

Bus/Substation	Area	Zone	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Project & Potential Mitigation Solutions
			2026 Spring Off-Peak	2029 Spring Off-Peak	2029 Summer Off-Peak	2034 Winter Off-Peak	2026 OP Heavy Renewable & Min Gas Gen	
MORRO BAY SW STA 115 KV	Central Coast/Los Padres	Los Padres	1.00	1.07	<1.05	<1.05	1.00	System adjustments or voltage support if needed
SAN BENITO 115 KV	Central Coast/Los Padres	Central Coast	1.01	1.05	<1.05	<1.05	1.01	System adjustments or voltage support if needed
SAN LUIS OBISPO 115 KV	Central Coast/Los Padres	Los Padres	1.00	1.07	<1.05	<1.05	1.00	System adjustments or voltage support if needed
SOLEDAO 60 KV	Central Coast/Los Padres	Central Coast	1.03	1.05	<1.05	<1.05	1.03	System adjustments or voltage support if needed
APPLE HILL 115 KV	Central Valley	Sierra	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
APPLE HILL 115 KV	Central Valley	Sierra	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
ATLANTIC 115 KV	Central Valley	Sierra	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
ATLANTIC 115 KV	Central Valley	Sierra	1.05	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
ATLANTIC 60 KV	Central Valley	Sierra	1.07	1.04	1.05	<1.05	1.07	System adjustments or voltage support if needed
ATLANTIC 60 KV	Central Valley	Sierra	1.07	1.05	<1.05	1.04	1.07	System adjustments or voltage support if needed
BELL 115 KV	Central Valley	Sierra	1.05	1.06	1.06	<1.05	1.04	System adjustments or voltage support if needed
BELL 115 KV	Central Valley	Sierra	1.05	1.06	<1.05	1.04	1.04	System adjustments or voltage support if needed
BOGUE 115 KV	Central Valley	Sierra	1.04	1.06	1.06	<1.05	1.04	System adjustments or voltage support if needed
BOGUE 115 KV	Central Valley	Sierra	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
BRIGHTON 115 KV	Central Valley	Sacramento	1.08	1.07	1.08	<1.05	1.07	System adjustments or voltage support if needed
BRIGHTON 115 KV	Central Valley	Sacramento	1.08	1.08	<1.05	1.06	1.07	System adjustments or voltage support if needed
CLAY 60 KV	Central Valley	Stockton	1.04	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
CORTINA 230 KV	Central Valley	Sacramento	1.02	1.03	1.05	<1.05	1.02	System adjustments or voltage support if needed
CORTINA 230 KV	Central Valley	Sacramento	1.02	1.05	<1.05	1.03	1.01	System adjustments or voltage support if needed
CROW CREEK SW STA 60 KV	Central Valley	Stanislaus	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
CROW CREEK SW STA 60 KV	Central Valley	Stanislaus	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
CROWS LANDING 60 KV	Central Valley	Stanislaus	1.05	1.06	1.06	<1.05	1.05	System adjustments or voltage support if needed
CROWS LANDING 60 KV	Central Valley	Stanislaus	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
CURTIS 115 KV	Central Valley	Stanislaus	1.04	1.04	1.06	<1.05	1.05	System adjustments or voltage support if needed
CURTIS 115 KV	Central Valley	Stanislaus	1.04	1.06	<1.05	1.04	1.05	System adjustments or voltage support if needed
DAVIS 115 KV	Central Valley	Sacramento	1.05	1.07	1.07	<1.05	1.05	System adjustments or voltage support if needed
DAVIS 115 KV	Central Valley	Sacramento	1.05	1.07	<1.05	1.05	1.04	System adjustments or voltage support if needed
DIXON 60 KV	Central Valley	Sacramento	1.04	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
DRUM #1 PH 115 KV	Central Valley	Sierra	1.06	1.06	1.07	<1.05	1.06	System adjustments or voltage support if needed
DRUM #1 PH 115 KV	Central Valley	Sierra	1.06	1.07	<1.05	1.05	1.05	System adjustments or voltage support if needed
EAST MARYSVILLE 115 KV	Central Valley	Sierra	1.06	1.07	1.08	<1.05	1.05	System adjustments or voltage support if needed
EAST MARYSVILLE 115 KV	Central Valley	Sierra	1.06	1.08	<1.05	1.07	1.05	System adjustments or voltage support if needed
