltage support if needed
DELEVAN 60 kV	304 - Sacramento	1.046	1.059	1.041	1.070	System adjustments or voltage support if needed
MAXWELL 60 kV	304 - Sacramento	1.046	1.059	1.041	1.070	System adjustments or voltage support if needed
MAXTAP 60 kV	304 - Sacramento	1.046	1.059	1.041	1.070	System adjustments or voltage support if needed
WILL JCT 60 kV	304 - Sacramento	1.049	1.052	1.036	1.060	System adjustments or voltage support if needed
CORTINA 60 kV	304 - Sacramento	1.052	1.045	1.031	1.052	System adjustments or voltage support if needed
BRIGHTN 115 kV	304 - Sacramento	1.050	1.056	1.044	1.061	System adjustments or voltage support if needed
HOWARDJCT1 115 kV	304 - Sacramento	1.051	1.056	1.045	1.061	System adjustments or voltage support if needed
HOWARDJCT2 115 kV	304 - Sacramento	1.051	1.056	1.045	1.061	System adjustments or voltage support if needed

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HOWARDJCT3 115 kV	304 - Sacramento	1.049	1.053	1.045	1.059	System adjustments or voltage support if needed
CRTNA M 230 kV	304 - Sacramento	1.026	1.069	0.991	1.082	System adjustments or voltage support if needed
HUSTD 60 kV	304 - Sacramento	1.049	1.045	1.027	1.052	System adjustments or voltage support if needed
ARBALT 60 kV	304 - Sacramento	1.041	1.045	1.018	1.053	System adjustments or voltage support if needed
ARBJCT 60 kV	304 - Sacramento	1.041	1.045	1.018	1.053	System adjustments or voltage support if needed
BOGUE 115 kV	305 - Sierra	1.025	1.067	1.056	1.071	System adjustments or voltage support if needed
FREC TAP 115 kV	305 - Sierra	1.025	1.067	1.056	1.071	System adjustments or voltage support if needed
DEL MAR 60 kV	305 - Sierra	1.052	1.069	1.033	1.076	System adjustments or voltage support if needed
SIERRAPI 60 kV	305 - Sierra	1.052	1.069	1.033	1.076	System adjustments or voltage support if needed
OLIVH J3 115 kV	305 - Sierra	1.024	1.059	1.054	1.063	System adjustments or voltage support if needed
ROCKLIN 60 kV	305 - Sierra	1.057	1.051	1.037	1.059	System adjustments or voltage support if needed
TAYLOR 60 kV	305 - Sierra	1.057	1.051	1.037	1.058	System adjustments or voltage support if needed
GLEAF 1 115 kV	305 - Sierra	1.039	1.059	1.055	1.062	System adjustments or voltage support if needed
GLEAF TP 115 kV	305 - Sierra	1.039	1.059	1.055	1.062	System adjustments or voltage support if needed
E.MRYSVE 115 kV	305 - Sierra	1.033	1.054	1.061	1.057	System adjustments or voltage support if needed
E.MRY J2 115 kV	305 - Sierra	1.033	1.054	1.061	1.057	System adjustments or voltage support if needed
E.NICOLS 115 kV	305 - Sierra	1.050	1.054	1.054	1.056	System adjustments or voltage support if needed
ATLANTI 60 kV	305 - Sierra	1.058	1.050	1.038	1.057	System adjustments or voltage support if needed
PIKE CTY 60 kV	305 - Sierra	1.044	1.051	1.048	1.054	System adjustments or voltage support if needed
ALLEGHNY 60 kV	305 - Sierra	1.044	1.051	1.047	1.054	System adjustments or voltage support if needed
CLMBA HL 60 kV	305 - Sierra	1.044	1.051	1.050	1.054	System adjustments or voltage support if needed
HIGGINS 115 kV	305 - Sierra	1.036	1.059	1.049	1.056	System adjustments or voltage support if needed
BELL PGE 115 kV	305 - Sierra	1.032	1.056	1.050	1.054	System adjustments or voltage support if needed
NEWCSTL1 115 kV	305 - Sierra	1.034	1.056	1.050	1.053	System adjustments or voltage support if needed
NEWCSTLE 115 kV	305 - Sierra	1.034	1.056	1.050	1.053	System adjustments or voltage support if needed
HORSHE1 115 kV	305 - Sierra	1.036	1.057	1.049	1.054	System adjustments or voltage support if needed
HORSESHE 115 kV	305 - Sierra	1.036	1.057	1.049	1.054	System adjustments or voltage support if needed
FLINT1 115 kV	305 - Sierra	1.032	1.056	1.050	1.053	System adjustments or voltage support if needed
PLACER 115 kV	305 - Sierra	1.031	1.055	1.050	1.053	System adjustments or voltage support if needed
FLINT2 115 kV	305 - Sierra	1.032	1.055	1.050	1.052	System adjustments or voltage support if needed
FLINT 115 kV	305 - Sierra	1.032	1.055	1.050	1.052	System adjustments or voltage support if needed
BANGOR 60 kV	305 - Sierra	1.032	1.058	1.039	1.061	System adjustments or voltage support if needed
BRUNSWCK 115 kV	305 - Sierra	1.046	1.061	1.044	1.061	System adjustments or voltage support if needed

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BRNSWCKP 115 kV	305 - Sierra	1.047	1.058	1.045	1.058	Action plan until Rio Oso Tx and SVC project
CHCGO PK 115 kV	305 - Sierra	1.044	1.057	1.046	1.053	System adjustments or voltage support if needed
ELDORAD 115 kV	305 - Sierra	1.055	1.052	1.050	1.049	System adjustments or voltage support if needed
RIO OSO 115 kV	305 - Sierra	1.052	1.048	1.053	1.050	Action plan until Rio Oso Tx and SVC project
APLHTAP2 115 kV	305 - Sierra	1.053	1.052	1.048	1.050	System adjustments or voltage support if needed
DTCH FL1 115 kV	305 - Sierra	1.044	1.056	1.044	1.052	System adjustments or voltage support if needed
BRNSWKTP 115 kV	305 - Sierra	1.050	1.054	1.047	1.054	System adjustments or voltage support if needed
BRNSWALT 115 kV	305 - Sierra	1.050	1.054	1.047	1.054	System adjustments or voltage support if needed
DTCH FL2 115 kV	305 - Sierra	1.049	1.056	1.044	1.054	System adjustments or voltage support if needed
DRUM 115 kV	305 - Sierra	1.048	1.056	1.042	1.053	System adjustments or voltage support if needed
MIDLFORK 230 kV	305 - Sierra	1.029	1.053	1.030	1.065	System adjustments or voltage support if needed
RALSTON 230 kV	305 - Sierra	1.027	1.053	1.028	1.065	System adjustments or voltage support if needed
GOLDHILL 230 kV	305 - Sierra	1.020	1.053	1.020	1.062	System adjustments or voltage support if needed
ATLANTC 230 kV	305 - Sierra	1.016	1.058	1.019	1.065	System adjustments or voltage support if needed
GRSS VLY 60 kV	305 - Sierra	1.038	1.050	1.049	1.053	System adjustments or voltage support if needed
OXBOW 60 kV	305 - Sierra	1.040	1.064	1.046	1.029	System adjustments or voltage support if needed
ENVRO_HY 60 kV	305 - Sierra	1.040	1.063	1.046	1.029	System adjustments or voltage support if needed
DOBBINS 60 kV	305 - Sierra	1.044	1.049	1.050	1.052	System adjustments or voltage support if needed
CHLLNGEA 60 kV	305 - Sierra	1.044	1.049	1.050	1.052	System adjustments or voltage support if needed
COLGATEA 60 kV	305 - Sierra	1.044	1.049	1.050	1.052	System adjustments or voltage support if needed
COLGATE 60 kV	305 - Sierra	1.044	1.049	1.050	1.052	System adjustments or voltage support if needed
FORST HL 60 kV	305 - Sierra	1.037	1.060	1.043	1.029	System adjustments or voltage support if needed
NEWCSTL2 115 kV	305 - Sierra	1.033	1.054	1.049	1.052	System adjustments or voltage support if needed
CLRKSVLE 115 kV	305 - Sierra	1.036	1.053	1.050	1.052	System adjustments or voltage support if needed
HORSHE2 115 kV	305 - Sierra	1.035	1.053	1.049	1.050	System adjustments or voltage support if needed
APPLE HL 115 kV	305 - Sierra	1.054	1.051	1.049	1.048	System adjustments or voltage support if needed
SPICAMIN 115 kV	305 - Sierra	1.054	1.051	1.049	1.048	System adjustments or voltage support if needed
APLHTAP1 115 kV	305 - Sierra	1.054	1.051	1.049	1.048	System adjustments or voltage support if needed
PLCRVLB2 115 kV	305 - Sierra	1.052	1.052	1.047	1.050	System adjustments or voltage support if needed
PLCRVLB3 115 kV	305 - Sierra	1.052	1.052	1.047	1.050	System adjustments or voltage support if needed
PLCRVLT2 115 kV	305 - Sierra	1.052	1.052	1.047	1.050	System adjustments or voltage support if needed
MIZOU_T2 115 kV	305 - Sierra	1.052	1.052	1.047	1.050	System adjustments or voltage support if needed
DMND SPR 115 kV	305 - Sierra	1.052	1.052	1.047	1.051	System adjustments or voltage support if needed



