



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
AMES-Mountain View 115 kV	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	137	141	176	94	41	92	98	117	107	59	142	186	Project: Monta Vista 115kV BAAH Bus #1&2 redundant relay
AMES-Whisman 115 kV	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	145	155	187	100	46	83	90	112	117	67	156	205	Project: Monta Vista 115kV BAAH Bus #1&2 redundant relay
Bair 115/60kV Transformer #1	CLY LND 115/60KV TB 1 & CLY LND2 115/60KV TB 2	P6	N-1-1	164	164	189	117	<100	140	149	0	129	<100	167	188	Operating solution
Bair-Cooley Landing #1 60kV Line	CLY LND 115/60KV TB 1 & CLY LND2 115/60KV TB 2	P6	N-1-1	143	144	180	<100	<100	111	119	0	109	<100	147	181	Operating solution
Bair-Cooley Landing #2 60kV Line	CLY LND 115/60KV TB 1 & CLY LND2 115/60KV TB 2	P6	N-1-1	130	129	163	<100	<100	<100	<100	0	107	<100	132	164	Operating solution
Birds Landing - Contra Costa Sub 230 kV Line	C.COSTAPPD 230KV SECTION 1D	P2	Bus/Breaker	82	91	88	66	16	70	52	61	85	52	93	110	Sensitivity only
	C.COSTAPPD - 1D 230KV & MARSHLD1-C.COSTAPPD #1 LINE	P2	Bus/Breaker	82	91	88	66	16	70	52	61	85	52	93	110	Sensitivity only
Britton-Monta Vista 115 kV Line	LAWRENCE-MONTA VISTA 115KV [2090]	P1	N-1	56	59	72	30	37	43	49	50	52	25	59	100	Sensitivity only
	NEWARK F 115KV SECTION 2Z	P2	Bus/Breaker	80	86	105	39	40	60	68	75	75	32	87	135	Continue to monitor future load forecast
Cayetano-Lone Tree (Lone Tree-USWP) 230kV Line	Base Case	P0	Normal	87	98	87	57	15	44	61	70	51	25	98	100	Sensitivity only
	CONTRA COSTA-LAS POSITAS 230KV [4510]	P1	N-1	91	101	91	59	16	49	68	78	54	27	101	104	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	98	111	113	66	20	62	77	94	65	34	112	124	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	NEWARK D 230KV SECTION 1D	P2	Bus/Breaker	93	105	107	59	19	59	73	90	59	32	106	122	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPF 230KV SECTION 1F	P2	Bus/Breaker	95	104	88	62	10	43	70	78	50	26	103	105	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPF - 2F 230KV & CONTRA COSTA-DELTA SWITCHYARD LINE	P2	Bus/Breaker	94	103	87	62	9	42	69	77	50	25	103	104	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPF - 2F 230KV & CONTRA COSTA-MORAGA #2 LINE	P2	Bus/Breaker	94	103	87	62	9	42	69	77	50	25	103	104	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	MORAGA 230KV - SECTION 2D & 1D	P2	Bus/Breaker	101	112	84	67	23	55	78	72	58	34	114	97	Project: Moraga 230 kV bus upgrade
	MORAGA 230kV Bus #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	103	114	102	68	24	56	79	89	59	35	115	118	Project: Moraga 230 kV bus upgrade
	P7-1:A16:5_Tesla-Newark No.1 and Tesla-Ravenswood 230 kV lines	P7	DCTL	92	104	95	60	24	55	72	81	56	32	105	108	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	P7-1:A8:4_Contra Costa-Moraga Nos. 1 & 2 230 kV lines	P7	DCTL	96	107	94	63	21	51	74	83	52	31	107	109	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	P7-1:A16:7_Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	89	99	91	58	18	51	67	76	56	27	99	104	Sensitivity only
	CONTRA COSTA-LAS POSITAS 230KV [4510]	P1	N-1	99	101	90	63	21	51	70	80	65	40	101	104	Contra Coasta area generation redispatch
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	106	111	113	69	25	65	79	96	77	45	112	124	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	NEWARK D 230KV SECTION 1D	P2	Bus/Breaker	101	105	107	63	24	61	75	92	71	43	106	122	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch



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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Cayetano-Lone Tree (USWP-Cayetano) 230kV Line	C.COSTAPPF 230KV SECTION 1F	P2	Bus/Breaker	103	104	87	66	15	45	72	80	62	38	103	105	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPF - 2F 230KV & CONTRA COSTA-DELTA SWITCHYARD LINE	P2	Bus/Breaker	103	103	87	66	14	44	71	79	62	38	103	104	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPF - 2F 230KV & CONTRA COSTA-MORAGA #2 LINE	P2	Bus/Breaker	103	103	87	66	14	44	71	79	62	38	103	104	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	MORAGA 230KV - SECTION 2D & 1D	P2	Bus/Breaker	110	112	83	71	28	58	80	74	70	46	114	96	Project: Moraga 230 kV bus upgrade
	MORAGA 230kV Bus #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	111	114	102	72	28	59	81	91	71	47	115	118	Project: Moraga 230 kV bus upgrade
	P7-1:A16:5_Tesla-Newark No.1 and Tesla-Ravenswood 230 kV lines	P7	DCTL	100	104	95	64	28	58	74	83	68	44	104	108	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	P7-1:A8:4_Contra Costa-Moraga Nos. 1 & 2 230 kV lines	P7	DCTL	105	107	94	67	25	54	76	85	64	44	107	109	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	P7-1:A16:7_Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	97	99	91	62	23	54	70	78	68	40	99	104	Sensitivity only
Christie-Sobrante (Oleum-Sobrante)	P7-1:A7:3_Sobrante-G Nos. 1 & 2 115 kV lines	P7	DCTL	130	127	79	37	44	99	107	56	87	43	128	76	Project: Christie-Sobrante 115 kV line reconductoring
Contra Costa-Las Positas 230kV Line	C.COSTAPPE SECTION 1E & C.COSTAPPF SECTION 1F 230KV	P2	Bus/Breaker	104	110	93	80	17	64	86	95	64	40	111	120	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE 230KV - SECTION 2E & 1E	P2	Bus/Breaker	104	110	93	80	17	64	86	95	64	40	111	120	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE 230KV SECTION 1E	P2	Bus/Breaker	104	110	93	80	17	64	86	95	64	40	111	120	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Bus/Breaker	104	110	93	80	17	64	86	95	64	40	111	120	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE 230KV SECTION 2E	P2	Bus/Breaker	101	106	87	73	13	56	85	93	55	32	107	112	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
Cooley Landing 115 kV Bus Tie	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	137	138	150	97	82	99	95	Diverge	126	86	139	Diverge	Protection upgrade
Eastshore 230/115kV Transformer #1	E. SHORE 230KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	105	62	92	21	8	105	65	77	105	9	63	91	Project: East Shore 230 kV Bus Terminals Reconfiguration
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & E. SHORE 230/115KV TB 2	P3	G-1/N-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor future load forecast
	NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & E. SHORE 230/115KV TB 2	P6	N-1-1	<100	<100	109	<100	<100	<100	<100	<100	<100	<100	<100	107	Continue to monitor future load forecast
Eastshore 230/115kV Transformer #2	E. SHORE 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	63	105	92	17	1	66	103	76	57	10	105	91	Continue to monitor future load forecast
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & E. SHORE 230/115KV TB 1	P3	G-1/N-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor future load forecast
	NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & E. SHORE 230/115KV TB 1	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	<100	<100	106	Continue to monitor future load forecast
	Base Case	P0	Normal	67	80	87	36	47	43	61	55	62	30	81	105	Sensitivity only
	SAN JOSE B-STONE-EVERGREEN 115KV [1550]	P1	N-1	73	89	96	37	57	54	77	68	71	35	90	117	Sensitivity only

Study Area: **PG&E Greater Bay Area**
Thermal Overloads



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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
El Patio-San Jose Sta. 'A' 115 kV Line	METCALF-EVERGREEN #1 115KV [2520]	P1	N-1	73	86	94	40	48	53	73	68	67	32	87	112	Sensitivity only
	LOS ESTEROS-METCALF 230KV [5353]	P1	N-1	70	83	90	38	50	52	72	65	64	31	83	108	Sensitivity only
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	63	78	89	39	46	43	61	65	55	34	79	109	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	69	82	88	36	46	52	71	65	65	30	83	107	Sensitivity only
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	102	126	123	51	79	75	118	110	97	45	126	139	Project: SVP breaker upgrade project
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	116	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	108	Sensitivity only
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	82	102	141	50	52	55	79	89	71	41	103	163	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	96	113	125	48	63	76	100	90	91	38	114	167	San Jose area mitigation
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	80	96	119	49	47	55	74	81	69	41	97	157	San Jose area mitigation
	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	76	87	103	42	49	55	74	72	68	33	88	128	San Jose area mitigation
	NEWARK E-F BUS TIE 230KV [4640] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	123	134	<100	<100	<100	<100	106	<100	<100	124	<100	San Jose area mitigation
	NEWARK-LOS ESTEROS 230KV [2970] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	114	122	<100	<100	<100	<100	0	<100	<100	115	<100	San Jose area mitigation
	NEWARK E-F BUS TIE 230KV [4640] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	135	San Jose area mitigation
	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	103	119	133	59	61	76	99	96	91	45	120	156	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	100	115	126	50	66	79	103	93	94	41	116	161	San Jose area mitigation
	P7-1:A16:7_Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	79	92	101	44	53	60	79	73	72	34	92	120	San Jose area mitigation
	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	77	89	99	44	45	44	57	55	68	34	90	117	Sensitivity only
	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	75	87	97	42	48	55	74	70	67	33	87	116	Sensitivity only
	P7-1:A18:26_Evergreen - San Jose B & Evergreen-Mabury 60 kV Line	P7	DCTL	73	89	96	37	56	54	76	68	71	34	90	117	Sensitivity only
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	75	86	94	38	50	45	59	53	70	31	87	120	Sensitivity only
Evergreen-Almaden 60 kV Line	MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	101	102	120	80	17	74	77	91	66	40	103	124	Disable automatics