EAST NICOLAUS 115 KV	Central Valley	Sierra	1.05	1.06	1.06	<1.05	1.05	System adjustments or voltage support if needed
EAST NICOLAUS 115 KV	Central Valley	Sierra	1.05	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
EL DORADO PH 115 KV	Central Valley	Sierra	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
EL DORADO PH 115 KV	Central Valley	Sierra	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
FROGTOWN 115 KV	Central Valley	Stockton	1.05	1.05	1.06	<1.05	1.06	System adjustments or voltage support if needed
FROGTOWN 115 KV	Central Valley	Stockton	1.05	1.06	<1.05	1.05	1.06	System adjustments or voltage support if needed
GOLD HILL 115 KV	Central Valley	Sierra	1.05	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed
GOLD HILL 115 KV	Central Valley	Sierra	1.05	1.05	<1.05	1.04	1.05	System adjustments or voltage support if needed
GRAND ISLAND 115 KV	Central Valley	Sacramento	1.07	1.08	1.08	<1.05	1.07	System adjustments or voltage support if needed
GRAND ISLAND 115 KV	Central Valley	Sacramento	1.07	1.08	<1.05	1.07	1.06	System adjustments or voltage support if needed
HERDLYN 60 KV	Central Valley	Stockton	1.05	1.05	1.06	<1.05	1.06	System adjustments or voltage support if needed
HERDLYN 60 KV	Central Valley	Stockton	1.05	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed
HIGGINS 115 KV	Central Valley	Sierra	1.05	1.06	1.07	<1.05	1.05	System adjustments or voltage support if needed
HIGGINS 115 KV	Central Valley	Sierra	1.05	1.07	<1.05	1.04	1.04	System adjustments or voltage support if needed
HORSESHOE 115 KV	Central Valley	Sierra	1.05	1.05	1.05	<1.05	1.04	System adjustments or voltage support if needed
HORSESHOE 115 KV	Central Valley	Sierra	1.05	1.05	<1.05	1.04	1.04	System adjustments or voltage support if needed
LAMMERS 115 KV	Central Valley	Stockton	1.04	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed
LAMMERS 115 KV	Central Valley	Stockton	1.04	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
LINCOLN 115 KV	Central Valley	Sierra	1.04	1.05	1.06	<1.05	1.04	System adjustments or voltage support if needed
LINCOLN 115 KV	Central Valley	Sierra	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
MELONES SW STA 115 KV	Central Valley	Stanislaus	1.05	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed
MELONES SW STA 115 KV	Central Valley	Stanislaus	1.05	1.06	<1.05	1.04	1.05	System adjustments or voltage support if needed
MERIDIAN 60 KV	Central Valley	Sacramento	1.07	1.04	1.03	<1.05	1.06	System adjustments or voltage support if needed

Bus/Substation	Area	Zone	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)		Remarks - Potential Mitigation Solutions
			1.07	1.03	<1.05	1.01	1.06	1.03	
MERIDIAN 60 kV	Central Valley	Sacramento	1.07	1.03	<1.05	1.01	1.06	System adjustments or voltage support if needed	
MI-WUK 115 kV	Central Valley	Stanislaus	1.04	1.05	1.06	<1.05	1.05	System adjustments or voltage support if needed	
MI-WUK 115 kV	Central Valley	Stanislaus	1.04	1.06	<1.05	1.04	1.05	System adjustments or voltage support if needed	
PLACER 115 kV	Central Valley	Sierra	1.04	1.05	1.06	<1.05	1.04	System adjustments or voltage support if needed	
PLACER 115 kV	Central Valley	Sierra	1.04	1.06	<1.05	1.04	1.04	System adjustments or voltage support if needed	
PLAINFIELD 60 kV	Central Valley	Sacramento	1.02	1.07	1.12	<1.05	1.03	System adjustments or voltage support if needed	
PLAINFIELD 60 kV	Central Valley	Sacramento	1.02	1.12	<1.05	1.04	1.03	System adjustments or voltage support if needed	
PLEASANT GROVE 115 kV	Central Valley	Sierra	1.04	1.05	1.06	<1.05	1.04	System adjustments or voltage support if needed	
PLEASANT GROVE 115 kV	Central Valley	Sierra	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed	
RIO OSO 115 kV	Central Valley	Sierra	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed	
RIO OSO 115 kV	Central Valley	Sierra	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed	