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		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
DIMOND_2 115 kV	305 - Sierra	1.052	1.052	1.047	1.050	System adjustments or voltage support if needed
RIO OSO 230 kV	305 - Sierra	1.010	1.049	1.018	1.055	System adjustments or voltage support if needed
RICHMOND 115 kV	307 - East Bay	1.041	1.050	1.026	1.053	System adjustments or voltage support if needed
ELCRTJ2 115 kV	307 - East Bay	1.041	1.049	1.026	1.052	System adjustments or voltage support if needed
CLAYTN 115 kV	308 - Diablo	1.053	1.051	1.034	1.055	System adjustments or voltage support if needed
MEDW LNE 115 kV	308 - Diablo	1.056	1.052	1.029	1.056	System adjustments or voltage support if needed
EBAYMUDJ 115 kV	308 - Diablo	1.055	1.051	1.030	1.055	System adjustments or voltage support if needed
WALNUTCR 115 kV	308 - Diablo	1.054	1.050	1.030	1.055	System adjustments or voltage support if needed
LKWD_JCT 115 kV	308 - Diablo	1.055	1.050	1.030	1.055	System adjustments or voltage support if needed
LAKEWD-C 115 kV	308 - Diablo	1.055	1.050	1.030	1.055	System adjustments or voltage support if needed
LAKEWD-M 115 kV	308 - Diablo	1.055	1.050	1.030	1.054	System adjustments or voltage support if needed
MDLRVRJT 60 kV	308 - Diablo	1.036	1.062	1.043	1.063	System adjustments or voltage support if needed
WLLW PSS 60 kV	308 - Diablo	1.032	1.053	1.037	1.053	System adjustments or voltage support if needed
SHLL CHM 60 kV	308 - Diablo	1.032	1.053	1.037	1.053	System adjustments or voltage support if needed
BIXLER 60 kV	308 - Diablo	1.034	1.060	1.041	1.061	System adjustments or voltage support if needed
BXLR_TAP 60 kV	308 - Diablo	1.034	1.060	1.041	1.061	System adjustments or voltage support if needed
PITTSBRG 60 kV	308 - Diablo	1.034	1.051	1.039	1.051	System adjustments or voltage support if needed
SHLLCHMT 60 kV	308 - Diablo	1.034	1.051	1.039	1.051	System adjustments or voltage support if needed
KIRKER 115 kV	308 - Diablo	1.048	1.048	1.037	1.052	System adjustments or voltage support if needed
UNITEDSP 115 kV	308 - Diablo	1.048	1.048	1.037	1.052	System adjustments or voltage support if needed
DOW TAP2 115 kV	308 - Diablo	1.048	1.048	1.037	1.052	System adjustments or voltage support if needed
COLSTJT2 115 kV	308 - Diablo	1.048	1.048	1.037	1.052	System adjustments or voltage support if needed
KIRKTAP2 115 kV	308 - Diablo	1.048	1.048	1.037	1.052	System adjustments or voltage support if needed
LINDETP2 115 kV	308 - Diablo	1.048	1.048	1.037	1.052	System adjustments or voltage support if needed
W.P.BART 115 kV	308 - Diablo	1.050	1.052	1.035	1.056	System adjustments or voltage support if needed
BOLLMAN1 115 kV	308 - Diablo	1.047	1.050	1.035	1.054	System adjustments or voltage support if needed
BOLLMAN 115 kV	308 - Diablo	1.047	1.050	1.034	1.053	System adjustments or voltage support if needed
IMHOFF_1 115 kV	308 - Diablo	1.046	1.050	1.034	1.053	System adjustments or voltage support if needed
BAYSHOR1 115 kV	309 - Saan Francisco	1.036	1.047	1.034	1.053	System adjustments or voltage support if needed
BAYSHOR2 115 kV	309 - Saan Francisco	1.036	1.047	1.034	1.053	System adjustments or voltage support if needed
POTRERO 115 kV	309 - Saan Francisco	1.036	1.047	1.035	1.054	System adjustments or voltage support if needed
HNTRS PT 115 kV	309 - Saan Francisco	1.037	1.046	1.032	1.053	System adjustments or voltage support if needed
POT_SVC 115 kV	309 - Saan Francisco	1.036	1.047	1.035	1.054	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
MISSION 115 kV	309 - Saan Francisco	1.036	1.046	1.032	1.053	System adjustments or voltage support if needed
LARKIN E 115 kV	309 - Saan Francisco	1.036	1.046	1.032	1.053	System adjustments or voltage support if needed
LARKIN F 115 kV	309 - Saan Francisco	1.035	1.046	1.032	1.053	System adjustments or voltage support if needed
LARKIN D 115 kV	309 - Saan Francisco	1.035	1.046	1.034	1.053	System adjustments or voltage support if needed
WOODSIDE 60 kV	310 - Peninsula	1.042	1.053	1.026	1.059	System adjustments or voltage support if needed
JEFRSN_D 60 kV	310 - Peninsula	1.048	1.054	1.032	1.059	System adjustments or voltage support if needed
JEFRSN_E 60 kV	310 - Peninsula	1.048	1.054	1.032	1.059	System adjustments or voltage support if needed
LAS PLGS 60 kV	310 - Peninsula	1.041	1.051	1.025	1.057	System adjustments or voltage support if needed
EMRLD LE 60 kV	310 - Peninsula	1.047	1.053	1.031	1.059	System adjustments or voltage support if needed
WTRSHDTP 60 kV	310 - Peninsula	1.047	1.051	1.031	1.056	System adjustments or voltage support if needed
WATRSLED 60 kV	310 - Peninsula	1.047	1.051	1.031	1.056	System adjustments or voltage support if needed
OX_MTN60 60 kV	310 - Peninsula	1.049	1.053	1.037	1.052	System adjustments or voltage support if needed
HLF MNBY 60 kV	310 - Peninsula	1.046	1.052	1.034	1.052	System adjustments or voltage support if needed
OXMTN_TP 60 kV	310 - Peninsula	1.047	1.052	1.035	1.052	System adjustments or voltage support if needed
RLSTN45 60 kV	310 - Peninsula	1.041	1.050	1.029	1.056	System adjustments or voltage support if needed
RALSTON 60 kV	310 - Peninsula	1.041	1.050	1.029	1.056	System adjustments or voltage support if needed
HILDAL47 60 kV	310 - Peninsula	1.041	1.050	1.029	1.055	System adjustments or voltage support if needed
CAROLD2 60 kV	310 - Peninsula	1.040	1.049	1.028	1.055	System adjustments or voltage support if needed
CRYSTLSG 60 kV	310 - Peninsula	1.040	1.049	1.028	1.055	System adjustments or voltage support if needed
SLACTAP2 230 kV	310 - Peninsula	1.044	1.048	1.028	1.053	System adjustments or voltage support if needed
JEFFERSN 230 kV	310 - Peninsula	1.043	1.048	1.029	1.054	System adjustments or voltage support if needed
SLACTAP1 230 kV	310 - Peninsula	1.040	1.047	1.028	1.052	System adjustments or voltage support if needed
JMDAMCX1 230 kV	310 - Peninsula	1.044	1.049	1.030	1.055	System adjustments or voltage support if needed
JMDAMCX2 230 kV	310 - Peninsula	1.044	1.049	1.030	1.055	System adjustments or voltage support if needed
LSPLGSJT 60 kV	310 - Peninsula	1.041	1.049	1.027	1.055	System adjustments or voltage support if needed
TRAN230A 230 kV	310 - Peninsula	1.043	1.048	1.030	1.054	System adjustments or voltage support if needed
MNLOJCT2 60 kV	310 - Peninsula	1.037	1.046	1.024	1.052	System adjustments or voltage support if needed
RLSTN35 60 kV	310 - Peninsula	1.046	1.050	1.031	1.054	System adjustments or voltage support if needed
S.L.A.C. 60 kV	310 - Peninsula	1.035	1.045	1.022	1.051	System adjustments or voltage support if needed
SLAC TAP 60 kV	310 - Peninsula	1.035	1.045	1.022	1.051	System adjustments or voltage support if needed
RVNSWD E 115 kV	310 - Peninsula	1.045	1.052	1.040	1.058	System adjustments or voltage support if needed
RVNSWD D 115 kV	310 - Peninsula	1.045	1.052	1.040	1.058	System adjustments or voltage support if needed
CLY LND2 115 kV	310 - Peninsula	1.044	1.052	1.038	1.058	System adjustments or voltage support if needed



Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
CLY LND 115 kV	310 - Peninsula	1.044	1.052	1.038	1.058	System adjustments or voltage support if needed
HILDAL49 60 kV	310 - Peninsula	1.045	1.047	1.031	1.051	System adjustments or voltage support if needed
HLLSDLJT 60 kV	310 - Peninsula	1.045	1.047	1.031	1.051	System adjustments or voltage support if needed
TRAN-60 60 kV	310 - Peninsula	1.047	1.047	1.030	1.051	System adjustments or voltage support if needed
MLLBTP97 60 kV	310 - Peninsula	1.047	1.047	1.030	1.051	System adjustments or voltage support if needed
CAROLD1 60 kV	310 - Peninsula	1.047	1.047	1.030	1.051	System adjustments or voltage support if needed