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FMC-San Jose 'B' 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	137	205	192	60	132	97	182	179	135	59	204	192	Project: SVP breaker upgrade project
	NRS 300 115 kV bus	P2	Bus/Breaker	49	96	126	19	55	34	63	76	48	19	95	122	San Jose area mitigation
	SRS 115 kV bus	P2	Bus/Breaker	64	114	106	14	56	47	64	Diverge	64	14	114	108	Project: SVP SRS bus upgrade
	NRS 400 115 kV bus	P2	Bus/Breaker	55	76	105	21	59	43	61	62	57	23	76	105	San Jose area mitigation
	KRS-DUANE 115kV (SVP) & NEWARK F-ZANKER-KRS 115KV [0]	P6	N-1-1	<100	109	127	<100	<100	<100	<100	0	<100	<100	109	167	San Jose area mitigation
Jefferson-Hillsdale JCT 60kV Line	JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	263	270	263	168	127	147	220	221	176	110	275	263	Project: Jefferson 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	261	269	263	163	123	145	219	223	171	107	273	262	Project: Jefferson 230 kV Bus Upgrade
	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	263	62	56	168	28	147	45	Diverge	175	110	63	55	Project: Jefferson 230 kV Bus Upgrade
Jefferson-Stanford #1 60kV Line	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	102	<100	<100	<100	<100	<100	<100	<100	<100	103	Project: Jefferson 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	145	144	136	125	104	75	141	129	112	102	143	135	Project: Jefferson 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	145	143	135	127	106	76	140	127	115	104	141	134	Project: Jefferson 230 kV Bus Upgrade
	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	93	92	100	93	86	61	91	95	86	86	92	102	Continue to monitor future load forecast
	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	142	93	94	127	86	76	93	Diverge	115	104	93	94	Project: Jefferson 230 kV Bus Upgrade
Kifer-Duane 115 kV Line	FMC-SAN JOSE B 115KV [2021]	P1	N-1	72	83	95	43	59	62	70	83	69	41	83	106	Sensitivity only
	NEWARK F-ZANKER-KRS 115KV [0]	P1	N-1	70	78	93	40	45	59	62	80	67	37	79	106	Sensitivity only
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	82	130	120	<100	70	59	122	121	82	<100	130	117	Project: SVP breaker upgrade project
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NRS-AGNEW 60kV (SVP)	P3	G-1/N-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	FMC-SAN JOSE B 115KV [2021] & NEWARK F-ZANKER-KRS 115KV [0]	P6	N-1-1	<100	123	<100	<100	<100	<100	0	115	<100	<100	123	<100	Sensitivity only
	P7-1:A18:14_Newark - Kifer & FMC - Kifer 115 kV Lines	P7	DCTL	83	107	123	36	69	69	87	102	83	36	108	125	San Jose area mitigation
	P7-1:A16:17_Newark-Kifer 115 kV and Newark-Trimble 115 kV lines	P7	DCTL	71	80	95	40	46	60	63	80	68	37	80	108	Sensitivity only
	P7-1:A18:7_Newark - Kifer & Newark - Trimble 115 kV Lines	P7	DCTL	71	80	95	40	46	60	63	80	68	37	80	108	Sensitivity only
	P7-1:A18:11_Trimble - San Jose B & FMC - San Jose B 115 kV Lines	P7	DCTL	72	83	94	43	58	62	69	83	69	41	83	106	Sensitivity only
	P7-1:A18:8_Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	70	69	83	50	38	58	53	73	61	46	69	105	Sensitivity only
Kifer-FMC 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	191	307	279	74	198	145	293	282	190	75	306	261	Project: SVP breaker upgrade project
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	117	188	171	46	121	84	170	163	117	46	188	160	Project: SVP breaker upgrade project
	NRS 300 115 kV bus	P2	Bus/Breaker	31	78	105	6	45	22	49	61	31	6	77	91	San Jose area mitigation
	KRS-DUANE 115kV (SVP) & NEWARK F-ZANKER-KRS 115KV [0]	P6	N-1-1	<100	146	169	<100	<100	<100	106	0	<100	<100	146	208	San Jose area mitigation

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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
	SSS-NRS 230kV (SVP) & LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	<100	<100	114	<100	<100	<100	<100	<100	<100	<100	<100	104	San Jose area mitigation
Las Positas-Newark 230kV Line	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Bus/Breaker	142	151	120	113	25	60	86	97	89	63	153	168	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE 230KV SECTION 1E	P2	Bus/Breaker	142	151	120	113	25	60	86	97	89	63	153	168	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE 230KV - SECTION 2E & 1E	P2	Bus/Breaker	142	151	120	113	25	60	86	97	89	63	153	168	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE SECTION 1E & C.COSTAPPF SECTION 1F 230KV	P2	Bus/Breaker	142	151	120	113	25	60	86	97	89	63	153	168	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	C.COSTAPPE 230KV SECTION 2E	P2	Bus/Breaker	139	147	111	102	20	50	86	96	75	50	147	155	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	MORAGA 230kV Bus #1 & 2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	106	112	95	71	33	43	68	78	67	52	112	118	Project: Moraga 230 kV bus upgrade
	P7-1:A16:5_Tesla-Newark No.1 and Tesla-Ravenswood 230 kV lines	P7	DCTL	93	100	88	61	35	44	62	71	66	50	100	106	Contra Coasta area generation redispatch
	P7-1:A8:4_Contra Costa-Moraga Nos. 1 & 2 230 kV lines	P7	DCTL	98	103	85	65	30	38	63	72	59	48	103	107	Contra Coasta area generation redispatch
	P7-1:A16:7_Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	89	95	82	59	28	38	57	64	66	44	95	101	Contra Coasta area generation redispatch
Lawrence - Monta Vista 115 kV	Base Case	P0	Normal	53	56	71	32	35	30	34	34	49	27	56	106	Sensitivity only
	BRITTON-MONTA VISTA 115KV [1170]	P1	N-1	55	58	74	33	36	33	37	38	51	28	58	123	Sensitivity only
	NEWARK F-LAWRENCE-LOCKHD 1 115KV [0]	P1	N-1	66	66	69	42	28	38	39	42	63	40	66	122	Sensitivity only
	NEWARK F-LOCKHD 2-APP MAT 115KV [0]	P1	N-1	44	47	61	26	30	26	30	30	40	22	47	112	Sensitivity only
	NEWARK F 115KV SECTION 2Z	P2	Bus/Breaker	82	90	113	44	39	48	54	60	78	37	90	164	Continue to monitor future load forecast
	NEWARK F 115KV SECTION 2Z	P2	Bus/Breaker	58	63	79	31	28	42	48	52	55	26	64	115	Sensitivity only
Lockheed #2 115 kV Tap	LAWRENCE-MONTA VISTA 115KV [2090]	P1	N-1	0	0	0	0	0	0	0	0	0	0	0	111	Sensitivity only
Los Esteros 230/115 kV Trans No. 3	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & LS ESTRS 230/115KV TB 4	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	105	Sensitivity only
	SSS-NRS 230kV (SVP) & LS ESTRS 230/115KV TB 4	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	109	Sensitivity only
Los Esteros 230/115 kV Trans No. 4	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & LS ESTRS 230/115KV TB 3	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	105	Sensitivity only
	SSS-NRS 230kV (SVP) & LS ESTRS 230/115KV TB 3	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	109	Sensitivity only
Los Esteros-Metcalf 230 kV Line	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	81	88	93	33	52	71	82	74	76	26	88	104	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	90	97	103	47	55	80	90	83	84	36	98	112	San Jose area mitigation
	NEWARK E 230KV - SECTION 1E & 2E	P2	Bus/Breaker	89	96	102	36	53	78	89	81	84	28	97	112	San Jose area mitigation
	NEWARK E 230KV SECTION 1E	P2	Bus/Breaker	83	89	94	43	51	73	83	75	78	32	89	105	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	121	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation

Study Area: **PG&E Greater Bay Area**
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Los Esteros-Montague 115 kV Line	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV GEN UNITS & LOS ESTEROS-TRIMBLE 115KV [2550]	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032] & LOS ESTEROS-TRIMBLE 115KV [2550]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	149	Sensitivity only
Los Esteros-Nortech 115 kV Line	Base Case	P0	Normal	60	99	122	48	35	24	43	73	49	40	100	118	San Jose area mitigation
	SSS 230/230KV TB 1	P1	N-1	100	136	160	71	75	60	79	111	113	63	137	163	San Jose area mitigation
	FMC-SAN JOSE B 115KV [2021]	P1	N-1	64	106	127	45	46	31	55	83	66	39	106	125	San Jose area mitigation
	NEWARK-NORTHERN RECEIVING STATION #1 115KV [3100]	P1	N-1	59	100	124	43	36	27	50	80	61	37	100	126	San Jose area mitigation
	NEWARK F-ZANKER-KRS 115KV [0]	P1	N-1	59	98	121	43	35	27	48	78	59	36	99	119	San Jose area mitigation
	NEWARK-NORTHERN RECEIVING STATION #2 115KV [3110]	P1	N-1	57	99	121	42	35	26	49	78	58	35	100	118	San Jose area mitigation
	KIFER-FMC 115KV [2020]	P1	N-1	56	99	118	40	42	26	51	77	57	34	99	109	San Jose area mitigation
	NRS 400 115 kV bus	P2	Bus/Breaker	109	160	232	73	86	66	93	129	129	67	160	232	San Jose area mitigation
Los Esteros-Silicon Switching Station 230 kV Line	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	95	103	108	59	87	88	94	106	92	57	103	118	San Jose area mitigation
	NORTECH-NORTHERN RECEIVING STATION 115KV [1551]	P1	N-1	92	100	104	56	86	87	92	104	89	55	100	115	San Jose area mitigation
	LS ESTRS 230/115KV TB 3	P1	N-1	89	91	92	52	82	86	89	93	89	51	91	105	Sensitivity only
	LS ESTRS 230/115KV TB 4	P1	N-1	89	91	92	52	82	86	89	93	89	51	91	105	Sensitivity only
	NEWARK-NORTHERN RECEIVING STATION #1 115KV [3100]	P1	N-1	87	91	92	51	83	85	88	93	88	51	90	104	Sensitivity only
Los Esteros-Trimble 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	66	71	85	<100	27	45	53	76	52	<100	72	105	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032] & LOS ESTEROS-MONTAGUE 115KV [2380]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	128	Sensitivity only
Loyola-Monta Vista 60 kV Line	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	85	84	102	55	17	71	69	82	59	26	85	108	Continue to monitor future load forecast
Martinez-Oleum 115kV Line	PITSBG D SECTION 1D & PITSBG E SECTION 1E 230KV	P2	Bus/Breaker	31	29	10	47	87	38	53	59	42	124	29	33	Sensitivity only
	PITSBG D 230KV SECTION 1D	P2	Bus/Breaker	30	25	9	47	86	37	52	58	43	124	25	32	Sensitivity only
Mckee-Piercy 115 kV Line	NEWARK-DIXON LANDING 115KV [2990]	P1	N-1	NA	NA	104	NA	NA	NA	NA	75	NA	NA	NA	106	San Jose area mitigation
Metcalf 230/115 kV Trans No. 1	METCALF 230KV - SECTION 2D & 2E	P2	Bus/Breaker	111	104	113	82	45	107	89	103	84	56	105	129	San Jose area mitigation
	METCALF 230/115KV TB 2 & METCALF 230/115KV TB 4	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	0	<100	<100	<100	106	Sensitivity only
Metcalf 230/115 kV Trans No. 2	METCALF 230/115KV TB 1 & METCALF 230/115KV TB 4	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	0	<100	<100	<100	107	Sensitivity only
Metcalf 230/115 kV Trans No. 3	METCALF 230/115KV TB 2 & METCALF 230/115KV TB 4	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	0	<100	<100	<100	105	Sensitivity only
Metcalf 230/115 kV Trans No. 4	METCALF 230KV - SECTION 1D & 1E	P2	Bus/Breaker	104	96	104	81	38	101	85	95	75	51	97	120	San Jose area mitigation
	MTCALF D 115KV SECTION 2Y	P2	Bus/Breaker	85	77	82	75	20	102	63	80	55	47	78	99	Sensitivity only
	METCALF 230/115KV TB 1 & METCALF 230/115KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	0	<100	<100	<100	106	Sensitivity only
Metcalf 500/230 kV Trans No. 11	METCALF 500/230KV TB 12 & METCALF 500/230KV TB 13	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	0	<100	<100	<100	112	San Jose area mitigation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Metcalf 500/230 kV Trans No. 12	METCALF 500/230KV TB 11 & METCALF 500/230KV TB 13	P6	N-1-1	<100	<100	104	<100	<100	<100	<100	0	<100	<100	<100	115	San Jose area mitigation
Metcalf 500/230 kV Trans No. 13	METCALF 500/230KV TB 11 & METCALF 500/230KV TB 12	P6	N-1-1	101	100	106	<100	<100	<100	<100	0	<100	<100	101	117	San Jose area mitigation
Metcalf-El Patio No. 1 115 kV Line	METCALF-EL PATIO #2 115KV [2510]	P1	N-1	77	85	94	46	40	53	65	66	68	36	86	107	Sensitivity only
	METCALF-EL PATIO #2 115KV [2510]	P1	N-1	77	85	94	46	40	53	65	65	68	36	86	107	Sensitivity only
	MTCALF D SECTION 2D & MTCALF E SECTION 2E 115KV	P2	Bus/Breaker	96	105	119	56	51	61	82	81	85	43	105	134	San Jose area mitigation
	MTCALF D SECTION 2D & MTCALF E SECTION 2E 115KV	P2	Bus/Breaker	96	105	119	56	51	61	82	81	85	43	105	134	San Jose area mitigation
	MTCALF D - 2D 115KV & METCALF-EL PATIO #2 LINE	P2	Bus/Breaker	85	93	104	49	47	53	73	72	77	38	93	116	San Jose area mitigation
	MTCALF D 115KV SECTION 2D	P2	Bus/Breaker	85	93	104	49	47	53	73	72	77	38	93	116	San Jose area mitigation
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	80	89	96	<100	48	55	74	77	73	<100	89	106	Sensitivity only
	METCALF-EL PATIO #2 115KV [2510] (EL PATIO-BAILY J3)	P2	Bus/Breaker	77	85	94	46	40	53	65	66	68	36	86	107	Sensitivity only
	LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & METCALF-EL PATIO #2 115KV [2510]	P3	G-1/N-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	69	80	109	44	35	45	57	66	59	35	81	122	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	77	86	96	42	41	56	69	66	70	33	87	123	Sensitivity only
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	68	77	95	43	32	45	55	62	58	34	77	117	Sensitivity only
	METCALF-EL PATIO #2 115KV [2510] & SAN JOSE B-STONE-EVERGREEN 115KV [1550]	P6	N-1-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	80	89	100	48	40	55	68	68	70	36	89	113	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	79	87	96	44	43	57	70	67	72	34	88	118	Sensitivity only
	METCALF-EL PATIO #1 115KV [2500]	P1	N-1	77	85	94	46	40	54	67	67	68	36	86	107	Sensitivity only
	METCALF-EL PATIO #1 115KV [2500]	P1	N-1	77	85	94	46	40	53	65	65	68	36	86	107	Sensitivity only
	MTCALF D SECTION 1D & MTCALF E SECTION 1E 115KV	P2	Bus/Breaker	102	111	124	61	55	69	88	89	89	47	111	142	San Jose area mitigation
	MTCALF D SECTION 1D & MTCALF E SECTION 1E 115KV	P2	Bus/Breaker	102	111	124	61	55	67	86	87	89	47	111	142	San Jose area mitigation
	MTCALF D - 1D 115KV & ST TRESA-MTCALF D LINE	P2	Bus/Breaker	92	100	111	56	52	62	81	81	82	43	101	126	San Jose area mitigation
	LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & METCALF-EL PATIO #1 115KV [2500]	P3	G-1/N-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Metcalf-El Patio No. 2 115 kV Line	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	69	80	108	44	35	45	57	66	59	34	81	122	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	77	86	96	42	41	57	70	67	70	33	86	123	Sensitivity only
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	68	77	95	43	32	45	55	62	58	34	77	117	Sensitivity only
	METCALF-EL PATIO #1 115KV [2500] & SAN JOSE B-STONE-EVERGREEN 115KV [1550]	P6	N-1-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	80	89	100	48	40	55	68	68	70	36	89	113	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	79	87	96	44	43	58	71	68	72	34	88	118	Sensitivity only
Metcalf-Evergreen No. 1 115 kV Line	MTCALF D SECTION 2D & MTCALF E SECTION 2E 115KV	P2	Bus/Breaker	<100	<100	102	<100	<100	<100	<100	76	<100	<100	<100	114	San Jose area mitigation
	MTCALF E 115KV SECTION 2E	P2	Bus/Breaker	<100	<100	94	<100	<100	<100	<100	66	<100	<100	<100	105	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & METCALF-EVERGREEN #1 115KV [2520] (2)	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	107	Sensitivity only
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	<100	<100	93	<100	<100	<100	<100	57	<100	<100	<100	103	Sensitivity only
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	NA	NA	83	NA	NA	NA	NA	57	NA	NA	NA	103	Sensitivity only
	EL PATIO-SAN JOSE A 115KV [1520] & METCALF-EVERGREEN #1 115KV [2520] (2)	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	<100	<100	123	San Jose area mitigation
	EL PATIO-SAN JOSE A 115KV [1520] & METCALF-EVERGREEN #1 115KV [2520] (2)	P6	N-1-1	<100	<100	102	<100	<100	<100	<100	<100	<100	<100	<100	117	San Jose area mitigation
	P7-1:A18:16_Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	<100	<100	91	<100	<100	<100	<100	62	<100	<100	<100	102	Sensitivity only
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	NA	NA	83	NA	NA	NA	NA	57	NA	NA	NA	99	Sensitivity only
Metcalf-Evergreen No. 2 115 kV Line	MTCALF D SECTION 1D & MTCALF E SECTION 1E 115KV	P2	Bus/Breaker	<100	<100	104	NA	<100	<100	<100	74	<100	NA	<100	117	San Jose area mitigation
	MTCALF D SECTION 1D & MTCALF E SECTION 1E 115KV	P2	Bus/Breaker	<100	<100	99	<100	<100	<100	<100	75	<100	<100	<100	112	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & METCALF-EVERGREEN #1 115KV [2520]	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	107	Sensitivity only
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	<100	<100	94	<100	<100	<100	<100	58	<100	<100	<100	103	Sensitivity only
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	<100	<100	83	NA	<100	<100	<100	57	<100	NA	<100	104	Sensitivity only
	EL PATIO-SAN JOSE A 115KV [1520] & METCALF-EVERGREEN #1 115KV [2520]	P6	N-1-1	<100	<100	108	<100	<100	<100	<100	<100	<100	<100	<100	123	San Jose area mitigation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
	EL PATIO-SAN JOSE A 115KV [1520] & METCALF-EVERGREEN #1 115KV [2520]	P6	N-1-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	118	San Jose area mitigation
	P7-1:A18:16_Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	<100	<100	91	<100	<100	<100	<100	63	<100	<100	<100	102	Sensitivity only
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	<100	<100	83	NA	<100	<100	<100	58	<100	NA	<100	99	Sensitivity only
Metcalf-Hicks 230 kV Line	METCALF 230KV - SECTION 1D & 1E	P2	Bus/Breaker	90	93	98	65	39	71	80	82	70	43	94	105	Sensitivity only
	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	90	94	97	64	41	71	81	81	70	43	95	104	Sensitivity only
Metcalf-Llagas 115 kV Line	METCALF-MORGAN HILL 115KV [2570] & LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV [0]	P6	N-1-1	155	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Morgan Hill Area Reinforcement
Metcalf-Morgan Hill 115 kV Line	MTCALF D-LLAGAS 115KV [0] & LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV [0]	P6	N-1-1	130	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Morgan Hill Area Reinforcement
Monta Vista 230/115 kV Trans No. 2	MONTAVIS 230KV - SECTION 2E & 2D	P2	Bus/Breaker	87	94	117	57	51	72	81	88	72	39	95	127	Continue to monitor future load forecast
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & MONTAVIS 230/115KV TB 4	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Sensitivity only
	MONTAVIS 230/115KV TB 4 & MONTAVIS 230/115KV TB 3	P6	N-1-1	<100	<100	124	<100	<100	<100	<100	0	<100	<100	101	137	Continue to monitor future load forecast
Monta Vista 230/115 kV Trans No. 3	MONTAVIS 230KV - SECTION 1D & 2D	P2	Bus/Breaker	86	94	111	57	47	70	80	89	71	38	94	122	Continue to monitor future load forecast
Monta Vista 230/115 kV Trans No. 4	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & MONTAVIS 230/115KV TB 2	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Sensitivity only
Monta Vista-Hicks 230 kV Line	METCALF 230KV - SECTION 1D & 1E	P2	Bus/Breaker	94	94	100	63	47	76	88	88	77	44	95	110	San Jose area mitigation
	METCALF 230KV - SECTION 1D & 1E	P2	Bus/Breaker	94	94	100	63	47	76	88	88	77	44	95	110	San Jose area mitigation
	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	93	95	99	63	49	75	89	88	77	44	96	108	Sensitivity only
	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	93	95	99	63	50	75	89	88	77	44	96	108	Sensitivity only
Monta Vista-Wolfe 115 kV Line	STELLING-MONTA VISTA 115KV [1000]	P1	N-1	95	102	119	65	22	59	64	77	66	31	103	120	San Jose area mitigation
	MNTA VSA 115KV - MIDDLE BREAKER BAY 4	P2	Bus/Breaker	95	102	119	65	22	59	64	77	66	31	103	120	Continue to monitor future load forecast
Moraga-Castro Valley 230kV Line	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	104	100	97	48	20	87	68	71	106	34	100	104	Project: Moraga-Castro Valley 230 kV line capacity increase
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Bus/Breaker	97	94	90	45	18	82	64	66	100	31	94	102	Continue to monitor future load forecast
	NEWARK E 230KV SECTION 2E	P2	Bus/Breaker	97	93	90	45	18	82	64	66	100	31	94	102	Continue to monitor future load forecast
Moraga-Claremont #1 115kV Line	CLARMNT 115KV SECTION 2D	P2	Bus/Breaker	97	106	54	62	65	90	105	55	82	47	107	54	Project: Northern Oakland Area Reinforcement Project
	CLARMNT - 2D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #2 LINE	P2	Bus/Breaker	97	106	54	62	65	90	105	55	82	47	107	54	Project: Northern Oakland Area Reinforcement Project
	CLARMNT - 2D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #1 LINE	P2	Bus/Breaker	97	106	54	62	65	90	105	55	82	47	107	54	Project: Northern Oakland Area Reinforcement Project
Moraga-Oakland X #1 115kV Line	CLARMNT 115KV - SECTION 2D & 1D	P2	Bus/Breaker	109	50	53	70	34	85	49	53	95	56	50	52	Project: Northern Oakland Area Reinforcement Project
	K-D #1 115KV [9966] & K-D #2 115KV [9967]	P6	N-1-1	109	50	53	71	34	85	49	53	95	56	50	53	Project: Northern Oakland Area Reinforcement Project