SALADO 60 kV	Central Valley	Stanislaus	1.05	1.05	1.06	<1.05	1.06	System adjustments or voltage support if needed	
SALADO 60 kV	Central Valley	Stanislaus	1.05	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed	
SCHULTE SW STA 115 kV	Central Valley	Stockton	1.04	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed	
SCHULTE SW STA 115 kV	Central Valley	Stockton	1.04	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed	
STANISLAUS PH 115 kV	Central Valley	Stockton	1.06	1.06	1.07	<1.05	1.06	System adjustments or voltage support if needed	
STANISLAUS PH 115 kV	Central Valley	Stockton	1.06	1.07	<1.05	1.05	1.06	System adjustments or voltage support if needed	
STOCKTON A 115 kV	Central Valley	Stockton	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed	
STOCKTON A 115 kV	Central Valley	Stockton	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed	
TESLA 115 kV	Central Valley	Stockton	1.05	1.04	1.06	<1.05	1.06	System adjustments or voltage support if needed	
TESLA 115 kV	Central Valley	Stockton	1.05	1.06	<1.05	1.05	1.06	System adjustments or voltage support if needed	
VACA DIXON 60 kV	Central Valley	Sacramento	1.05	1.06	1.05	<1.05	1.05	System adjustments or voltage support if needed	
VACA DIXON 60 kV	Central Valley	Sacramento	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed	
VALLEY SPRINGS 60 kV	Central Valley	Stockton	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed	
VALLEY SPRINGS 60 kV	Central Valley	Stockton	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed	
WEST SACRAMENTO 115 kV	Central Valley	Sacramento	1.06	1.07	1.07	<1.05	1.05	System adjustments or voltage support if needed	
WEST SACRAMENTO 115 kV	Central Valley	Sacramento	1.06	1.07	<1.05	1.06	1.05	System adjustments or voltage support if needed	
WOODLAND 115 kV	Central Valley	Sacramento	1.05	1.06	1.06	<1.05	1.05	System adjustments or voltage support if needed	
WOODLAND 115 kV	Central Valley	Sacramento	1.05	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed	
ALMADEN 60 kV	Greater Bay Area	San Jose	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed	
ALMADEN 60 kV	Greater Bay Area	San Jose	1.06	1.04	<1.05	<1.05	1.06	System adjustments or voltage support if needed	
ALMADEN 60 kV	Greater Bay Area	San Jose	1.06	1.04	<1.05	<1.05	1.06	System adjustments or voltage support if needed	
ALMADEN 60 kV	Greater Bay Area	San Jose	1.06	1.05	<1.05	<1.05	1.06	System adjustments or voltage support if needed	
ALMADEN 60 kV	Greater Bay Area	San Jose	1.06	1.05	<1.05	1.04	1.06	System adjustments or voltage support if needed	
CLAYTON 115 kV	Greater Bay Area	Diablo	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed	
CLAYTON 115 kV	Greater Bay Area	Diablo	1.04	1.06	<1.05	1.06	1.04	System adjustments or voltage support if needed	
DIXON LANDING 115 kV	Greater Bay Area	San Jose	1.07	1.07	<1.05	<1.05	1.07	System adjustments or voltage support if needed	
EDEVVALE 115 kV	Greater Bay Area	San Jose	1.07	1.06	<1.05	<1.05	1.07	System adjustments or voltage support if needed	
EDEVVALE 115 kV	Greater Bay Area	San Jose	1.07	1.07	<1.05	1.06	1.07	System adjustments or voltage support if needed	
EL PATIO 115 kV	Greater Bay Area	San Jose	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed	
EVERGREEN 115 kV	Greater Bay Area	San Jose	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed	
EVERGREEN 60 kV	Greater Bay Area	San Jose	<1.05	1.08	<1.05	<1.05	<1.05	System adjustments or voltage support if needed	
EVERGREEN 60 kV	Greater Bay Area	San Jose	1.06	1.04	<1.05	<1.05	1.06	System adjustments or voltage support if needed	
EVERGREEN 60 kV	Greater Bay Area	San Jose	1.06	1.05	<1.05	1.04	1.06	System adjustments or voltage support if needed	
EXCELSIOR SW STA 115 kV	Greater Bay Area	San Jose	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed	