CAROLNDS 60 kV	310 - Peninsula	1.047	1.047	1.030	1.051	System adjustments or voltage support if needed
STANISLS 115 kV	311 - Stockton	1.053	1.067	1.054	1.070	System adjustments or voltage support if needed
WEST PNT 60 kV	311 - Stockton	1.054	1.059	1.061	1.064	System adjustments or voltage support if needed
2008-RD 60 kV	311 - Stockton	1.054	1.059	1.061	1.064	System adjustments or voltage support if needed
FRGTNTP1 115 kV	311 - Stockton	1.048	1.065	1.053	1.068	System adjustments or voltage support if needed
FROGTOWN 115 kV	311 - Stockton	1.048	1.065	1.053	1.068	System adjustments or voltage support if needed
CATARACT 115 kV	311 - Stockton	1.052	1.066	1.054	1.069	System adjustments or voltage support if needed
FRGTNTP2 115 kV	311 - Stockton	1.048	1.064	1.052	1.067	System adjustments or voltage support if needed
PNE GRVE 60 kV	311 - Stockton	1.044	1.061	1.054	1.066	System adjustments or voltage support if needed
P.GRVEJ. 60 kV	311 - Stockton	1.047	1.059	1.055	1.064	System adjustments or voltage support if needed
BUENA_TP 60 kV	311 - Stockton	1.034	1.062	1.050	1.068	System adjustments or voltage support if needed
BUENAVISTA 60 kV	311 - Stockton	1.034	1.062	1.050	1.068	System adjustments or voltage support if needed
ELECTRAJ 60 kV	311 - Stockton	1.045	1.056	1.051	1.060	System adjustments or voltage support if needed
PRDESWS 60 kV	311 - Stockton	1.037	1.058	1.052	1.063	System adjustments or voltage support if needed
PARDEE A 60 kV	311 - Stockton	1.047	1.053	1.056	1.057	System adjustments or voltage support if needed
VSLDSW87 60 kV	311 - Stockton	1.046	1.052	1.055	1.056	System adjustments or voltage support if needed
PRDEJCT 60 kV	311 - Stockton	1.045	1.051	1.054	1.055	System adjustments or voltage support if needed
MELNS JA 115 kV	311 - Stockton	1.046	1.062	1.052	1.066	System adjustments or voltage support if needed
AVENATP1 115 kV	311 - Stockton	1.034	1.057	1.034	1.062	System adjustments or voltage support if needed
AVENA 115 kV	311 - Stockton	1.034	1.058	1.034	1.062	System adjustments or voltage support if needed
VLYHMTP1 115 kV	311 - Stockton	1.030	1.059	1.034	1.064	System adjustments or voltage support if needed
VLYHMTP2 115 kV	311 - Stockton	1.038	1.058	1.036	1.062	System adjustments or voltage support if needed
AVENATP2 115 kV	311 - Stockton	1.035	1.055	1.032	1.059	System adjustments or voltage support if needed
VIERRA 115 kV	311 - Stockton	1.032	1.053	1.030	1.057	System adjustments or voltage support if needed
TESLAMTR 115 kV	311 - Stockton	1.047	1.053	1.030	1.057	System adjustments or voltage support if needed
VIERATP1 115 kV	311 - Stockton		1.053	1.030	1.057	System adjustments or voltage support if needed
RPNJ2 115 kV	311 - Stockton	1.029	1.055	1.028	1.059	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
CROSRDJT 115 kV	311 - Stockton	1.033	1.053	1.031	1.057	System adjustments or voltage support if needed
TRACY 115 kV	311 - Stockton	1.036	1.052	1.032	1.057	System adjustments or voltage support if needed
HJ HEINZ 115 kV	311 - Stockton	1.036	1.052	1.032	1.057	System adjustments or voltage support if needed
CL AMMNA 115 kV	311 - Stockton	1.033	1.053	1.031	1.057	System adjustments or voltage support if needed
RIPON 115 kV	311 - Stockton	1.027	1.056	1.028	1.061	System adjustments or voltage support if needed
RPN JNCN 115 kV	311 - Stockton	1.026	1.055	1.029	1.060	System adjustments or voltage support if needed
MANTECA 115 kV	311 - Stockton	1.030	1.052	1.026	1.056	System adjustments or voltage support if needed
INE PRSN 60 kV	311 - Stockton	1.028	1.063	1.046	1.069	System adjustments or voltage support if needed
MCSPJT 60 kV	311 - Stockton	1.028	1.063	1.046	1.069	System adjustments or voltage support if needed
MCSP 60 kV	311 - Stockton	1.028	1.063	1.046	1.069	System adjustments or voltage support if needed
CLAY 60 kV	311 - Stockton	1.033	1.063	1.050	1.069	System adjustments or voltage support if needed
INE_TP 60 kV	311 - Stockton	1.033	1.063	1.049	1.068	System adjustments or voltage support if needed
LINDEN 60 kV	311 - Stockton	1.021	1.067	1.047	1.069	System adjustments or voltage support if needed
OLETA 60 kV	311 - Stockton	1.030	1.058	1.049	1.064	System adjustments or voltage support if needed
MARTELL 60 kV	311 - Stockton	1.034	1.056	1.049	1.061	System adjustments or voltage support if needed
MARTELTP 60 kV	311 - Stockton	1.034	1.056	1.049	1.061	System adjustments or voltage support if needed
AMFOR_SW 60 kV	311 - Stockton	1.034	1.056	1.049	1.061	System adjustments or voltage support if needed
AM FORST 60 kV	311 - Stockton	1.032	1.054	1.048	1.059	System adjustments or voltage support if needed
MRMN JCT 60 kV	311 - Stockton	1.023	1.060	1.044	1.061	System adjustments or voltage support if needed
MSHR 60V 60 kV	311 - Stockton	1.035	1.062	1.041	1.062	System adjustments or voltage support if needed
MORMON 60 kV	311 - Stockton	1.024	1.059	1.043	1.060	System adjustments or voltage support if needed
HERDLYN 60 kV	311 - Stockton	1.042	1.067	1.049	1.068	System adjustments or voltage support if needed
HRDLNJCT 60 kV	311 - Stockton	1.042	1.067	1.049	1.068	System adjustments or voltage support if needed
N BRANCH 60 kV	311 - Stockton	1.042	1.049	1.051	1.053	System adjustments or voltage support if needed
ALTA-CGE 60 kV	311 - Stockton	1.042	1.065	1.048	1.067	System adjustments or voltage support if needed
B.BTHNY- 60 kV	311 - Stockton	1.042	1.065	1.048	1.066	System adjustments or voltage support if needed
VLLY SPS 60 kV	311 - Stockton	1.043	1.049	1.052	1.053	System adjustments or voltage support if needed
WEST SDE 60 kV	311 - Stockton	1.040	1.065	1.047	1.066	System adjustments or voltage support if needed
WATRLJCT 60 kV	311 - Stockton	1.034	1.054	1.041	1.053	System adjustments or voltage support if needed
TOSCO-PP 60 kV	311 - Stockton	1.040	1.061	1.045	1.062	System adjustments or voltage support if needed
MORADAJT 60 kV	311 - Stockton	1.040	1.055	1.044	1.055	System adjustments or voltage support if needed
SOUTH BY 60 kV	311 - Stockton	1.039	1.059	1.044	1.061	System adjustments or voltage support if needed
HAMMER 60 kV	311 - Stockton	1.041	1.053	1.046	1.054	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
HMMR JCT 60 kV	311 - Stockton	1.041	1.053	1.045	1.054	System adjustments or voltage support if needed
WSTLNESW 60 kV	311 - Stockton	1.042	1.052	1.046	1.052	System adjustments or voltage support if needed
STAGG 60 kV	311 - Stockton	1.045	1.053	1.049	1.053	System adjustments or voltage support if needed
STAGG JT 60 kV	311 - Stockton	1.045	1.052	1.049	1.053	System adjustments or voltage support if needed
UOP 60 kV	311 - Stockton	1.043	1.050	1.047	1.051	System adjustments or voltage support if needed
CNTRY CB 60 kV	311 - Stockton	1.043	1.050	1.048	1.051	System adjustments or voltage support if needed
LEPRINO 115 kV	311 - Stockton	1.036	1.052	1.032	1.056	System adjustments or voltage support if needed
SP CMPNY 115 kV	311 - Stockton	1.048	1.050	1.033	1.052	System adjustments or voltage support if needed
SPC JCT. 115 kV	311 - Stockton	1.047	1.051	1.033	1.055	System adjustments or voltage support if needed
KSSN-JC2 115 kV	311 - Stockton	1.035	1.051	1.032	1.056	System adjustments or voltage support if needed
TRACY JC 115 kV	311 - Stockton	1.039	1.051	1.036	1.055	System adjustments or voltage support if needed
LID 115 kV	311 - Stockton	1.033	1.051	1.029	1.055	System adjustments or voltage support if needed
LID JCT 115 kV	311 - Stockton	1.033	1.051	1.029	1.055	System adjustments or voltage support if needed
KSSN-JC1 115 kV	311 - Stockton	1.035	1.050	1.032	1.054	System adjustments or voltage support if needed