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Moraga-Oakland X #2 115kV Line	CLARMNT 115KV - SECTION 2D & 1D	P2	Bus/Breaker	109	50	53	70	34	85	49	53	95	56	50	52	Project: Northern Oakland Area Reinforcement Project
	K-D #1 115KV [9966] & K-D #2 115KV [9967]	P6	N-1-1	109	50	53	71	34	85	49	53	95	56	50	53	Project: Northern Oakland Area Reinforcement Project
Moraga-Oakland X #3 115kV Line	CLARMNT 115KV - SECTION 2D & 1D	P2	Bus/Breaker	109	50	53	70	34	85	49	53	95	56	50	52	Project: Northern Oakland Area Reinforcement Project
	K-D #1 115KV [9966] & K-D #2 115KV [9967]	P6	N-1-1	109	50	53	71	34	85	49	53	95	56	50	53	Project: Northern Oakland Area Reinforcement Project
Moraga-Oakland X #4 115kV Line	CLARMNT 115KV - SECTION 2D & 1D	P2	Bus/Breaker	109	<100	<100	70	<100	85	<100	<100	95	56	<100	<100	Project: Northern Oakland Area Reinforcement Project
	K-D #1 115KV [9966] & K-D #2 115KV [9967]	P6	N-1-1	109	<100	<100	71	<100	85	<100	<100	95	56	<100	<100	Project: Northern Oakland Area Reinforcement Project
Mountain View-Monta Vista 115 kV Line	WHISMAN-MONTA VISTA 115KV [1010]	P1	N-1	80	88	94	54	61	65	74	62	69	42	88	103	Sensitivity only
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & WHISMAN-MONTA VISTA 115KV [1010]	P3	G-1/N-1	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor future load forecast
	RAVENSWOOD 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	79	84	100	51	50	61	69	73	67	38	84	104	Continue to monitor future load forecast
	NEWARK D 230/115KV TB 7 & WHISMAN-MONTA VISTA 115KV [1010]	P6	N-1-1	<100	102	111	<100	<100	<100	<100	<100	<100	<100	104	<100	Continue to monitor future load forecast
	P7-1:A17:10_ Britton-Monta Vista & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	81	88	101	53	58	66	74	65	71	42	89	117	Continue to monitor future load forecast
	P7-1:A17:11_ Lawrence - Monta Vista & Applied Materials-Britton 115 kV Lines	P7	DCTL	70	77	86	46	54	58	66	55	61	36	78	101	Sensitivity only
	P7-1:A17:12_Newark-Applied Materials & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	68	75	84	45	52	56	65	54	59	35	75	100	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	83	92	88	49	29	72	79	82	79	41	93	104	Sensitivity only
	NEWARK D 230/115KV TB 7	P1	N-1	81	89	87	53	27	68	74	82	72	42	90	101	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	83	92	87	49	29	72	78	81	78	41	92	100	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	123	134	125	76	34	112	112	115	121	58	135	132	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	NEWARK E 230KV SECTION 1E	P2	Bus/Breaker	102	112	105	63	23	92	91	96	104	45	113	116	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 115KV	P2	Bus/Breaker	80	91	94	45	25	64	73	81	75	36	91	119	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 115KV	P2	Bus/Breaker	78	90	90	44	25	63	71	78	74	36	90	111	Sensitivity only
	NEWARK E 115KV SECTION 2Y	P2	Bus/Breaker	80	89	89	47	25	65	72	79	74	38	89	110	Sensitivity only
	NEWARK E 115KV SECTION 2Y	P2	Bus/Breaker	78	88	86	47	25	65	71	77	72	38	88	104	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	111	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor future load forecast

Study Area: **PG&E Greater Bay Area**
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Newark 230/115kV Transformer #11	LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor future load forecast
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	90	99	98	52	35	79	86	89	85	43	101	121	Sensitivity only
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	78	88	96	51	27	62	70	82	68	41	89	106	Sensitivity only
	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	84	91	95	55	31	69	76	84	73	42	91	112	Sensitivity only
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	76	85	89	50	24	61	67	78	66	40	85	103	Sensitivity only
	NEWARK D 230/115KV TB 7 & NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	104	107	109	<100	<100	<100	<100	<100	<100	<100	108	<100	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	NEWARK D 230/115KV TB 7 & NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	102	106	106	<100	<100	<100	<100	<100	<100	<100	106	<100	Project: Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	88	98	95	51	35	77	84	87	83	42	98	116	Sensitivity only
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	88	97	93	51	35	76	84	85	83	42	98	109	Sensitivity only
Newark 230/115kV Transformer #7	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	88	98	98	51	38	80	86	90	77	45	98	106	Sensitivity only
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	87	97	94	51	38	79	84	88	76	45	97	102	Sensitivity only
	LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Sensitivity only
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	76	84	83	44	30	66	73	75	72	36	85	102	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] & NEWARK E 230/115KV TB 11	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	113	continue to monitor future load forecast
	NEWARK E 230/115KV TB 11 & NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	<100	100	100	<100	<100	<100	<100	0	<100	<100	102	112	continue to monitor future load forecast
Newark-Ames Dist 115kV Line	AMES BS2 115KV SECTION 2D	P2	Bus/Breaker	70	72	75	63	59	54	61	60	69	61	72	110	Sensitivity only
Newark-Dixon Landing 115kV Line	PIERCY-METCALF 115KV [4318]	P1	N-1	117	122	93	51	26	76	79	66	86	27	123	94	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade
	MCKEE-PIERCY 115KV [2379]	P1	N-1	98	100	76	42	25	66	68	56	74	24	101	77	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade
	MTCALF D SECTION 2D & MTCALF E SECTION 2E 115KV	P2	Bus/Breaker	117	122	94	51	26	77	79	66	86	27	123	96	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade
	MTCALF E 115KV SECTION 2E	P2	Bus/Breaker	117	122	93	51	26	77	79	66	85	27	123	95	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade
	PIERCY 115KV SECTION 1D	P2	Bus/Breaker	98	100	76	42	25	66	68	56	74	24	101	77	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade
	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	118	122	94	51	26	77	79	66	86	27	123	96	Project: Metcalf – Piercy & Swift – Metcalf and Newark – Dixon Landing 115 kV Upgrade

Study Area: **PG&E Greater Bay Area**
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Newark-Jarvis #1 115kV Line	NEWARK-JARVIS #2 115KV [3030]	P1	N-1	109	117	107	52	27	109	116	106	91	32	117	107	San Jose area mitigation
Newark-Kifer 115kV Line	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	54	87	106	15	35	34	55	70	55	15	87	108	San Jose area mitigation
	NORTECH-NORTHERN RECEIVING STATION 115KV [1551]	P1	N-1	51	84	100	13	34	32	54	67	52	12	84	102	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	65	89	96	16	36	48	64	67	71	17	89	104	Sensitivity only
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	221	333	327	87	181	150	283	293	220	85	333	331	Project: SVP breaker upgrade project
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	219	330	323	86	179	149	280	290	219	84	330	328	Project: SVP breaker upgrade project
	NRS 300 115 kV bus	P2	Bus/Breaker	73	144	206	20	53	45	83	113	74	19	143	203	San Jose area mitigation
	SRS 115 kV bus	P2	Bus/Breaker	100	179	180	14	56	68	85	Diverge	100	14	179	184	Project: SVP SRS bus upgrade
	NRS 400 115 kV bus	P2	Bus/Breaker	85	115	179	25	60	62	82	95	90	26	115	182	San Jose area mitigation
	Internal breaker fault at Duane Duane-SRS 115 kV and KRS-Duane 115 kV and DVR	P2	Bus/Breaker	77	103	124	30	52	56	72	88	78	29	104	136	San Jose area mitigation
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & KRS-DUANE 115kV (SVP)	P3	G-1/N-1	<100	102	<100	<100	<100	<100	<100	<100	<100	<100	103	<100	San Jose area mitigation
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	67	103	171	25	40	40	64	87	64	23	104	178	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	96	124	144	32	60	73	96	95	101	30	124	195	San Jose area mitigation
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	57	91	130	18	35	34	56	74	56	17	91	165	San Jose area mitigation
	FMC-SAN JOSE B 115KV [2021] & KRS-DUANE 115kV (SVP)	P6	N-1-1	117	171	<100	<100	102	<100	0	145	114	<100	172	<100	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	92	118	133	28	56	70	91	89	96	26	118	167	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	91	117	132	27	55	69	91	88	96	25	118	165	San Jose area mitigation
	P7-1:A16:11_Newark-Northern Nos. 1 & 2 115 kV lines	P7	DCTL	57	95	114	6	38	36	63	73	64	9	95	128	San Jose area mitigation
	P7-1:A18:13_Northern - Scott #1 and #2 115 kV Lines	P7	DCTL	115	82	94	24	37	81	56	65	116	24	83	98	San Jose area mitigation
Newark-Lawrence 115kV Line	LAWRENCE-MONTA VISTA 115KV [2090]	P1	N-1	66	65	73	41	27	37	39	43	63	39	65	127	Sensitivity only
	BRITTON-MONTA VISTA 115KV [1170]	P1	N-1	31	34	27	26	19	19	21	18	30	25	35	113	Sensitivity only
	NEWARK F-LOCKHD 2-APP MAT 115KV [0]	P1	N-1	30	34	27	26	19	19	21	18	30	25	35	117	Sensitivity only
	BRITTON-MONTA VISTA 115KV [1170]	P1	N-1	26	30	24	23	16	16	18	16	26	22	30	113	Sensitivity only
	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	70	68	81	49	33	44	46	52	67	47	69	149	Sensitivity only
	APPLIED MATERIALS-BRITTON 115KV [4300] & LAWRENCE-MONTA VISTA 115KV [2090]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Sensitivity only
	P7-1:A17:12_Newark-Applied Materials & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	89	90	101	65	44	57	61	65	87	62	91	181	Continue to monitor future load forecast
	P7-1:A17:10_Britton-Monta Vista & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	69	68	76	49	33	44	46	50	67	47	69	135	Sensitivity only
	P7-1:A17:11_Lawrence - Monta Vista & Applied Materials-Britton 115 kV Lines	P7	DCTL	69	68	76	49	33	44	46	50	67	47	69	104	Sensitivity only
Newark-Livermore 60kV Line	LS PSTAS 230/60KV TB 4 & SANRAMON 230/60KV TB 1	P6	N-1-1	<100	<100	106	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor future load forecast