JARVIS 115 kV	Greater Bay Area	Mission	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed	
JARVIS 115 kV	Greater Bay Area	Mission	1.04	1.06	<1.05	1.04	1.04	System adjustments or voltage support if needed	
KIRKER 115 kV	Greater Bay Area	Diablo	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed	
KIRKER 115 kV	Greater Bay Area	Diablo	1.05	1.07	<1.05	1.06	1.04	System adjustments or voltage support if needed	
LOS GATOS 60 kV	Greater Bay Area	De Anza	1.05	1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed	
LOS GATOS 60 kV	Greater Bay Area	De Anza	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed	
MCKEE 115 kV	Greater Bay Area	San Jose	1.07	1.07	<1.05	<1.05	1.07	System adjustments or voltage support if needed	
MCKEE 115 kV	Greater Bay Area	San Jose	1.05	1.05	<1.05	<1.05	1.05	System adjustments or voltage support if needed	
MCKEE 115 kV	Greater Bay Area	San Jose	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed	
MEADOW LANE 115 kV	Greater Bay Area	Diablo	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed	
MEADOW LANE 115 kV	Greater Bay Area	Diablo	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed	

Bus/Substation	Area	Zone	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Product & Detailed Mitigation Solutions
MONTA VISTA 230 kV	Greater Bay Area	De Anza	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
PIERCY 115 kV	Greater Bay Area	San Jose	1.06	1.06	<1.05	<1.05	1.06	System adjustments or voltage support if needed
PIERCY 115 kV	Greater Bay Area	San Jose	1.06	1.06	<1.05	1.05	1.06	System adjustments or voltage support if needed
SAN JOSE A 115 kV	Greater Bay Area	San Jose	<1.05	1.05	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
SANTA TERESA 115 kV	Greater Bay Area	San Jose	1.07	1.06	<1.05	<1.05	1.07	System adjustments or voltage support if needed
SANTA TERESA 115 kV	Greater Bay Area	San Jose	1.07	1.06	<1.05	1.06	1.07	System adjustments or voltage support if needed
STONE 115 kV	Greater Bay Area	San Jose	<1.05	1.06	<1.05	<1.05	<1.05	System adjustments or voltage support if needed
SWIFT 115 kV	Greater Bay Area	San Jose	1.05	1.06	<1.05	1.05	1.05	System adjustments or voltage support if needed
AIRWAYS 115 kV	Greater Fresno	Fresno	1.03	1.06	1.07	<1.05	1.03	System adjustments or voltage support if needed
AIRWAYS 115 kV	Greater Fresno	Fresno	1.03	1.07	<1.05	1.06	1.03	System adjustments or voltage support if needed
ALPAUGH 115 kV	Greater Fresno	Fresno	1.04	1.03	<1.05	1.05	1.03	System adjustments or voltage support if needed
BARTON 115 kV	Greater Fresno	Fresno	1.02	1.05	1.07	<1.05	1.03	System adjustments or voltage support if needed
BARTON 115 kV	Greater Fresno	Fresno	1.02	1.07	<1.05	1.05	1.03	System adjustments or voltage support if needed
BORDEN 70 kV	Greater Fresno	Yosemite	1.08	1.08	1.10	<1.05	1.07	System adjustments or voltage support if needed
BORDEN 70 kV	Greater Fresno	Yosemite	1.06	1.07	1.11	<1.05	1.05	System adjustments or voltage support if needed
BORDEN 70 kV	Greater Fresno	Yosemite	1.08	1.10	<1.05	1.09	1.07	System adjustments or voltage support if needed
BULLARD 115 kV	Greater Fresno	Fresno	1.03	1.05	1.06	<1.05	1.03	System adjustments or voltage support if needed
BULLARD 115 kV	Greater Fresno	Fresno	1.03	1.06	<1.05	1.05	1.03	System adjustments or voltage support if needed
CALIFORNIA AVE 115 kV	Greater Fresno	Fresno	1.03	1.08	<1.05	1.07	1.03	System adjustments or voltage support if needed
CHOWCHILLA 115 kV	Greater Fresno	Yosemite	1.02	1.10	1.09	<1.05	1.02	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.07	1.12	<1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.08	1.13	<1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.08	1.13	<1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.06	1.12	<1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.03	1.05	1.14	<1.05	1.04	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	0.99	1.06	1.14	<1.05	1.01	System adjustments or voltage support if needed