KASSON 115 kV	311 - Stockton	1.035	1.050	1.032	1.054	System adjustments or voltage support if needed
OWENSTP1 115 kV	311 - Stockton	1.042	1.049	1.037	1.053	System adjustments or voltage support if needed
LAMMERS 115 kV	311 - Stockton	1.042	1.048	1.037	1.053	System adjustments or voltage support if needed
OWENSTP2 115 kV	311 - Stockton	1.043	1.048	1.037	1.053	System adjustments or voltage support if needed
OI GLASS 115 kV	311 - Stockton	1.041	1.048	1.037	1.052	System adjustments or voltage support if needed
SCHULTE 115 kV	311 - Stockton	1.044	1.048	1.037	1.052	System adjustments or voltage support if needed
GWFTACY 115 kV	311 - Stockton	1.044	1.048	1.037	1.052	System adjustments or voltage support if needed
CAL CMNT 60 kV	311 - Stockton	1.040	1.049	1.049	1.053	System adjustments or voltage support if needed
N.HOGAN 60 kV	311 - Stockton	1.035	1.045	1.054	1.050	System adjustments or voltage support if needed
N.HGN JT 60 kV	311 - Stockton	1.034	1.044	1.053	1.050	System adjustments or voltage support if needed
CORRAL 60 kV	311 - Stockton	1.025	1.040	1.056	1.048	System adjustments or voltage support if needed
CORRAL2 60 kV	311 - Stockton	1.025	1.040	1.056	1.048	System adjustments or voltage support if needed
MDL_RIVR 60 kV	311 - Stockton	1.020	1.049	1.030	1.051	System adjustments or voltage support if needed
CURTISS 115 kV	312 - Stanislaus	1.040	1.062	1.054	1.066	System adjustments or voltage support if needed
SPISONORAJCT 115 kV	312 - Stanislaus	1.040	1.062	1.054	1.066	System adjustments or voltage support if needed
SPISONORA 115 kV	312 - Stanislaus	1.040	1.062	1.054	1.066	System adjustments or voltage support if needed
MI-WUK 115 kV	312 - Stanislaus	1.039	1.060	1.055	1.064	System adjustments or voltage support if needed
BEARDSLY 115 kV	312 - Stanislaus	1.042	1.059	1.057	1.063	System adjustments or voltage support if needed
RCTRK J. 115 kV	312 - Stanislaus	1.041	1.061	1.054	1.065	System adjustments or voltage support if needed



Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
DONNELLS 115 kV	312 - Stanislaus	1.041	1.059	1.057	1.062	System adjustments or voltage support if needed
BRDSLY J 115 kV	312 - Stanislaus	1.041	1.059	1.057	1.062	System adjustments or voltage support if needed
SPRNG GJ 115 kV	312 - Stanislaus	1.041	1.058	1.057	1.062	System adjustments or voltage support if needed
SPRNG GP 115 kV	312 - Stanislaus	1.042	1.058	1.057	1.061	System adjustments or voltage support if needed
SNDBR JT 115 kV	312 - Stanislaus	1.042	1.058	1.057	1.061	System adjustments or voltage support if needed
SANDBAR 115 kV	312 - Stanislaus	1.042	1.058	1.057	1.061	System adjustments or voltage support if needed
MELONES 115 kV	312 - Stanislaus	1.046	1.061	1.056	1.064	System adjustments or voltage support if needed
R.TRACK 115 kV	312 - Stanislaus	1.046	1.060	1.056	1.064	System adjustments or voltage support if needed
CH.STN 115 kV	312 - Stanislaus	1.044	1.061	1.055	1.064	System adjustments or voltage support if needed
PEORIA 115 kV	312 - Stanislaus	1.043	1.060	1.055	1.064	System adjustments or voltage support if needed
CH.STNJT 115 kV	312 - Stanislaus	1.042	1.060	1.054	1.064	System adjustments or voltage support if needed
TULLOCH 115 kV	312 - Stanislaus	1.046	1.052	1.057	1.055	System adjustments or voltage support if needed
MELNS JB 115 kV	312 - Stanislaus	1.044	1.062	1.051	1.065	System adjustments or voltage support if needed
RVRBK J2 115 kV	312 - Stanislaus	1.039	1.059	1.038	1.062	System adjustments or voltage support if needed
RIVRBKJT 115 kV	312 - Stanislaus	1.031	1.059	1.036	1.064	System adjustments or voltage support if needed
VALLY HM 115 kV	312 - Stanislaus	1.029	1.059	1.034	1.064	System adjustments or voltage support if needed
SJ COGEN 115 kV	312 - Stanislaus	1.047	1.053	1.030	1.057	System adjustments or voltage support if needed
VIERATP2 115 kV	312 - Stanislaus		1.053	1.031	1.057	System adjustments or voltage support if needed
MILLER 115 kV	312 - Stanislaus	1.051	1.060	1.047	1.063	System adjustments or voltage support if needed
Q1103JCT 115 kV	312 - Stanislaus	1.051	1.060	1.047	1.063	System adjustments or voltage support if needed
Q1103 115 kV	312 - Stanislaus	1.051	1.060	1.047	1.063	System adjustments or voltage support if needed
MILER TP 115 kV	312 - Stanislaus	1.051	1.059	1.047	1.062	System adjustments or voltage support if needed
SALADO 115 kV	312 - Stanislaus	1.049	1.054	1.042	1.057	System adjustments or voltage support if needed
SALADO J 115 kV	312 - Stanislaus	1.049	1.053	1.041	1.056	System adjustments or voltage support if needed
SALDO TP 115 kV	312 - Stanislaus	1.050	1.053	1.041	1.056	System adjustments or voltage support if needed
INGRM C. 115 kV	312 - Stanislaus	1.045	1.048	1.035	1.052	System adjustments or voltage support if needed
MDSTO CN 115 kV	312 - Stanislaus	1.050	1.049	1.038	1.052	System adjustments or voltage support if needed
RVRBK TP 115 kV	312 - Stanislaus	1.041	1.045	1.053	1.049	System adjustments or voltage support if needed
RVRBANK 115 kV	312 - Stanislaus	1.040	1.043	1.053	1.048	System adjustments or voltage support if needed
WESTLEY 60 kV	312 - Stanislaus	0.978	1.044	1.011	1.051	System adjustments or voltage support if needed
EL PECO 70 kV	313 - Yosemite	1.037	1.049	1.049	1.052	System adjustments or voltage support if needed
ELPECO T 70 kV	313 - Yosemite	1.038	1.047	1.047	1.049	System adjustments or voltage support if needed
SNTA RTA 70 kV	313 - Yosemite	1.043	1.058	1.043	1.063	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
LIVNGSTN 70 kV	313 - Yosemite	1.042	1.059	1.039	1.066	System adjustments or voltage support if needed
TRIGO 70 kV	313 - Yosemite	1.039	1.045	1.044	1.047	System adjustments or voltage support if needed
TRIGO J 70 kV	313 - Yosemite	1.038	1.045	1.044	1.047	System adjustments or voltage support if needed
MADERA 70 kV	313 - Yosemite	1.040	1.045	1.045	1.047	System adjustments or voltage support if needed
CANANDGA 70 kV	313 - Yosemite	1.038	1.045	1.044	1.046	System adjustments or voltage support if needed
GLASS 70 kV	313 - Yosemite	1.038	1.045	1.044	1.046	System adjustments or voltage support if needed
BORDEN 70 kV	313 - Yosemite	1.042	1.040	1.043	1.041	System adjustments or voltage support if needed
Q723 70 kV	313 - Yosemite	1.044	1.043	1.043	1.043	System adjustments or voltage support if needed
BONITA 70 kV	313 - Yosemite	1.032	1.053	1.053	1.058	System adjustments or voltage support if needed
BONITA T 70 kV	313 - Yosemite	1.034	1.051	1.051	1.054	System adjustments or voltage support if needed
SJNO3 70 kV	313 - Yosemite	1.020	1.044	1.050	1.049	System adjustments or voltage support if needed
2007-RD 70 kV	313 - Yosemite	1.020	1.044	1.050	1.049	System adjustments or voltage support if needed
NRTHFORK 70 kV	313 - Yosemite	1.021	1.043	1.049	1.048	System adjustments or voltage support if needed
SJNO2 70 kV	313 - Yosemite	1.022	1.042	1.048	1.047	System adjustments or voltage support if needed
CASSIDY 70 kV	313 - Yosemite	1.036	1.043	1.040	1.045	System adjustments or voltage support if needed
DOS PALS 70 kV	313 - Yosemite	1.044	1.052	1.035	1.056	System adjustments or voltage support if needed
ORO LOMA 70 kV	313 - Yosemite	1.045	1.046	1.027	1.048	System adjustments or voltage support if needed
CANAL 70 kV	313 - Yosemite	1.041	1.048	1.021	1.053	System adjustments or voltage support if needed
LVNGSTNT 70 kV	313 - Yosemite	1.042	1.047	1.021	1.051	System adjustments or voltage support if needed
ORTIGA 70 kV	313 - Yosemite	1.043	1.046	1.021	1.050	System adjustments or voltage support if needed
MRCYSPRS 70 kV	313 - Yosemite	1.044	1.042	1.020	1.046	System adjustments or voltage support if needed