Study Area: **PG&E Greater Bay Area**
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Newark-Los Esteros 230kV Line	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & LOS ESTEROS-METCALF 230KV [5353]	P3	G-1/N-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	115	San Jose area mitigation
Newark-Milpitas #1 115kV Line	SWIFT-METCALF 115KV [3900] & NEWARK-MILPITAS #1 115KV [3070] MOAS OPENED ON NEWARK F_BARTRC_J	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	154	Sensitivity only
Newark-Milpitas #2 115kV Line	SWIFT-METCALF 115KV [3900] & NEWARK-MILPITAS #1 115KV [3070] MOAS OPENED ON NEWARK F_BARTRC_J	P6	N-1-1	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
Newark-Newark Dist 230kV section	METCALF 230KV - SECTION 2D & 2E	P2	Bus/Breaker	81	88	89	38	42	64	71	65	81	32	88	100	Sensitivity only
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & LOS ESTEROS-METCALF 230KV [5353]	P3	G-1/N-1	<100	<100	107	<100	<100	<100	<100	<100	<100	<100	<100	118	Continue to monitor future load forecast
Newark-Northern Receiving Station #1 115kV Line	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	54	92	118	20	35	31	60	82	58	21	92	135	San Jose area mitigation
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	73	102	111	21	38	55	77	80	87	26	102	135	San Jose area mitigation
	NORTECH-NORTHERN RECEIVING STATION 115KV [1551]	P1	N-1	49	88	110	16	33	28	57	78	53	18	88	126	San Jose area mitigation
	SSS 230/230KV TB 1	P1	N-1	65	91	105	23	50	48	69	79	74	27	91	124	San Jose area mitigation
	NEWARK-LOS ESTEROS 230KV [2970]	P1	N-1	62	90	99	15	35	47	69	73	76	21	91	123	Sensitivity only
	NRS 300 115 kV bus	P2	Bus/Breaker	52	118	186	12	36	28	65	102	57	14	118	199	San Jose area mitigation
	KRS 115 kV bus	P2	Bus/Breaker	51	143	147	5	44	33	69	Diverge	62	10	143	160	Project: SVP KRS bus upgrade
	NEWARK F 115KV SECTION 2Z	P2	Bus/Breaker	69	99	123	21	32	45	69	85	78	22	99	167	San Jose area mitigation
	NEWARK E 230KV - SECTION 1E & 2E	P2	Bus/Breaker	75	104	119	21	39	56	80	82	88	27	104	149	San Jose area mitigation
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	74	116	204	35	42	42	73	108	72	35	118	232	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	117	150	173	43	71	91	120	118	129	43	151	252	San Jose area mitigation
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	61	102	155	27	36	34	63	92	61	27	102	215	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	112	144	161	39	66	86	115	110	123	38	144	217	San Jose area mitigation
	P7-1:A18:14_Newark - Kifer & FMC - Kifer 115 kV Lines	P7	DCTL	48	84	101	5	38	31	59	70	59	10	84	115	San Jose area mitigation
	P7-1:A18:25_Tesla - Newark No.2 and Newark - Los Esteros 230 kV Lines	P7	DCTL	56	85	95	10	34	42	64	68	71	18	85	120	Sensitivity only
	P7-1:A16:17_Newark-Kifer 115 kV and Newark-Trimble 115 kV lines	P7	DCTL	45	76	92	6	29	29	52	64	56	11	76	112	Sensitivity only
	LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	45	92	111	12	33	24	56	72	46	12	92	112	San Jose area mitigation

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Newark-Northern Receiving Station #2 115kV Line	NORTECH-NORTHERN RECEIVING STATION 115KV [1551]	P1	N-1	40	87	103	9	32	22	54	67	41	9	87	103	San Jose area mitigation
	NEWARK E-F BUS TIE 230KV [4640]	P1	N-1	57	92	97	11	34	43	67	66	67	14	92	105	Sensitivity only
	NRS 400 115 kV bus	P2	Bus/Breaker	65	113	177	18	60	48	82	90	75	21	113	179	San Jose area mitigation
	KRS 115 kV bus	P2	Bus/Breaker	48	162	152	4	47	30	72	Diverge	55	2	163	148	Project: SVP KRS bus upgrade
	LS ESTRS 115KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	45	92	111	12	33	24	56	72	46	12	92	112	San Jose area mitigation
	NORTECH 115KV SECTION 1F	P2	Bus/Breaker	42	88	106	10	32	23	55	69	43	10	88	105	San Jose area mitigation
	NORTECH 115KV SECTION 1E	P2	Bus/Breaker	40	87	103	9	32	22	54	67	41	9	87	102	San Jose area mitigation
	NEWARK E 230KV SECTION 1E	P2	Bus/Breaker	58	93	99	12	34	44	68	66	68	14	93	107	Sensitivity only
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	46	82	98	5	27	35	59	60	59	8	82	106	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	109	<100	<100	<100	<100	<100	<100	<100	<100	111	<100	San Jose area mitigation
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	60	111	186	24	39	32	66	92	57	22	112	194	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	104	142	162	36	69	81	113	106	112	33	143	218	San Jose area mitigation
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	47	96	140	15	34	25	57	77	46	14	97	178	San Jose area mitigation
	LOS ESTEROS-NORTECH 115KV [4032] & SSS-NRS 230kv (SVP)	P6	N-1-1	107	163	<100	<100	<100	<100	111	0	104	<100	163	<100	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	98	134	149	30	62	76	106	98	105	27	135	185	San Jose area mitigation
Newark-Trimble 115kV Line	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	110	<100	<100	<100	<100	<100	<100	<100	<100	128	San Jose area mitigation
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	61	79	123	35	18	35	47	64	54	31	80	159	San Jose area mitigation
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	67	70	95	41	12	40	40	53	57	36	71	156	Sensitivity only
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	70	83	88	21	29	56	69	51	77	19	83	132	Sensitivity only
	LOS ESTEROS-METCALF 230KV [5353] & NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	<100	<100	125	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	NEWARK E-F BUS TIE 230KV [4640] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	<100	115	<100	<100	<100	<100	<100	<100	<100	<100	162	San Jose area mitigation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	80	91	94	26	40	65	77	61	87	24	92	130	Sensitivity only
	P7-1:A18:8_Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	64	65	79	39	13	38	37	48	55	35	65	121	Sensitivity only
Newark-Vallecitos 60kV Line	LS PSTAS 230/60KV TB 4 & SANRAMON 230/60KV TB 1	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor future load forecast
Nortech-NRS 115 kV Line	SSS 230/230KV TB 1	P1	N-1	90	128	149	62	72	64	87	123	74	55	128	152	San Jose area mitigation
	FMC-SAN JOSE B 115KV [2021]	P1	N-1	52	98	116	36	43	29	59	89	38	29	98	113	San Jose area mitigation
	NEWARK-NORTHERN RECEIVING STATION #1 115KV [3100]	P1	N-1	48	90	112	34	33	24	52	86	35	28	91	114	San Jose area mitigation
	NEWARK F-ZANKER-KRS 115KV [0]	P1	N-1	47	89	109	33	32	24	51	83	33	27	90	106	San Jose area mitigation
	NRS 400 115 kV bus	P2	Bus/Breaker	100	153	224	64	84	71	104	145	87	59	153	224	San Jose area mitigation
	HICKS-METCALF 230KV [4910] & SSS-NRS 230kv (SVP)	P6	N-1-1	106	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
	P7-1:A16:11_Newark-Northern Nos. 1 & 2 115 kV lines	P7	DCTL	57	111	139	33	40	30	65	101	46	28	111	148	San Jose area mitigation
	P7-1:A18:14_Newark - Kifer & FMC - Kifer 115 kV Lines	P7	DCTL	55	108	129	31	48	31	65	95	43	25	108	120	San Jose area mitigation
	P7-1:A18:8_Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	67	101	126	55	28	34	55	96	44	45	102	138	San Jose area mitigation
	P7-1:A18:11_Trimble - San Jose B & FMC - San Jose B 115 kV Lines	P7	DCTL	51	95	113	37	39	27	55	88	36	30	95	110	San Jose area mitigation
North Dublin-Cayetano 230kV Cable	P7-1:A18:9_Los Esteros - Trimble & Montague - Trimble 115 kV Line	P7	DCTL	54	89	110	47	24	27	46	86	32	38	90	119	San Jose area mitigation
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	100	105	106	66	26	68	85	105	72	44	105	117	Contra Costa 230 kV bus upgrade or Contra Costa area generation redispatch
	NEWARK D 230KV SECTION 1D	P2	Bus/Breaker	95	99	100	61	25	64	80	100	66	42	99	115	Continue to monitor future load forecast
	MORAGA 230KV - SECTION 2D & 1D	P2	Bus/Breaker	104	106	77	68	28	61	86	79	65	46	107	90	Project: Moraga 230 kV bus upgrade
	MORAGA 230kV Bus #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	105	107	95	69	28	62	87	98	66	47	109	111	Project: Moraga 230 kV bus upgrade
	P7-1:A16:5_Tesla-Newark No.1 and Tesla-Ravenswood 230 kV lines	P7	DCTL	94	98	88	61	28	61	80	90	64	44	98	101	Sensitivity only
North Dublin-Vineyard 230 kV Line	P7-1:A8:4_Contra Costa-Moraga Nos. 1 & 2 230 kV lines	P7	DCTL	98	100	87	64	26	56	81	92	60	44	100	102	Continue to monitor future load forecast
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Bus/Breaker	89	94	96	57	29	60	76	96	68	42	94	107	Sensitivity only
	NEWARK D 230KV SECTION 1D	P2	Bus/Breaker	84	88	89	55	28	56	71	91	62	41	88	105	Sensitivity only
NRS-Scott No. 1 115 kV Line	MORAGA 230kV Bus #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	94	96	84	63	30	56	81	90	61	45	97	100	Project: Moraga 230 kV bus upgrade
	NRS 300 115 kV bus	P2	Bus/Breaker	122	140	177	57	87	98	106	131	121	56	140	187	San Jose area mitigation
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NRS-AGNEW 60kV (SVP)	P3	G-1/N-1	<100	<100	107	<100	<100	<100	<100	<100	<100	<100	<100	110	San Jose area mitigation
	NRS 115/60kV TB 2 (SVP) & NRS-AGNEW 60kV (SVP)	P6	N-1-1	<100	<100	138	<100	<100	<100	<100	<100	<100	<100	<100	140	San Jose area mitigation
	NRS 115/60kV TB 2 (SVP) & NRS-SRS #2 115kV (SVP)	P6	N-1-1	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	103	<100	San Jose area mitigation
	NRS 400 115 kV bus	P2	Bus/Breaker	106	81	123	34	41	77	56	76	100	31	81	125	San Jose area mitigation