COPPERMINE 70 kV	Greater Fresno	Fresno	1.04	1.12	<1.05	1.06	1.05	System adjustments or voltage support if needed
CORCORAN 115 kV	Greater Fresno	Fresno	1.03	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
CORCORAN 115 kV	Greater Fresno	Fresno	1.03	1.07	<1.05	1.05	1.03	System adjustments or voltage support if needed
CORCORAN 70 kV	Greater Fresno	Fresno	1.05	1.08	1.08	<1.05	1.06	System adjustments or voltage support if needed
CORCORAN 70 kV	Greater Fresno	Fresno	1.05	1.08	<1.05	1.07	1.05	System adjustments or voltage support if needed
DINUBA 70 kV	Greater Fresno	Fresno	1.07	1.04	1.14	<1.05	1.07	System adjustments or voltage support if needed
DINUBA 70 kV	Greater Fresno	Fresno	1.07	1.14	<1.05	1.03	1.07	System adjustments or voltage support if needed
EXCELSIOR SW STA 115 kV	Greater Fresno	Fresno	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
GLASS 70 kV	Greater Fresno	Yosemite	1.07	1.08	1.10	<1.05	1.06	System adjustments or voltage support if needed
GLASS 70 kV	Greater Fresno	Yosemite	1.06	1.07	1.11	<1.05	1.05	System adjustments or voltage support if needed
GLASS 70 kV	Greater Fresno	Yosemite	1.07	1.10	<1.05	1.09	1.07	System adjustments or voltage support if needed
GUERNSEY 70 kV	Greater Fresno	Fresno	1.04	1.07	1.06	<1.05	1.04	System adjustments or voltage support if needed
GUERNSEY 70 kV	Greater Fresno	Fresno	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
HAMMONDS 115 kV	Greater Fresno	Yosemite	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
HAMMONDS 115 kV	Greater Fresno	Yosemite	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
HERNDON 115 kV	Greater Fresno	Fresno	1.04	1.06	<1.05	1.04	1.04	System adjustments or voltage support if needed
KENT SW STA 70 kV	Greater Fresno	Fresno	1.05	1.04	1.04	<1.05	1.05	System adjustments or voltage support if needed
KENT SW STA 70 kV	Greater Fresno	Fresno	1.05	1.04	<1.05	1.05	1.05	System adjustments or voltage support if needed
KERCKHOFF #1 PH 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
KERCKHOFF #1 PH 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.06	1.04	System adjustments or voltage support if needed
KERCKHOFF #2 PH 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
KERCKHOFF #2 PH 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.06	1.04	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.12	1.12	<1.05	1.09	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.13	1.13	<1.05	1.09	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.12	1.13	<1.05	1.09	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.12	1.12	<1.05	1.09	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.12	1.12	<1.05	1.09	System adjustments or voltage support if needed
KINGSBURG 70 kV	Greater Fresno	Fresno	1.10	1.12	<1.05	1.10	1.10	System adjustments or voltage support if needed
MADERA 70 kV	Greater Fresno	Yosemite	1.08	1.08	1.10	<1.05	1.07	System adjustments or voltage support if needed
MADERA 70 kV	Greater Fresno	Yosemite	1.06	1.07	1.11	<1.05	1.05	System adjustments or voltage support if needed

2024-2025 ISO Reliability Assessment - Preliminary Study Results
 Study Area: Entire PG&E System
 High Voltages Under P0 Conditions



Bus/Substation	Area	Zone	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Product & Detailed Mitigation Solutions
MADERA 70 kV	Greater Fresno	Yosemite	1.08	1.10	<1.05	1.09	1.07	System adjustments or voltage support if needed
MALAGA 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
MALAGA 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.07	1.04	System adjustments or voltage support if needed
MANCHESTER 115 kV	Greater Fresno	Fresno	1.03	1.06	1.07	<1.05	1.03	System adjustments or voltage support if needed