VEGA 70 kV	313 - Yosemite	1.045	1.042	1.020	1.046	System adjustments or voltage support if needed
MERCYSPRNGSS 70 kV	313 - Yosemite	1.045	1.042	1.020	1.046	System adjustments or voltage support if needed
ARBURU T 70 kV	313 - Yosemite	1.045	1.040	1.019	1.043	System adjustments or voltage support if needed
WRIGHT T 70 kV	313 - Yosemite	1.044	1.037	1.019	1.040	System adjustments or voltage support if needed
WRGHT PP 70 kV	313 - Yosemite	1.043	1.037	1.018	1.040	System adjustments or voltage support if needed
LOS BANS 70 kV	313 - Yosemite	1.043	1.037	1.020	1.040	System adjustments or voltage support if needed
PCHCOWND 70 kV	313 - Yosemite	1.043	1.037	1.019	1.040	System adjustments or voltage support if needed
MCCABEJ1 70 kV	313 - Yosemite	1.043	1.037	1.020	1.040	System adjustments or voltage support if needed
CHEVPIPE 70 kV	313 - Yosemite	1.042	1.037	1.018	1.040	System adjustments or voltage support if needed
SNTA NLA 70 kV	313 - Yosemite	1.042	1.037	1.018	1.040	System adjustments or voltage support if needed
MARIPOS2 70 kV	313 - Yosemite	0.989	1.046	1.032	1.046	System adjustments or voltage support if needed
DAIRYLND 115 kV	313 - Yosemite	1.043	1.056	1.045	1.056	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
1318-RD 115 kV	313 - Yosemite	1.043	1.056	1.045	1.056	System adjustments or voltage support if needed
CORSGOLD 115 kV	313 - Yosemite	1.049	1.055	1.043	1.058	System adjustments or voltage support if needed
OAKHURST 115 kV	313 - Yosemite	1.047	1.054	1.043	1.058	System adjustments or voltage support if needed
MENDOTA 115 kV	313 - Yosemite	1.052	1.049	1.053	1.051	System adjustments or voltage support if needed
NORTHSTAR 115 kV	313 - Yosemite	1.052	1.050	1.052	1.050	System adjustments or voltage support if needed
Q1028Q1029 115 kV	313 - Yosemite	1.052	1.050	1.052	1.050	System adjustments or voltage support if needed
OAKH_JCT 115 kV	313 - Yosemite	1.049	1.053	1.042	1.055	System adjustments or voltage support if needed
CHWCHLASLRJT 115 kV	313 - Yosemite	1.043	1.053	1.043	1.054	System adjustments or voltage support if needed
CHWCHLASLR 115 kV	313 - Yosemite	1.043	1.053	1.043	1.054	System adjustments or voltage support if needed
ARBURUA 70 kV	313 - Yosemite	1.042	1.035	1.015	1.039	System adjustments or voltage support if needed
MCCABEJ2 70 kV	313 - Yosemite	1.038	1.035	1.020	1.038	System adjustments or voltage support if needed
WSTLDJCT 70 kV	313 - Yosemite	0.992	1.053	1.007	1.055	System adjustments or voltage support if needed
WESTLAND 70 kV	313 - Yosemite	0.990	1.051	1.006	1.054	System adjustments or voltage support if needed
WESIX 70 kV	313 - Yosemite	0.988	1.050	1.004	1.052	System adjustments or voltage support if needed
ADAMS_E 70 kV	313 - Yosemite	0.983	1.052	1.002	1.054	System adjustments or voltage support if needed
ADAMS_E TP 70 kV	313 - Yosemite	0.983	1.052	0.999	1.054	System adjustments or voltage support if needed
POSO J1 70 kV	313 - Yosemite	0.982	1.048	0.982	1.050	System adjustments or voltage support if needed
FIREBAGH 70 kV	313 - Yosemite	0.958	1.047	0.964	1.049	System adjustments or voltage support if needed
TOMATAK 70 kV	313 - Yosemite	0.952	1.046	0.959	1.047	System adjustments or voltage support if needed
CALRENEW 70 kV	313 - Yosemite	0.953	1.050	0.958	1.051	System adjustments or voltage support if needed
BIOMSJCT 70 kV	313 - Yosemite	0.953	1.050	0.958	1.051	System adjustments or voltage support if needed
BIOMASS 70 kV	313 - Yosemite	0.953	1.050	0.958	1.051	System adjustments or voltage support if needed
MENDOTA 70 kV	313 - Yosemite	0.938	1.048	0.938	1.049	System adjustments or voltage support if needed
EXCHEQUR 115 kV	313 - Yosemite	1.062	1.050	1.050	1.048	System adjustments or voltage support if needed
NEWHALL 115 kV	313 - Yosemite	1.045	1.051	1.046	1.053	System adjustments or voltage support if needed
MADERAPR 115 kV	313 - Yosemite	1.045	1.051	1.046	1.053	System adjustments or voltage support if needed
GILLTAP 115 kV	313 - Yosemite	1.045	1.051	1.047	1.052	System adjustments or voltage support if needed
CHWCGN 115 kV	313 - Yosemite	1.050	1.057	1.048	1.049	System adjustments or voltage support if needed
CHWCHLA2 115 kV	313 - Yosemite	1.050	1.057	1.048	1.049	System adjustments or voltage support if needed
CHWCGNJT 115 kV	313 - Yosemite	1.047	1.055	1.045	1.049	System adjustments or voltage support if needed
SHARON T 115 kV	313 - Yosemite	1.045	1.053	1.042	1.052	System adjustments or voltage support if needed
CHWCHLLA 115 kV	313 - Yosemite	1.044	1.054	1.043	1.052	System adjustments or voltage support if needed
CERTTEED 115 kV	313 - Yosemite	1.047	1.054	1.045	1.049	System adjustments or voltage support if needed



Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
CERTANJ1 115 kV	313 - Yosemite	1.044	1.054	1.043	1.052	System adjustments or voltage support if needed
SHARON 115 kV	313 - Yosemite	1.044	1.052	1.042	1.051	System adjustments or voltage support if needed
CERTANJ2 115 kV	313 - Yosemite	1.045	1.052	1.042	1.050	System adjustments or voltage support if needed
CERTAN T 115 kV	313 - Yosemite	1.044	1.052	1.042	1.050	System adjustments or voltage support if needed
Q1127 115 kV	313 - Yosemite	1.052	1.045	1.045	1.051	System adjustments or voltage support if needed
MC SWAIN 70 kV	313 - Yosemite	1.008	1.035	1.037	1.032	System adjustments or voltage support if needed
POSO J2 70 kV	313 - Yosemite	1.022	1.038	1.029	1.021	System adjustments or voltage support if needed
ELNIDO 70 kV	313 - Yosemite	1.022	1.037	1.029	1.020	System adjustments or voltage support if needed
ELNIDOTP 70 kV	313 - Yosemite	1.021	1.037	1.029	1.020	System adjustments or voltage support if needed
ORO LOMA 115 kV	313 - Yosemite	1.016	1.051	1.025	1.053	System adjustments or voltage support if needed
ANGIOLA 70 kV	314 - Fresno	1.060	1.054	1.054	1.055	System adjustments or voltage support if needed
CORCORAN 70 kV	314 - Fresno	1.060	1.057	1.057	1.057	System adjustments or voltage support if needed
BSWLL TP 70 kV	314 - Fresno	1.059	1.055	1.055	1.055	System adjustments or voltage support if needed
JGBSWLL 70 kV	314 - Fresno	1.059	1.054	1.055	1.055	System adjustments or voltage support if needed
BOSWELL 70 kV	314 - Fresno	1.059	1.054	1.055	1.055	System adjustments or voltage support if needed
TLRE LKE 70 kV	314 - Fresno	1.042	1.055	1.064	1.057	System adjustments or voltage support if needed
LEMOORE 70 kV	314 - Fresno	1.040	1.058	1.040	1.056	System adjustments or voltage support if needed
LPRNO TP 70 kV	314 - Fresno	1.041	1.057	1.040	1.056	System adjustments or voltage support if needed
CANDLEWK 70 kV	314 - Fresno	1.041	1.057	1.040	1.056	System adjustments or voltage support if needed
LEPRINO 70 kV	314 - Fresno	1.039	1.056	1.038	1.054	System adjustments or voltage support if needed
KERMAN1 70 kV	314 - Fresno	1.040	1.072	1.041	1.077	System adjustments or voltage support if needed
KERMAN2 70 kV	314 - Fresno	1.040	1.072	1.041	1.077	System adjustments or voltage support if needed
STROUD 70 kV	314 - Fresno	1.040	1.071	1.051	1.075	System adjustments or voltage support if needed
GUERNSEY 70 kV	314 - Fresno	1.042	1.060	1.054	1.060	System adjustments or voltage support if needed
GUR3TPT 70 kV	314 - Fresno	1.042	1.060	1.053	1.060	System adjustments or voltage support if needed
ARMSTRNG 70 kV	314 - Fresno	1.042	1.060	1.053	1.060	System adjustments or voltage support if needed
RESERVE 70 kV	314 - Fresno	1.042	1.060	1.053	1.060	System adjustments or voltage support if needed
AMSTG SW 70 kV	314 - Fresno	1.042	1.060	1.053	1.060	System adjustments or voltage support if needed
HENRIETTAD 70 kV	314 - Fresno	1.052	1.044	1.042	1.041	System adjustments or voltage support if needed