Study Area: **PG&E Greater Bay Area**
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
NRS-Scott No. 2 115 kV Line	LECEFT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NRS-AGNEW 60kv (SVP)	P3	G-1/N-1	<100	<100	106	<100	<100	<100	<100	<100	<100	<100	<100	108	San Jose area mitigation
	NRS 115/60kV TB 2 (SVP) & NRS-AGNEW 60kV (SVP)	P6	N-1-1	<100	<100	137	<100	<100	<100	<100	<100	<100	<100	<100	139	San Jose area mitigation
	NRS 115/60kV TB 2 (SVP) & NRS-SRS #1 115kV (SVP)	P6	N-1-1	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	103	<100	San Jose area mitigation
NRS-Scott No. 3 115 kV Line	P7-1:A18:13_Northern - Scott #1 and #2 115 kV Lines	P7	DCTL	NA	90	106	NA	51	NA	70	90	NA	NA	91	116	San Jose area mitigation
Oakland C - Oakland L #1 115kV Cable	CLARMNT 115KV - SECTION 2D & 1D	P2	Bus/Breaker	98	98	108	64	46	98	105	115	86	52	99	108	Project: Oakland Clean Energy Initiative
	K-D #1 115KV [9966] & K-D #2 115KV [9967]	P6	N-1-1	98	98	108	64	46	98	104	115	86	52	99	108	Project: Oakland Clean Energy Initiative
Oakland C - Oakland X #2 115kV Cable	CLARMNT 115KV - SECTION 2D & 1D	P2	Bus/Breaker	109	106	109	75	82	104	107	113	98	65	107	109	Project: Oakland Clean Energy Initiative
	C-X #3 & D-L 115KV [9925]	P6	N-1-1	122	116	114	89	110	110	110	116	114	82	117	114	Project: Oakland Clean Energy Initiative
	K-D #1 115KV [9966] & K-D #2 115KV [9967]	P6	N-1-1	109	106	110	75	82	104	107	114	98	65	107	110	Project: Oakland Clean Energy Initiative
Oleum-Christie 115kV Line	P7-1:A7:3_Sobrante-G Nos. 1 & 2 115 kV lines	P7	DCTL	83	80	115	30	47	54	58	79	58	56	80	108	Continue to monitor future load forecast
Oleum-Martinez 115kV Line	PITSBG D 230KV SECTION 2D	P2	Bus/Breaker	74	71	64	10	33	79	97	106	86	60	71	83	Sensitivity only
	PITSBG D - 2D 230KV & PITSBG D-TBC_PTB1 #1 LINE	P2	Bus/Breaker	74	71	64	10	33	79	97	106	86	60	71	83	Sensitivity only
	PITSBG D SECTION 1D & PITSBG E SECTION 1E 230KV	P2	Bus/Breaker	31	29	10	47	87	42	59	66	42	124	29	33	Sensitivity only
	PITSBG D 230KV SECTION 1D	P2	Bus/Breaker	29	25	9	47	86	41	58	65	43	124	25	32	Sensitivity only
Piercy-Metcalf 115 kV Line	LOS ESTEROS-NORTECH 115KV [4032] & NEWARK-DIXON LANDING 115KV [2990]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Sensitivity only
Pittsburg 230/115kV Transformer #13	LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & PITSBG D 230/115KV TB 12	P3	G-1/N-1	115	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Pittsburg 230/115 kV Transformer Capacity Increase
Potrero-Mission (AX) 115kV Cable	POTRERO 115KV SECTION 2E	P2	Bus/Breaker	59	69	110	53	19	45	46	109	49	42	69	111	Continue to monitor future load forecast
Ravenswood 230/115kV Transformer #1	RAVENSWD 230/115KV TB 2 & TESLA-METCALF 500kV	P6	N-1-1	102	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project: Ravenswood 230/115 kV transformer #1 Limiting Facility Upgrade
Ravenswood-Cooley Landing #1 115kV Line	RVNSWD E 115KV SECTION 1X	P2	Bus/Breaker	83	87	106	60	46	74	72	82	82	53	88	118	Continue to monitor future load forecast
Ravenswood-Cooley Landing #2 115kV Line	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	122	123	136	89	64	102	101	Diverge	109	74	124	Diverge	Protection upgrade
Ravenswood-San Mateo #1 115kV Line	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	169	171	193	122	85	141	141	Diverge	149	100	173	Diverge	Protection upgrade
San Jose B bus tie	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	74	107	93	<100	78	56	105	89	77	<100	106	93	Project: SVP breaker upgrade project
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	54	76	106	28	49	36	59	64	50	29	76	111	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	70	87	95	27	61	57	82	67	73	26	88	117	Sensitivity only
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	52	70	87	28	44	35	54	57	48	28	70	106	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	127	San Jose area mitigation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	73	90	97	29	64	60	84	70	76	28	90	113	Sensitivity only
San Jose 'B'-Stone-Evergreen 115 kV Line	EL PATIO-SAN JOSE A 115KV [1520]	P1	N-1	63	79	84	30	58	42	61	52	68	35	79	104	Sensitivity only
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	70	97	89	<100	71	47	83	72	76	<100	96	100	Sensitivity only
	EL PATIO 115KV - SECTION 1D & 1E	P2	Bus/Breaker	64	80	84	29	57	41	60	52	67	34	80	104	Sensitivity only
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & EL PATIO-SAN JOSE A 115KV [1520]	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	122	Sensitivity only
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	57	75	105	32	49	35	52	57	57	37	76	122	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	71	85	93	31	59	50	69	58	76	34	86	126	Sensitivity only
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	52	67	83	29	42	31	45	48	52	33	68	113	Sensitivity only
	NEWARK E-F BUS TIE 230KV [4640] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	132	Sensitivity only
	NEWARK-LOS ESTEROS 230KV [2970] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	122	Sensitivity only
	P7-1:A18:16_Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	85	100	110	44	64	55	75	69	85	45	100	131	San Jose area mitigation
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	70	84	90	29	59	49	67	57	75	33	84	116	Sensitivity only
San Jose Sta 'A'-'B' 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	100	131	121	47	85	64	108	97	97	42	130	112	Project: SVP breaker upgrade project
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<100	<100	112	<100	<100	<100	<100	<100	<100	<100	<100	112	San Jose area mitigation
	PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	78	101	140	46	54	45	68	76	67	39	102	133	San Jose area mitigation
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	94	113	125	44	68	65	89	78	91	35	114	140	San Jose area mitigation
	LOS ESTEROS 115KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	75	94	117	46	49	44	63	69	65	38	95	128	San Jose area mitigation
	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	71	84	100	37	51	44	63	60	64	29	85	100	San Jose area mitigation
	NEWARK E-F BUS TIE 230KV [4640] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	125	134	<100	<100	<100	<100	<100	<100	<100	125	152	San Jose area mitigation
	NEWARK-LOS ESTEROS 230KV [2970] & LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	<100	114	122	<100	<100	<100	<100	<100	<100	<100	116	140	San Jose area mitigation
	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	102	120	134	56	64	65	88	83	91	43	121	133	San Jose area mitigation



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	98	116	127	47	71	68	92	81	94	38	116	135	San Jose area mitigation
	P7-1:A18:16_Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	73	76	86	49	25	50	52	58	62	37	76	117	Sensitivity only
San Leandro - Oakland J #1 115kV Line	EASTSHRE 115KV - SECTION 1D & 1E	P2	Bus/Breaker	101	97	94	56	28	82	88	88	93	37	98	97	Project: East Shore 230 kV Bus Terminals Reconfiguration
	EAST SHORE 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	101	98	94	57	28	81	88	89	93	38	98	97	Project: East Shore 230 kV Bus Terminals Reconfiguration
	E. SHORE 230/115KV TB 2 & E. SHORE 230/115KV TB 1	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	0	<100	<100	<100	101	Continue to monitor future load forecast
San Mateo-Bair 60kV Line	CLY LNDG 60KV SECTION 1D	P2	Bus/Breaker	97	100	123	65	35	69	72	84	82	46	102	125	Continue to monitor future load forecast
	CLY LNDG 60KV - SECTION 1D & 2D	P2	Bus/Breaker	96	98	121	64	34	68	71	83	80	45	100	123	Continue to monitor future load forecast
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	148	150	159	102	73	124	127	Diverge	126	81	151	Diverge	Protection upgrade
	CLY LND 115/60KV TB 1 & CLY LND2 115/60KV TB 2	P6	N-1-1	139	140	174	<100	<100	111	116	0	113	<100	143	177	Operating solution
San Mateo-Belmont 115kV Line	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	189	191	215	133	87	157	160	Diverge	163	107	193	Diverge	Protection upgrade
	RAVENSWOOD 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	85	91	120	55	39	75	73	83	85	47	92	133	Continue to monitor future load forecast
	RAVENSWD 230/115KV TB 1 & RAVENSWD 230/115KV TB 2	P6	N-1-1	<100	102	124	<100	<100	<100	<100	0	<100	<100	102	138	Continue to monitor future load forecast
	P7-1:A10:19_Ravenswood-Bair Nos. 1 & 2 115 kV lines	P7	DCTL	88	92	101	61	34	71	75	83	76	46	93	101	Continue to monitor future load forecast
San Mateo-Hillsdale JCT 60kV Line	MONTAVIS 230KV - SECTION 1E & 2E	P2	Bus/Breaker	87	90	86	68	46	87	96	102	62	42	92	88	Project: Monta Vista 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	239	241	247	176	112	186	255	277	141	98	247	250	Project: Jefferson 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	240	242	247	180	115	188	256	276	145	100	248	250	Project: Jefferson 230 kV Bus Upgrade
	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	240	75	70	180	32	188	84	Diverge	145	100	77	73	Project: Jefferson 230 kV Bus Upgrade
San Mateo-Hillsdale JCT 60kV Line (Beresford-Hillsdale)	MONTAVIS 230KV - SECTION 1E & 2E	P2	Bus/Breaker	92	95	94	75	51	90	101	112	65	47	98	97	Project: Monta Vista 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	282	284	283	207	137	216	300	315	171	115	291	286	Project: Jefferson 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	281	283	283	202	134	213	299	317	166	112	289	286	Project: Jefferson 230 kV Bus Upgrade
	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	282	77	76	207	34	216	86	Diverge	171	115	79	79	Project: Jefferson 230 kV Bus Upgrade
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Bus/Breaker	87	88	89	70	52	82	93	102	64	47	90	92	Project: Monta Vista 230 kV Bus Upgrade