MANCHESTER 115 kV	Greater Fresno	Fresno	1.03	1.07	<1.05	1.06	1.03	System adjustments or voltage support if needed
MCCALL 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
MCCALL 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.07	1.04	System adjustments or voltage support if needed
OROSI 70 kV	Greater Fresno	Fresno	1.07	1.04	1.15	<1.05	1.07	System adjustments or voltage support if needed
OROSI 70 kV	Greater Fresno	Fresno	1.07	1.15	<1.05	1.03	1.07	System adjustments or voltage support if needed
REEDLEY 115 kV	Greater Fresno	Fresno	1.02	1.08	1.08	<1.05	1.02	System adjustments or voltage support if needed
REEDLEY 115 kV	Greater Fresno	Fresno	1.02	1.08	<1.05	1.07	1.02	System adjustments or voltage support if needed
REEDLEY 70 kV	Greater Fresno	Fresno	1.08	1.04	1.14	<1.05	1.08	System adjustments or voltage support if needed
REEDLEY 70 kV	Greater Fresno	Fresno	1.08	1.14	<1.05	1.03	1.08	System adjustments or voltage support if needed
SANGER 115 kV	Greater Fresno	Fresno	1.04	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
SANGER 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.07	1.04	System adjustments or voltage support if needed
SCHINDLER 115 kV	Greater Fresno	Fresno	1.05	1.06	1.05	<1.05	1.05	System adjustments or voltage support if needed
SCHINDLER 115 kV	Greater Fresno	Fresno	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
SHEPHERD 115 kV	Greater Fresno	Fresno	1.04	1.06	1.07	<1.05	1.04	System adjustments or voltage support if needed
SHEPHERD 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.05	1.04	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.08	1.04	1.15	<1.05	1.08	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.05	1.13	<1.05	1.07	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.06	1.14	<1.05	1.07	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.06	1.14	<1.05	1.07	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.04	1.14	<1.05	1.07	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.04	1.04	1.14	<1.05	1.05	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.03	1.06	1.10	<1.05	1.03	System adjustments or voltage support if needed
TIVY VALLEY 70 kV	Greater Fresno	Fresno	1.06	1.07	<1.05	1.04	1.07	System adjustments or voltage support if needed
WAHTOKE 115 kV	Greater Fresno	Fresno	1.03	1.08	1.08	<1.05	1.03	System adjustments or voltage support if needed
WAHTOKE 115 kV	Greater Fresno	Fresno	1.03	1.08	<1.05	1.07	1.03	System adjustments or voltage support if needed
WAUKENA SW STA 115 kV	Greater Fresno	Fresno	1.03	1.07	1.07	<1.05	1.04	System adjustments or voltage support if needed
WAUKENA SW STA 115 kV	Greater Fresno	Fresno	1.03	1.07	<1.05	1.05	1.03	System adjustments or voltage support if needed
WEST FRESNO 115 kV	Greater Fresno	Fresno	1.02	1.08	1.08	<1.05	1.02	System adjustments or voltage support if needed
WEST FRESNO 115 kV	Greater Fresno	Fresno	1.02	1.08	<1.05	1.07	1.02	System adjustments or voltage support if needed
WOODWARD 115 kV	Greater Fresno	Fresno	1.04	1.06	1.07	<1.05	1.04	System adjustments or voltage support if needed
WOODWARD 115 kV	Greater Fresno	Fresno	1.04	1.07	<1.05	1.05	1.04	System adjustments or voltage support if needed
DIABLO CANYON 500 kV	ISO Bulk System	ISO Bulk System	1.07	1.05	<1.05	1.08	1.06	System adjustments or voltage support if needed
GATES 500 kV	ISO Bulk System	ISO Bulk System	1.05	1.04	<1.05	1.06	1.07	System adjustments or voltage support if needed
LOS BANOS 500 kV	ISO Bulk System	ISO Bulk System	1.05	1.04	<1.05	1.07	1.07	System adjustments or voltage support if needed
METCALF 500 kV	ISO Bulk System	ISO Bulk System	1.07	1.06	<1.05	1.06	1.07	System adjustments or voltage support if needed
MIDWAY 500 kV	ISO Bulk System	ISO Bulk System	1.06	1.06	<1.05	1.06	1.06	System adjustments or voltage support if needed
ROUND MTN 500 kV	ISO Bulk System	ISO Bulk System	1.08	1.08	<1.05	1.08	1.07	System adjustments or voltage support if needed