COPPRMNE 70 kV	314 - Fresno	1.039	1.047	1.045	1.049	System adjustments or voltage support if needed
AGRCJCT 70 kV	314 - Fresno	1.040	1.067	1.039	1.071	System adjustments or voltage support if needed
Q272 70 kV	314 - Fresno	1.052	1.043	1.042	1.040	System adjustments or voltage support if needed
LEMORNAS 70 kV	314 - Fresno	1.051	1.042	1.041	1.039	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
AGRICO 70 kV	314 - Fresno	1.039	1.067	1.037	1.071	System adjustments or voltage support if needed
RVRCK T 70 kV	314 - Fresno	1.037	1.045	1.042	1.047	System adjustments or voltage support if needed
RIVERROC 70 kV	314 - Fresno	1.037	1.045	1.042	1.047	System adjustments or voltage support if needed
CRESCENTSS 70 kV	314 - Fresno	1.041	1.066	1.045	1.069	System adjustments or voltage support if needed
Q632B 70 kV	314 - Fresno	1.041	1.066	1.045	1.069	System adjustments or voltage support if needed
FRANTDM 70 kV	314 - Fresno	1.040	1.044	1.043	1.046	System adjustments or voltage support if needed
HENRIETTAE 70 kV	314 - Fresno	1.046	1.047	1.039	1.047	System adjustments or voltage support if needed
GWF_HENR 70 kV	314 - Fresno	1.046	1.047	1.039	1.047	System adjustments or voltage support if needed
SAN JOQN 70 kV	314 - Fresno	1.041	1.061	1.039	1.063	System adjustments or voltage support if needed
SNJQTP 70 kV	314 - Fresno	1.041	1.061	1.039	1.063	System adjustments or voltage support if needed
KENT SS 70 kV	314 - Fresno	1.046	1.047	1.039	1.046	System adjustments or voltage support if needed
KENT_S 70 kV	314 - Fresno	1.046	1.047	1.039	1.046	System adjustments or voltage support if needed
HELM 70 kV	314 - Fresno	1.042	1.059	1.040	1.061	System adjustments or voltage support if needed
KANSASS_JCT 70 kV	314 - Fresno	1.045	1.045	1.036	1.045	System adjustments or voltage support if needed
KANSASS_P 70 kV	314 - Fresno	1.045	1.045	1.036	1.045	System adjustments or voltage support if needed
SCHINDLR 115 kV	314 - Fresno	1.042	1.063	1.056	1.063	System adjustments or voltage support if needed
1316-RD 115 kV	314 - Fresno	1.042	1.063	1.056	1.063	System adjustments or voltage support if needed
EXCELSIORSS 115 kV	314 - Fresno	1.043	1.062	1.055	1.062	System adjustments or voltage support if needed
Q678 115 kV	314 - Fresno	1.043	1.062	1.055	1.062	System adjustments or voltage support if needed
WESTLND 115 kV	314 - Fresno	1.044	1.061	1.054	1.062	System adjustments or voltage support if needed
CANTUA 115 kV	314 - Fresno	1.044	1.060	1.053	1.061	System adjustments or voltage support if needed
DINUBA 70 kV	314 - Fresno	1.056	1.051	1.033	1.056	System adjustments or voltage support if needed
SANDCRK 70 kV	314 - Fresno	1.056	1.049	1.032	1.053	System adjustments or voltage support if needed
DUNLAP 70 kV	314 - Fresno	1.055	1.048	1.031	1.053	System adjustments or voltage support if needed
BIOLA 70 kV	314 - Fresno	1.030	1.043	1.046	1.047	System adjustments or voltage support if needed
TVY VLLY 70 kV	314 - Fresno	1.054	1.049	1.036	1.053	System adjustments or voltage support if needed
STCRRL J 70 kV	314 - Fresno	1.057	1.047	1.031	1.051	System adjustments or voltage support if needed
OROSI 70 kV	314 - Fresno	1.057	1.047	1.031	1.051	System adjustments or voltage support if needed
ORSI JCT 70 kV	314 - Fresno	1.057	1.047	1.031	1.051	System adjustments or voltage support if needed
DNUBAEGY 70 kV	314 - Fresno	1.059	1.049	1.031	1.052	System adjustments or voltage support if needed
DNUBAJCT 70 kV	314 - Fresno	1.059	1.049	1.031	1.052	System adjustments or voltage support if needed
CMDN JCT 70 kV	314 - Fresno	1.031	1.049	1.049	1.054	System adjustments or voltage support if needed
CARUTHRS 70 kV	314 - Fresno	1.030	1.049	1.049	1.053	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
REEDLEY 70 kV	314 - Fresno	1.060	1.048	1.031	1.051	System adjustments or voltage support if needed
STONCRRL 70 kV	314 - Fresno	1.053	1.044	1.030	1.048	System adjustments or voltage support if needed
BOWLES 70 kV	314 - Fresno	1.028	1.040	1.046	1.043	System adjustments or voltage support if needed
KEARNEY 70 kV	314 - Fresno	1.034	1.040	1.044	1.043	System adjustments or voltage support if needed
FRWWTAP 70 kV	314 - Fresno	1.033	1.040	1.044	1.042	System adjustments or voltage support if needed
FRESNOWW 70 kV	314 - Fresno	1.033	1.039	1.043	1.042	System adjustments or voltage support if needed
AUBERRY 70 kV	314 - Fresno	1.025	1.041	1.049	1.046	System adjustments or voltage support if needed
AUBRYTP 70 kV	314 - Fresno	1.029	1.041	1.047	1.046	System adjustments or voltage support if needed
WISHON 70 kV	314 - Fresno	1.028	1.041	1.047	1.046	System adjustments or voltage support if needed
KETTLETP 70 kV	314 - Fresno	1.046	1.042	1.036	1.041	System adjustments or voltage support if needed
KETTLEMNS 70 kV	314 - Fresno	1.046	1.042	1.036	1.041	System adjustments or voltage support if needed
JCBS TAP 70 kV	314 - Fresno	1.044	1.044	1.035	1.044	System adjustments or voltage support if needed
JCBSCRNR 70 kV	314 - Fresno	1.044	1.044	1.035	1.044	System adjustments or voltage support if needed
BULLARD 115 kV	314 - Fresno	1.025	1.057	1.035	1.059	System adjustments or voltage support if needed
PNEDLE 115 kV	314 - Fresno	1.026	1.056	1.034	1.059	System adjustments or voltage support if needed
PNDLJ1 115 kV	314 - Fresno	1.026	1.056	1.035	1.058	System adjustments or voltage support if needed
PNEDLE2 115 kV	314 - Fresno	1.026	1.055	1.034	1.058	System adjustments or voltage support if needed
PNDLJ2 115 kV	314 - Fresno	1.026	1.055	1.034	1.057	System adjustments or voltage support if needed
CAMDEN 70 kV	314 - Fresno	1.012	1.038	1.023	1.044	System adjustments or voltage support if needed
KAMM 115 kV	314 - Fresno	1.046	1.054	1.049	1.055	System adjustments or voltage support if needed
MC CALL 230 kV	314 - Fresno	1.015	1.057	1.032	1.059	System adjustments or voltage support if needed
SCHLNDLR 70 kV	314 - Fresno	1.007	1.036	1.035	1.037	System adjustments or voltage support if needed
SNJQJCT 70 kV	314 - Fresno	1.031	1.058	1.032	1.060	System adjustments or voltage support if needed
GFFNJCT 70 kV	314 - Fresno	0.995	1.053	1.009	1.056	System adjustments or voltage support if needed
Q679 70 kV	314 - Fresno	0.995	1.053	1.010	1.056	System adjustments or voltage support if needed
GIFFEN 70 kV	314 - Fresno	0.995	1.053	1.010	1.056	System adjustments or voltage support if needed
MANCHSTR 115 kV	314 - Fresno	1.037	1.051	1.038	1.054	System adjustments or voltage support if needed
KNGSRVR1 115 kV	314 - Fresno	1.052	1.046	1.047	1.047	System adjustments or voltage support if needed
MC CALL 115 kV	314 - Fresno	1.055	1.025	1.035	1.026	System adjustments or voltage support if needed
AVENAL 70 kV	314 - Fresno	0.988	1.045	1.027	1.026	System adjustments or voltage support if needed
SUN CITY 70 kV	314 - Fresno	0.988	1.044	1.026	1.025	System adjustments or voltage support if needed
AVNLPARK 70 kV	314 - Fresno	0.989	1.043	1.025	1.024	System adjustments or voltage support if needed
ANTELOPE 70 kV	315 - Kern	1.059	1.061	1.036	1.058	System adjustments or voltage support if needed



Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
ANTLP JC 70 kV	315 - Kern	1.059	1.061	1.036	1.058	System adjustments or voltage support if needed
BRRNDA C 70 kV	315 - Kern	1.059	1.061	1.036	1.058	System adjustments or voltage support if needed
BRRNDA A 70 kV	315 - Kern	1.060	1.061	1.037	1.059	System adjustments or voltage support if needed
SW85 J1 70 kV	315 - Kern	1.061	1.062	1.038	1.059	System adjustments or voltage support if needed
CHLME JT 70 kV	315 - Kern	1.061	1.062	1.038	1.059	System adjustments or voltage support if needed
DEVLS DN 70 kV	315 - Kern	1.057	1.058	1.040	1.055	System adjustments or voltage support if needed