Study Area: PG&E Greater Bay Area
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
San Mateo-Hillsdale JCT 60kV Line (Hillsdale-Hillsdale JCT)	JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	271	280	275	201	134	203	284	301	165	114	287	278	Project: Jefferson 230 kV Bus Upgrade
	JEFFERSON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	270	279	275	197	130	200	283	303	160	111	285	278	Project: Jefferson 230 kV Bus Upgrade
	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	271	69	71	201	35	203	78	Diverge	165	114	71	74	Project: Jefferson 230 kV Bus Upgrade
San Ramon-Radum 60kV Line	LS PSTAS 230/60KV TB 4 & NEWARK D 115/115KV TB 1	P6	N-1-1	<100	<100	112	<100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to monitor future load forecast
Saratoga-Vasona 230 kV Line	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	91	95	98	63	44	67	79	78	72	42	96	106	Sensitivity only
Scott-Duane 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	126	187	180	61	117	99	179	179	126	61	187	176	Project: SVP breaker upgrade project
	NRS-AGNEW 60kV (SVP) & NEWARK F-ZANKER-KRS 115KV [0]	P6	N-1-1	<100	<100	105	<100	<100	<100	<100	<100	<100	<100	<100	<100	San Jose area mitigation
Sobrante-El Cerrito STA G #1 115kV Lin	SOBRANTE 115KV - SECTION 2E & 2D	P2	Bus/Breaker	93	90	96	42	36	70	77	71	67	46	101	90	Sensitivity only
Sobrante-El Cerrito STA G #2 115kV Line	SOBRANTE 115KV - SECTION 1D & 2D	P2	Bus/Breaker	95	93	99	45	38	72	79	77	73	48	107	104	Sensitivity only
Sobrante-Moraga 115kV Line	MORAGA 230kV Bus #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	84	85	90	68	53	77	73	84	81	53	85	104	Sensitivity only
Swift-Metcalf 115 kV Line	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	84	90	85	45	41	63	76	59	65	28	91	100	Sensitivity only
Tassajara-Newark 230kV Line	PITSBG D 230KV SECTION 2D	P2	Bus/Breaker	77	67	70	10	32	57	64	75	106	32	66	82	Sensitivity only
	PITSBG D - 2D 230KV & PITSBG D-TBC_PTB1 #1 LINE	P2	Bus/Breaker	77	67	70	10	32	57	64	75	106	32	66	82	Sensitivity only
Tesla - Newark 230 kV Line No. 2	TESLA-NEWARK #1 230KV [5720] & TESLA-METCALF 500kV	P6	N-1-1	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	104	Sensitivity only
Trimble-San Jose 'B' 115 kV Line	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	97	136	151	<100	60	67	110	142	84	<100	136	154	Project: SVP breaker upgrade project
	NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	97	136	151	NA	60	67	110	142	84	NA	136	154	Project: SVP breaker upgrade project
	SSS-NRS 230kV (SVP) & LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	<100	<100	117	<100	<100	<100	<100	<100	<100	<100	<100	114	San Jose area mitigation
	SSS-NRS 230kV (SVP) & LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	<100	<100	117	<100	<100	<100	<100	<100	<100	<100	<100	114	San Jose area mitigation
Vasona-Metcalf 230 kV Line	Base Case	P0	Normal	88	90	93	36	41	50	57	57	70	25	91	101	Upgrade limiting equipment
	HICKS-METCALF 230KV [4910]	P1	N-1	95	99	102	45	44	59	66	66	75	31	100	110	Upgrade limiting equipment
	MONTA VISTA-COYOTE SW STA 230KV [5090]	P1	N-1	94	97	101	44	44	58	66	66	75	30	98	109	Upgrade limiting equipment
	METCALF-MONTA VISTA #3 230KV [5091]	P1	N-1	94	96	100	44	44	58	66	65	75	30	97	108	Upgrade limiting equipment
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Bus/Breaker	104	109	115	47	47	62	74	70	84	32	110	124	Upgrade limiting equipment
	METCALF 230KV SECTION 2D	P2	Bus/Breaker	103	106	112	48	48	63	72	71	81	33	107	121	Upgrade limiting equipment
	MONTAVIS 230KV - SECTION 2E & 2D	P2	Bus/Breaker	103	107	108	48	49	64	74	72	83	33	108	116	Upgrade limiting equipment
	METCALF 230KV - SECTION 2D & 2E	P2	Bus/Breaker	93	113	104	37	64	63	62	64	100	43	116	115	Upgrade limiting equipment
	HICKS 230KV SECTION 1F	P2	Bus/Breaker	95	99	102	45	44	59	66	66	75	31	100	110	Upgrade limiting equipment
	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	125	128	135	58	59	76	88	87	99	40	130	144	Upgrade limiting equipment
	P7-1:A10:2_Newark-Ravenswood 230 kV and Tesla-Ravenswood 230 kV lines	P7	DCTL	87	89	93	41	41	55	61	63	68	29	90	100	Upgrade limiting equipment