TABLE MOUNTAIN 500 kV	ISO Bulk System	ISO Bulk System	1.09	1.09	<1.05	1.09	1.08	System adjustments or voltage support if needed
TESLA 500 kV	ISO Bulk System	ISO Bulk System	1.08	1.07	<1.05	1.08	1.07	System adjustments or voltage support if needed
VACA DIXON 500 kV	ISO Bulk System	ISO Bulk System	1.09	1.08	<1.05	1.09	1.07	System adjustments or voltage support if needed
7th STANDARD 115 kV	Kern	Kern	1.04	1.05	<1.05	1.08	1.04	System adjustments or voltage support if needed
ARCO 70 kV	Kern	Kern	1.06	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
ARCO 70 kV	Kern	Kern	1.06	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
FAMOSO 115 kV	Kern	Kern	1.04	1.04	<1.05	1.05	1.04	System adjustments or voltage support if needed
KERN OIL 115 kV	Kern	Kern	1.04	1.05	<1.05	1.07	1.04	System adjustments or voltage support if needed
KERN PP 115 kV	Kern	Kern	1.05	1.05	<1.05	1.08	1.04	System adjustments or voltage support if needed
MAGUNDEN 115 kV	Kern	Kern	1.03	1.05	<1.05	1.07	1.03	System adjustments or voltage support if needed
MIDWAY 115 kV	Kern	Kern	1.05	1.04	<1.05	1.05	1.05	System adjustments or voltage support if needed
MIDWAY 115 kV	Kern	Kern	1.05	1.04	1.04	<1.05	1.06	System adjustments or voltage support if needed
SHAFTER 115 kV	Kern	Kern	1.05	1.04	<1.05	1.05	1.05	System adjustments or voltage support if needed
SHAFTER 115 kV	Kern	Kern	1.05	1.05	1.04	<1.05	1.05	System adjustments or voltage support if needed
SMYRNA 115 kV	Kern	Kern	1.04	1.04	<1.05	1.05	1.04	System adjustments or voltage support if needed

Bus/Substation	Area	Zone	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Remarks & Potential Mitigation Solutions
			1.03	1.04	1.03	<1.05	1.03	
TEJON 70 kV	Kern	Kern	1.03	1.04	1.03	<1.05	1.03	System adjustments or voltage support if needed
TULPMAN 115 kV	Kern	Kern	1.05	1.05	1.04	<1.05	1.05	System adjustments or voltage support if needed
WESTPARK 115 kV	Kern	Kern	1.04	1.05	<1.05	1.08	1.04	System adjustments or voltage support if needed
WESTPARK 115 kV	Kern	Kern	1.04	1.05	1.05	<1.05	1.04	System adjustments or voltage support if needed
ALTO 60 kV	North Coast/North Bay	North Bay	1.02	1.05	<1.05	<1.05	1.03	System adjustments or voltage support if needed
CARQUINEZ 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
CARQUINEZ 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	<1.05	1.06	System adjustments or voltage support if needed
CLOVERDALE 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
CLOVERDALE 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	<1.05	1.04	System adjustments or voltage support if needed
COTATI 60 kV	North Coast/North Bay	N. Coast	1.05	1.04	<1.05	1.03	1.05	System adjustments or voltage support if needed
COTATI 60 kV	North Coast/North Bay	N. Coast	1.05	1.04	<1.05	<1.05	1.05	System adjustments or voltage support if needed
EAGLE ROCK 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
EAGLE ROCK 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
FULTON 115 kV	North Coast/North Bay	N. Coast	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
FULTON 115 kV	North Coast/North Bay	N. Coast	1.06	1.06	<1.05	<1.05	1.06	System adjustments or voltage support if needed
FULTON 60 kV	North Coast/North Bay	N. Coast	1.05	1.05	<1.05	1.05	1.05	System adjustments or voltage support if needed
GEYSERS #3 & #4 PP 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
GEYSERS #3 & #4 PP 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
GREENBRAE 60 kV	North Coast/North Bay	North Bay	1.02	1.05	<1.05	<1.05	1.03	System adjustments or voltage support if needed
HIGHLANDS 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
HIGHLANDS 115 kV	North Coast/North Bay	N. Coast	1.04	1.05	<1.05	<1.05	1.04	System adjustments or voltage support if needed
HOPLAND 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