BDGRHL T 70 kV	315 - Kern	1.050	1.053	1.045	1.052	System adjustments or voltage support if needed
LOSTHL T 70 kV	315 - Kern	1.054	1.055	1.043	1.052	System adjustments or voltage support if needed
ARCO 70 kV	315 - Kern	1.056	1.056	1.042	1.053	System adjustments or voltage support if needed
BDGR HLL 70 kV	315 - Kern	1.047	1.051	1.042	1.050	System adjustments or voltage support if needed
LST HLLS 70 kV	315 - Kern	1.052	1.054	1.041	1.051	System adjustments or voltage support if needed
TWSL J2 70 kV	315 - Kern	1.055	1.052	1.040	1.051	System adjustments or voltage support if needed
BLACKWLL 70 kV	315 - Kern	1.052	1.048	1.039	1.050	System adjustments or voltage support if needed
Q705JCT 70 kV	315 - Kern	1.051	1.048	1.039	1.050	System adjustments or voltage support if needed
Q705 70 kV	315 - Kern	1.051	1.048	1.039	1.050	System adjustments or voltage support if needed
OLD RIVR 70 kV	315 - Kern	1.037	1.050	1.043	1.050	System adjustments or voltage support if needed
CARNERAS 70 kV	315 - Kern	1.048	1.047	1.037	1.049	System adjustments or voltage support if needed
OLD_RVR1 70 kV	315 - Kern	1.037	1.051	1.043	1.050	System adjustments or voltage support if needed
LOSTHILLTP 70 kV	315 - Kern	1.052	1.046	1.037	1.048	System adjustments or voltage support if needed
LOSTHILL 70 kV	315 - Kern	1.052	1.046	1.037	1.048	System adjustments or voltage support if needed
OLD_RVR1_TP 70 kV	315 - Kern	1.037	1.050	1.042	1.049	System adjustments or voltage support if needed
TWSL J1 70 kV	315 - Kern	1.052	1.047	1.038	1.045	System adjustments or voltage support if needed
KRN CNYN 70 kV	315 - Kern	1.042	1.050	1.044	1.045	System adjustments or voltage support if needed
MORELSTP 70 kV	315 - Kern	1.050	1.045	1.036	1.043	System adjustments or voltage support if needed
MORELS 70 kV	315 - Kern	1.050	1.045	1.036	1.043	System adjustments or voltage support if needed
RIOBRVQF 70 kV	315 - Kern	1.042	1.049	1.043	1.045	System adjustments or voltage support if needed
PANMJCT1 70 kV	315 - Kern	1.039	1.047	1.039	1.045	System adjustments or voltage support if needed
KERN PW1 70 kV	315 - Kern	1.041	1.049	1.040	1.045	System adjustments or voltage support if needed
KERN PW2 70 kV	315 - Kern	1.041	1.049	1.040	1.045	System adjustments or voltage support if needed
FRUITVLE 70 kV	315 - Kern	1.041	1.048	1.040	1.045	System adjustments or voltage support if needed
MAGNDN J 70 kV	315 - Kern	1.040	1.048	1.042	1.043	System adjustments or voltage support if needed
MAGUNDEN 70 kV	315 - Kern	1.040	1.048	1.041	1.043	System adjustments or voltage support if needed
LAKEVIEW 70 kV	315 - Kern	1.041	1.047	1.045	1.040	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
ORION 70 kV	315 - Kern	1.037	1.047	1.042	1.041	System adjustments or voltage support if needed
FRUITTAP 70 kV	315 - Kern	1.039	1.045	1.038	1.041	System adjustments or voltage support if needed
ORIONTP 70 kV	315 - Kern	1.037	1.047	1.042	1.040	System adjustments or voltage support if needed
ARVIN 70 kV	315 - Kern	1.037	1.047	1.041	1.040	System adjustments or voltage support if needed
BAKRSFLD 70 kV	315 - Kern	1.038	1.044	1.038	1.040	System adjustments or voltage support if needed
STALLION 70 kV	315 - Kern	1.039	1.046	1.042	1.039	System adjustments or voltage support if needed
EMDO JCT 70 kV	315 - Kern	1.042	1.046	1.045	1.039	System adjustments or voltage support if needed
STALIONJ 70 kV	315 - Kern	1.039	1.046	1.041	1.039	System adjustments or voltage support if needed
TECUYA T 70 kV	315 - Kern	1.041	1.045	1.042	1.038	System adjustments or voltage support if needed
WHEELER 70 kV	315 - Kern	1.045	1.047	1.047	1.040	System adjustments or voltage support if needed
TEJON 70 kV	315 - Kern	1.040	1.045	1.042	1.038	System adjustments or voltage support if needed
TECUYA 70 kV	315 - Kern	1.040	1.044	1.041	1.037	System adjustments or voltage support if needed
SN BRNRD 70 kV	315 - Kern	1.040	1.044	1.041	1.037	System adjustments or voltage support if needed
DEVLDNPP 70 kV	315 - Kern	1.055	1.056	1.029	1.053	System adjustments or voltage support if needed
SW85 J2 70 kV	315 - Kern	1.055	1.056	1.028	1.053	System adjustments or voltage support if needed
BLUSTNPP 70 kV	315 - Kern	1.054	1.056	1.024	1.052	System adjustments or voltage support if needed
POLPASPP 70 kV	315 - Kern	1.053	1.055	1.022	1.052	System adjustments or voltage support if needed
PANAMA 70 kV	315 - Kern	1.035	1.055	1.037	1.053	System adjustments or voltage support if needed
UNIONJCT 70 kV	315 - Kern	1.035	1.055	1.037	1.053	System adjustments or voltage support if needed
PRMTFMTP 70 kV	315 - Kern	1.053	1.047	1.036	1.048	System adjustments or voltage support if needed
PANMJCT2 70 kV	315 - Kern	1.036	1.051	1.037	1.049	System adjustments or voltage support if needed
SAN EMDO 70 kV	315 - Kern	1.034	1.049	1.042	1.049	System adjustments or voltage support if needed
CARNAT T 70 kV	315 - Kern	1.036	1.050	1.037	1.047	System adjustments or voltage support if needed
CARNATIO 70 kV	315 - Kern	1.035	1.050	1.037	1.047	System adjustments or voltage support if needed
S_KERN 70 kV	315 - Kern	1.032	1.049	1.040	1.048	System adjustments or voltage support if needed
S_KERN_TP 70 kV	315 - Kern	1.032	1.049	1.040	1.048	System adjustments or voltage support if needed
TWISSLMN 70 kV	315 - Kern	1.046	1.042	1.035	1.039	System adjustments or voltage support if needed
TX_LOSHL 70 kV	315 - Kern	1.045	1.040	1.034	1.038	System adjustments or voltage support if needed
WEEDPTCH 70 kV	315 - Kern	1.034	1.044	1.038	1.038	System adjustments or voltage support if needed
WEEDPATCH_SF 70 kV	315 - Kern	1.034	1.044	1.038	1.038	System adjustments or voltage support if needed
VALPREDO 70 kV	315 - Kern	1.037	1.041	1.040	1.034	System adjustments or voltage support if needed
COPUS_D 70 kV	315 - Kern	1.030	1.043	1.035	1.042	System adjustments or voltage support if needed
COPUS_E 70 kV	315 - Kern	1.030	1.043	1.035	1.042	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
BSCSCH T 70 kV	315 - Kern	1.030	1.043	1.035	1.042	System adjustments or voltage support if needed
BSCL_PLD 70 kV	315 - Kern	1.030	1.043	1.035	1.042	System adjustments or voltage support if needed
KRN OL J 70 kV	315 - Kern	1.036	1.040	1.031	1.036	System adjustments or voltage support if needed
ROSE 70 kV	315 - Kern	1.036	1.042	1.039	1.035	System adjustments or voltage support if needed
Q620TP 70 kV	315 - Kern	1.032	1.041	1.032	1.040	System adjustments or voltage support if needed
Q620 70 kV	315 - Kern	1.032	1.041	1.032	1.040	System adjustments or voltage support if needed
GARDNR T 70 kV	315 - Kern	1.033	1.039	1.031	1.038	System adjustments or voltage support if needed
GARDNER 70 kV	315 - Kern	1.032	1.038	1.030	1.038	System adjustments or voltage support if needed
3EMIDIO 70 kV	315 - Kern	1.034	1.039	1.038	1.032	System adjustments or voltage support if needed
WELLFILD 70 kV	315 - Kern	1.029	1.041	1.034	1.035	System adjustments or voltage support if needed
GRMMWY T 70 kV	315 - Kern	1.030	1.041	1.034	1.036	System adjustments or voltage support if needed
EISENTP 70 kV	315 - Kern	1.035	1.040	1.034	1.036	System adjustments or voltage support if needed
GRMWY_SM 70 kV	315 - Kern	1.029	1.039	1.032	1.034	System adjustments or voltage support if needed
ELK HLLS 70 kV	315 - Kern	1.025	1.035	1.021	1.037	System adjustments or voltage support if needed
TAFT A 70 kV	315 - Kern	1.044	1.035	1.025	1.034	System adjustments or voltage support if needed
TAFT_SW_TAFM 70 kV	315 - Kern	1.044	1.035	1.025	1.034	System adjustments or voltage support if needed
TAFT_SW_T AFC 70 kV	315 - Kern	1.043	1.035	1.025	1.034	System adjustments or voltage support if needed
TAFT A_J 70 kV	315 - Kern	1.040	1.034	1.026	1.033	System adjustments or voltage support if needed
NTPTRL 70 kV	315 - Kern	1.039	1.030	1.027	1.029	System adjustments or voltage support if needed
BRY_PTLM 70 kV	315 - Kern	1.039	1.033	1.025	1.033	System adjustments or voltage support if needed
SLR_TANH 70 kV	315 - Kern	1.039	1.033	1.025	1.033	System adjustments or voltage support if needed
CUYAMA2 70 kV	315 - Kern	1.038	1.031	1.020	1.030	System adjustments or voltage support if needed
MCKTTRCK 70 kV	315 - Kern	1.038	1.031	1.022	1.030	System adjustments or voltage support if needed
NORTHMWY 70 kV	315 - Kern	1.038	1.031	1.022	1.030	System adjustments or voltage support if needed
MDWY_P_S 70 kV	315 - Kern	1.038	1.031	1.022	1.030	System adjustments or voltage support if needed
DYERJCT 60 kV	316 - Mission	1.038	1.053	1.041	1.056	System adjustments or voltage support if needed
ALTAMONT 60 kV	316 - Mission	1.038	1.053	1.041	1.056	System adjustments or voltage support if needed
DYERWND 60 kV	316 - Mission	1.039	1.050	1.039	1.055	System adjustments or voltage support if needed
SAN RAMN 60 kV	316 - Mission	1.051	1.033	1.019	1.037	System adjustments or voltage support if needed
E DUBLIN 60 kV	316 - Mission	1.052	1.038	1.018	1.042	System adjustments or voltage support if needed
PARKS 60 kV	316 - Mission	1.052	1.038	1.018	1.042	System adjustments or voltage support if needed
PARKS TP 60 kV	316 - Mission	1.052	1.038	1.018	1.042	System adjustments or voltage support if needed
RADUM 60 kV	316 - Mission	1.053	1.043	1.017	1.047	System adjustments or voltage support if needed



Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
VINEYARD 60 kV	316 - Mission	1.053	1.043	1.017	1.047	System adjustments or voltage support if needed
IUKAJCT 60 kV	316 - Mission	1.052	1.043	1.017	1.047	System adjustments or voltage support if needed
IUKA 60 kV	316 - Mission	1.052	1.043	1.017	1.047	System adjustments or voltage support if needed
CALMAT60 60 kV	316 - Mission	1.053	1.043	1.017	1.047	System adjustments or voltage support if needed
VALLCITJ 60 kV	316 - Mission	1.050	1.043	1.017	1.047	System adjustments or voltage support if needed
LIVERMRE 60 kV	316 - Mission	1.052	1.045	1.020	1.049	System adjustments or voltage support if needed
LIVRMR_2 60 kV	316 - Mission	1.052	1.045	1.020	1.049	System adjustments or voltage support if needed
SNRAMONJ 60 kV	316 - Mission	1.051	1.045	1.020	1.049	System adjustments or voltage support if needed
LPOSTAS 60 kV	316 - Mission	1.052	1.043	1.025	1.047	System adjustments or voltage support if needed
VASCJCT. 60 kV	316 - Mission	1.052	1.042	1.024	1.045	System adjustments or voltage support if needed
VASCO 60 kV	316 - Mission	1.052	1.042	1.024	1.045	System adjustments or voltage support if needed
FOREBAYWIND 60 kV	316 - Mission	1.051	1.041	1.024	1.044	System adjustments or voltage support if needed
SNTACLRAJCT 60 kV	316 - Mission	1.051	1.041	1.024	1.044	System adjustments or voltage support if needed
FRICKWND 60 kV	316 - Mission	1.051	1.041	1.024	1.044	System adjustments or voltage support if needed
SNTACLRAWIND 60 kV	316 - Mission	1.051	1.041	1.024	1.044	System adjustments or voltage support if needed
JARVIS 115 kV	316 - Mission	1.034	1.047	1.019	1.052	System adjustments or voltage support if needed
JV BART 115 kV	316 - Mission	1.034	1.047	1.019	1.052	System adjustments or voltage support if needed
CRYOGEN 115 kV	316 - Mission	1.034	1.047	1.019	1.052	System adjustments or voltage support if needed
EASTSHRE 115 kV	316 - Mission	1.041	1.047	1.047	1.052	System adjustments or voltage support if needed
A100US 115 kV	316 - Mission	1.041	1.047	1.047	1.052	System adjustments or voltage support if needed
LOYOLA 60 kV	317 - De Anza	1.047	1.064	1.051	1.070	System adjustments or voltage support if needed
LOS ALTS 60 kV	317 - De Anza	1.052	1.063	1.046	1.069	System adjustments or voltage support if needed
PRMNT J3 60 kV	317 - De Anza	1.041	1.054	1.059	1.060	System adjustments or voltage support if needed
MNTA VSA 60 kV	317 - De Anza	1.040	1.054	1.060	1.059	System adjustments or voltage support if needed
LOS GATS 60 kV	317 - De Anza	1.042	1.072	1.046	1.079	System adjustments or voltage support if needed
PRMNT J1 60 kV	317 - De Anza	1.036	1.049	1.055	1.054	System adjustments or voltage support if needed
PERMNNTE 60 kV	317 - De Anza	1.034	1.046	1.052	1.051	System adjustments or voltage support if needed
PRMNT J2 60 kV	317 - De Anza	1.034	1.046	1.052	1.051	System adjustments or voltage support if needed
GREENVALLEY 60 kV	319 - Central Coast	1.065	1.055	1.055	1.055	System adjustments or voltage support if needed
ERTA 60 kV	319 - Central Coast	1.060	1.051	1.050	1.051	System adjustments or voltage support if needed
ERTA JCT 60 kV	319 - Central Coast	1.060	1.051	1.050	1.051	System adjustments or voltage support if needed
PT MRTTI 60 kV	319 - Central Coast	1.046	1.061	1.052	1.067	System adjustments or voltage support if needed
CRUSHER 60 kV	319 - Central Coast	1.046	1.061	1.052	1.067	System adjustments or voltage support if needed

Study Area Entire PG&E System

High Voltages Under P0 Conditions



Bus/Substation	Zone	Voltage PU (Baseline Scenarios)			Voltage PU (Sensitivity Scenario)	Project & Potential Mitigation Solutions
		2022 Spring Off-Peak	2025 Spring Off-Peak	2030 Spring Off-Peak	2025 SpOP Hi Renew & Min Gas Gen	
BIG BASN 60 kV	319 - Central Coast	1.045	1.061	1.054	1.067	System adjustments or voltage support if needed
BURNS 60 kV	319 - Central Coast	1.045	1.061	1.053	1.066	System adjustments or voltage support if needed
BURNS J2 60 kV	319 - Central Coast	1.045	1.061	1.053	1.066	System adjustments or voltage support if needed
BURNS J1 60 kV	319 - Central Coast	1.045	1.061	1.053	1.066	System adjustments or voltage support if needed
L.STAR J 60 kV	319 - Central Coast	1.044	1.060	1.052	1.066	System adjustments or voltage support if needed
LONE STR 60 kV	319 - Central Coast	1.044	1.060	1.052	1.065	System adjustments or voltage support if needed
JOLON 60 kV	319 - Central Coast	1.038	1.048	1.041	1.055	System adjustments or voltage support if needed
CIC JCT 60 kV	319 - Central Coast	1.056	1.046	1.045	1.046	System adjustments or voltage support if needed
AGRILINK 60 kV	319 - Central Coast	1.054	1.044	1.044	1.045	System adjustments or voltage support if needed
WTSNVLLE 60 kV	319 - Central Coast	1.053	1.043	1.043	1.044	System adjustments or voltage support if needed
DIVIDE 70 kV	320 - Los Padres	1.039	1.042	1.039	1.043	System adjustments or voltage support if needed
VAFB A-N 70 kV	320 - Los Padres	1.038	1.042	1.036	1.042	System adjustments or voltage support if needed
CHOLAME 70 kV	320 - Los Padres	1.060	1.067	1.027	1.065	System adjustments or voltage support if needed
VAFB SSA 70 kV	320 - Los Padres	1.036	1.042	1.036	1.042	System adjustments or voltage support if needed
VAFB SSB 70 kV	320 - Los Padres	1.036	1.042	1.036	1.042	System adjustments or voltage support if needed
1257-RD 70 kV	320 - Los Padres	1.036	1.042	1.036	1.042	System adjustments or voltage support if needed
MESA PGE 230 kV	320 - Los Padres	1.034	1.056	1.032	1.056	System adjustments or voltage support if needed
PSA RBLs 70 kV	320 - Los Padres	1.033	1.048	1.008	1.049	System adjustments or voltage support if needed
TEMPL J 70 kV	320 - Los Padres	1.035	1.046	1.013	1.047	System adjustments or voltage support if needed
TEMPL7 70 kV	320 - Los Padres	1.036	1.046	1.014	1.046	System adjustments or voltage support if needed
TEMPL J2 70 kV	320 - Los Padres	1.025	1.040	1.010	1.041	System adjustments or voltage support if needed
ATASCDRO 70 kV	320 - Los Padres	1.024	1.040	1.010	1.040	System adjustments or voltage support if needed