HOPLAND 115 kV	North Coast/North Bay	N. Coast	1.04	1.07	<1.05	<1.05	1.04	System adjustments or voltage support if needed
IGNACIO 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	1.07	1.07	System adjustments or voltage support if needed
IGNACIO 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	<1.05	1.07	System adjustments or voltage support if needed
LAS GALLINAS A 115 kV	North Coast/North Bay	North Bay	1.06	1.08	<1.05	1.07	1.06	System adjustments or voltage support if needed
LAS GALLINAS A 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	<1.05	1.06	System adjustments or voltage support if needed
MENDOCINO 115 kV	North Coast/North Bay	N. Coast	1.05	1.07	<1.05	1.06	1.04	System adjustments or voltage support if needed
MENDOCINO 115 kV	North Coast/North Bay	N. Coast	1.05	1.08	<1.05	<1.05	1.04	System adjustments or voltage support if needed
REDBUD 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	1.06	1.04	System adjustments or voltage support if needed
REDBUD 115 kV	North Coast/North Bay	N. Coast	1.04	1.07	<1.05	<1.05	1.04	System adjustments or voltage support if needed
SAN RAFAEL 115 kV	North Coast/North Bay	North Bay	1.06	1.08	<1.05	1.07	1.06	System adjustments or voltage support if needed
SAN RAFAEL 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	<1.05	1.06	System adjustments or voltage support if needed
SANTA ROSA A 115 kV	North Coast/North Bay	N. Coast	1.05	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed
SANTA ROSA A 115 kV	North Coast/North Bay	N. Coast	1.05	1.06	<1.05	<1.05	1.05	System adjustments or voltage support if needed
SILVERADO 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	1.07	1.06	System adjustments or voltage support if needed
SILVERADO 115 kV	North Coast/North Bay	North Bay	1.06	1.07	<1.05	<1.05	1.06	System adjustments or voltage support if needed
UKIAH 115 kV	North Coast/North Bay	N. Coast	1.04	1.06	<1.05	1.05	1.04	System adjustments or voltage support if needed
UKIAH 115 kV	North Coast/North Bay	N. Coast	1.04	1.07	<1.05	<1.05	1.04	System adjustments or voltage support if needed
BUTTE 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
BUTTE 115 kV	North Valley	North Valley	1.05	1.06	1.05	<1.05	1.04	System adjustments or voltage support if needed
CASCADE 115 kV	North Valley	North Valley	1.10	1.07	1.08	<1.05	1.10	System adjustments or voltage support if needed
NORD 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
NORD 115 kV	North Valley	North Valley	1.05	1.06	1.05	<1.05	1.04	System adjustments or voltage support if needed
NOTRE DAME 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
NOTRE DAME 115 kV	North Valley	North Valley	1.05	1.06	1.05	<1.05	1.04	System adjustments or voltage support if needed
PALERMO 115 kV	North Valley	North Valley	1.06	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed
PALERMO 115 kV	North Valley	North Valley	1.06	1.06	1.06	<1.05	1.06	System adjustments or voltage support if needed
PARADISE 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
PARADISE 115 kV	North Valley	North Valley	1.05	1.05	1.05	<1.05	1.05	System adjustments or voltage support if needed
RED BLUFF 60 kV	North Valley	North Valley	1.05	1.05	<1.05	1.04	1.05	System adjustments or voltage support if needed
RED BLUFF 60 kV	North Valley	North Valley	1.05	1.04	1.05	<1.05	1.05	System adjustments or voltage support if needed
SYCAMORE CREEK 115 kV	North Valley	North Valley	1.05	1.05	<1.05	1.05	1.04	System adjustments or voltage support if needed
SYCAMORE CREEK 115 kV	North Valley	North Valley	1.05	1.06	1.05	<1.05	1.04	System adjustments or voltage support if needed
WYANDOTTE 115 kV	North Valley	North Valley	1.06	1.06	<1.05	1.06	1.05	System adjustments or voltage support if needed
WYANDOTTE 115 kV	North Valley	North Valley	1.06	1.06	1.06	<1.05	1.06	System adjustments or voltage support if needed