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
	P7-1:A16:5_ Tesla-Newark No.1 and Tesla-Ravenswood 230 kV lines	P7	DCTL	85	88	93	40	41	54	60	61	67	28	89	100	Upgrade limiting equipment
	P7-1:A16:7_ Tesla - Newark No.2 and Metcalf - Los Esteros 230 kV lines	P7	DCTL	85	88	93	40	40	53	59	59	69	27	88	100	Upgrade limiting equipment
Whisman-Monta Vista 115 kV Line	MNTA VSA 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	87	103	112	54	66	60	71	60	71	47	90	104	Continue to monitor future load forecast
	LECEFGT1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & MTN VIEW-MONTA VISTA 115KV [2920]	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	109	Sensitivity only
	MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	78	79	107	57	24	60	64	81	56	33	80	112	Continue to monitor future load forecast
	NEWARK D 230/115KV TB 7 & MTN VIEW-MONTA VISTA 115KV [2920]	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	<100	<100	105	Continue to monitor future load forecast
	BRITTON-MONTA VISTA 115KV [1170] & MTN VIEW-MONTA VISTA 115KV [2920]	P6	N-1-1	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	110	Continue to monitor future load forecast
	P7-1:A17:10_ Britton-Monta Vista & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	72	79	93	50	57	53	61	56	63	41	80	112	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Agnew 115	SVP2-2:1:_NRS 400 115 kV bus	P2	Bus/Breaker	1.02	1.00	0.89	1.03	1.03	1.03	1.01	1.00	1.01	1.03	1.00	0.87	continue to monitor future load forecast
Agnew 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
ALMADEN 60	P1-2:A17:34:_MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	0.98	1.02	0.87	0.99	1.07	1.03	1.03	0.93	1.00	1.02	1.02	0.84	continue to monitor future load forecast
ALMADEN 60	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.95	0.98	0.79	0.98	1.05	1.02	1.00	0.90	0.97	1.01	0.98	0.72	continue to monitor future load forecast
ALMADEN 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.75	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.73	continue to monitor future load forecast
ALMADEN 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.75	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.73	continue to monitor future load forecast
ALMADEN 60	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.96	0.99	0.82	0.98	1.05	1.02	1.01	0.91	0.98	1.01	0.99	0.79	continue to monitor future load forecast
AMES BS2 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
AMES BS2 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.02	0.90	1.02	1.03	1.02	1.02	0.99	1.03	1.02	1.02	0.89	continue to monitor future load forecast
AMES BS2 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
AMES DST 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
AMES DST 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.02	0.90	1.02	1.03	1.02	1.02	0.99	1.03	1.02	1.02	0.89	continue to monitor future load forecast
AMES DST 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
APP MAT 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A17:28:_BRITTON-MONTA VISTA 115KV [1170]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
APP MAT 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.99	1.01	0.86	1.00	1.04	1.01	1.01	0.94	1.00	1.01	1.00	0.81	continue to monitor future load forecast
APP MAT 115	P1-2:A16:21:_TESLA-NEWARK #2 230KV [5354] & P1-2:A17:28:_BRITTON-MONTA VISTA 115KV [1170]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
APP MAT 115	P7-1:A17:10_Britton-Monta Vista & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	1.00	1.01	0.91	1.00	1.03	1.01	1.01	0.97	1.00	1.01	1.00	0.89	Sensitivity only
BAIR 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only
BARTLP 115	P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P1	N-1	0.97	1.02	0.90	1.00	1.02	1.00	1.00	0.95	0.99	1.01	1.02	0.88	continue to monitor future load forecast
BARTLP 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	1.01	0.86	0.99	1.02	1.00	0.99	0.94	0.98	1.01	1.01	0.82	continue to monitor future load forecast
BARTLP 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P3	G-1/N-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
BARTLP 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.00	1.01	0.86	1.02	1.04	1.02	1.02	0.97	1.02	1.03	1.01	0.85	continue to monitor future load forecast
BARTLP 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
BARTLP 115	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	0.97	1.01	0.88	0.99	1.02	1.00	1.00	0.95	0.99	1.01	1.01	0.87	continue to monitor future load forecast
BARTRC 115	P2-4:A16:21:_NEWARK F 115KV - SECTION 2F & 1F	P2	Bus/Breaker	0.99	1.06	0.90	1.01	1.09	1.03	1.02	0.96	1.01	1.04	1.06	0.93	Sensitivity only
BARTRC 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	continue to monitor future load forecast
BARTRC 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.02	0.86	1.02	1.04	1.03	1.02	0.98	1.02	1.03	1.01	0.85	continue to monitor future load forecast
BARTRC 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	continue to monitor future load forecast
BARTRC 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	1.02	1.03	0.95	1.03	1.04	1.03	1.02	1.00	1.02	1.04	1.02	0.90	Sensitivity only
BAY MDWS 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
BAYSHOR1 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
BAYSHOR2 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
BELMONT 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
BERESFRD 60	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
BLLE HVN 60	P2-2:A10:36:_CLY LNDG 60KV SECTION 1D	P2	Bus/Breaker	1.01	1.00	0.89	1.00	1.02	1.02	1.01	0.93	1.02	1.01	1.00	0.89	continue to monitor future load forecast
BLLE HVN 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.82	continue to monitor future load forecast
BRITTN 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A17:28:_BRITTON-MONTA VISTA 115KV [1170]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
BRITTN 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.99	1.00	0.86	1.00	1.04	1.01	1.00	0.94	1.00	1.01	1.00	0.81	continue to monitor future load forecast
BRITTN 115	P1-2:A16:21:_TESLA-NEWARK #2 230KV [5354] & P1-2:A17:28:_BRITTON-MONTA VISTA 115KV [1170]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
BRITTN 115	P7-1:A17:10_Britton-Monta Vista & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	1.00	1.01	0.91	1.00	1.03	1.01	1.00	0.96	1.00	1.01	1.00	0.88	Sensitivity only
BURLNGME 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kv	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
CALEVRAS 115	P2-4:A16:24:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	1.00	0.99	0.93	1.02	1.02	1.01	1.00	0.99	1.00	1.03	0.99	0.95	Sensitivity only
CALEVRAS 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.00	0.89	1.03	1.03	1.02	1.01	1.00	1.02	1.03	0.99	0.90	continue to monitor future load forecast
CALEVRAS 115	P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640] & P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
CALMAT60 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:7:_LS PSTAS 230/60KV TB 4	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
CALTRAINSSF 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
CALTRAINSSJ 115	Base case	P0	Normal	>0.9	1.00	0.94	>0.9	1.03	>0.9	1.01	0.99	>0.9	>0.9	1.00	0.92	continue to monitor future load forecast
CALTRAINSSJ 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.00	0.99	0.91	1.02	1.03	1.02	1.02	0.97	1.01	1.03	0.99	0.87	Sensitivity only
CALTRAINSSJ 115	SVP2-4:6:_NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	>0.9	0.84	0.78	>0.9	0.98	>0.9	0.86	0.81	>0.9	>0.9	0.84	0.76	Project: SVP breaker upgrade project
CALTRAINSSJ 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.77	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.74	continue to monitor future load forecast
CALTRAINSSJ 115	P1-2:A18:26:_FMC-SAN JOSE B 115KV [2021] & P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	>0.9	>0.9	0.70	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.69	continue to monitor future load forecast
CALTRAINSSJ 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	0.99	0.99	0.90	1.02	1.03	1.02	1.00	0.97	1.00	1.04	0.98	0.81	Sensitivity only
CAROLNDS 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A10:57:_JEFFERSON-HILLSDALE JCT 60KV [7190] MOAS OPENED ON HLLSDLJT_HILDAL49	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
CAROLNDS 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.84	0.82	0.78	0.89	0.95	0.92	0.82	0.75	0.92	0.96	0.81	0.78	Project: Jefferson 230 kV Bus Upgrade
CAROLNDS 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.83	1.02	1.01	0.89	1.03	0.92	1.03	0.99	0.92	0.96	1.02	1.00	Sensitivity only
CASTROVL 230	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:9:_CASTRO VALLEY-NEWARK 230KV [4450]	P3	G-1/N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
CASTROVL 230	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:9:_CASTRO VALLEY-NEWARK 230KV [4450]	P6	N-1-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
CAYETANO 230	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	continue to monitor future load forecast
CP LECEF 115	SVP2-2:1:_NRS 400 115 kV bus	P2	Bus/Breaker	1.02	1.00	0.89	1.03	1.03	1.03	1.01	1.00	1.02	1.04	1.00	0.87	continue to monitor future load forecast
CP LECEF 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
CP LECEF 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
CP LECEF 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	1.01	1.01	0.94	1.03	1.02	1.03	1.02	1.00	1.02	1.03	1.01	0.85	Sensitivity only
CRYOGEN 115	P2-4:A16:24:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	0.96	0.95	0.90	1.01	1.02	0.97	0.96	0.97	0.96	1.02	0.95	0.92	continue to monitor future load forecast
CRYOGEN 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
CRYOGEN 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.97	0.96	0.85	1.02	1.02	0.99	0.97	0.97	0.99	1.02	0.96	0.86	continue to monitor future load forecast
CRYOGEN 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
CRYSTLSG 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A10:57:_JEFFERSON-HILLSDALE JCT 60KV [7190] MOAS OPENED ON HLLSDLJT_HILDAL49	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
CRYSTLSG 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.65	0.63	0.61	0.78	0.86	0.82	0.63	0.57	0.79	0.88	0.62	0.60	Project: Jefferson 230 kV Bus Upgrade
CRYSTLSG 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.64	1.01	1.01	0.78	1.03	0.82	1.01	0.98	0.79	0.88	1.00	1.00	Sensitivity only
CV BART 230	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:9:_CASTRO VALLEY-NEWARK 230KV [4450]	P3	G-1/N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
CV BART 230	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:9:_CASTRO VALLEY-NEWARK 230KV [4450]	P6	N-1-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
CYTE PMP 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
DALY CTY 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
DEC PTSG 230	P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
DEC PTSG 230	P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
DIXON LD 115	P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P1	N-1	0.98	1.07	0.91	1.02	1.07	1.02	1.02	0.96	1.01	1.04	1.07	0.89	Sensitivity only
DIXON LD 115	P2-4:A16:21:_NEWARK F 115KV - SECTION 2F & 1F	P2	Bus/Breaker	0.98	1.07	0.89	1.01	1.07	1.01	1.02	0.95	1.00	1.04	1.06	0.87	continue to monitor future load forecast
DIXON LD 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P3	G-1/N-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
DIXON LD 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.02	0.86	1.02	1.04	1.02	1.02	0.97	1.02	1.03	1.01	0.85	continue to monitor future load forecast
DIXON LD 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
DIXON LD 115	P7-1:A18:2:_Newark - Dixon Landing & Newark - Milpitas #1 115 kV Lines	P7	DCTL	0.98	1.07	0.90	1.02	1.07	1.02	1.02	0.96	1.00	1.04	1.07	0.89	Sensitivity only
DMTAR_SL 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	continue to monitor future load forecast
DUMBARTN 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-2:A16:32:_EASTSHORE-DUMBARTON 115KV [1495]	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
E DUBLIN 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:6:_SANRAMON 230/60KV TB 1	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
EDENVALE 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
EDES 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
EL PATIO 115	Base case	P0	Normal	1.02	1.02	0.95	1.03	1.05	1.03	1.03	1.00	1.02	1.04	1.02	0.93	Sensitivity only
EL PATIO 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.01	0.92	1.03	1.05	1.03	1.03	0.98	1.02	1.04	1.01	0.89	Sensitivity only
EL PATIO 115	SVP2-4:6:_NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	0.98	0.92	0.85	1.02	1.01	1.01	0.93	0.89	0.98	1.04	0.92	0.83	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
EL PATIO 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.78	continue to monitor future load forecast
EL PATIO 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.78	continue to monitor future load forecast
EL PATIO 115	P7-1:A18:16_Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	1.00	0.99	0.89	1.01	1.04	1.02	1.01	0.96	1.00	1.02	0.99	0.86	continue to monitor future load forecast
EMBRCDRD 230	P1-2:A9:5:_SAN MATEO-MARTIN 230KV [9980] & P1-3:A9:1:_POTRERO 230/115KV TB 1	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
EMRLD LE 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.66	0.65	0.61	0.78	0.86	0.83	0.63	0.58	0.80	0.88	0.64	0.61	Project: Jefferson 230 kV Bus Upgrade
EMRLD LE 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.65	1.02	1.01	0.78	1.03	0.83	1.02	0.99	0.80	0.88	1.02	1.00	Sensitivity only
EST GRND 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
EVRGRN 1 115	Base case	P0	Normal	1.02	1.02	0.96	1.03	1.05	1.04	1.03	1.00	1.02	1.05	1.02	0.94	Sensitivity only
EVRGRN 1 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.01	0.93	1.03	1.05	1.04	1.03	0.98	1.02	1.04	1.01	0.90	Sensitivity only
EVRGRN 1 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.97	0.97	0.85	1.00	1.04	1.02	1.00	0.94	0.98	1.02	0.97	0.79	continue to monitor future load forecast
EVRGRN 1 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.79	continue to monitor future load forecast
EVRGRN 1 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.79	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
EVRGRN 1 115	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.98	0.98	0.88	1.01	1.04	1.02	1.01	0.95	0.99	1.02	0.98	0.84	continue to monitor future load forecast
FACEBOOKBH 60	P2-2:A10:36:_CLY LNDG 60KV SECTION 1D	P2	Bus/Breaker	0.99	0.99	0.89	0.99	1.01	1.01	0.99	0.93	1.00	1.00	0.99	0.89	continue to monitor future load forecast
FACEBOOKBH 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.82	continue to monitor future load forecast
FMC 115	Base case	P0	Normal	1.01	1.00	0.94	1.03	1.04	1.03	1.01	0.99	1.01	1.04	1.00	0.92	continue to monitor future load forecast
FMC 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.00	0.99	0.91	1.02	1.03	1.03	1.02	0.97	1.01	1.03	0.99	0.87	Sensitivity only
FMC 115	SVP2-4:6:_NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	0.95	0.84	0.78	1.02	0.98	0.99	0.86	0.81	0.95	1.03	0.84	0.76	Project: SVP breaker upgrade project
FMC 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.77	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.74	continue to monitor future load forecast
FMC 115	P1-2:A18:26:_FMC-SAN JOSE B 115KV [2021] & P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	>0.9	>0.9	0.70	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.69	continue to monitor future load forecast
FMC 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	0.99	0.99	0.90	1.02	1.03	1.02	1.00	0.97	1.00	1.04	0.98	0.81	Sensitivity only
FREMNT 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
FREMNT 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.01	0.86	1.02	1.03	1.02	1.02	0.98	1.03	1.03	1.01	Bus Disconnected	continue to monitor future load forecast
FREMNT 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
GILROY F 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-2:A18:43:_MORGAN HILL-LLAGAS 115KV [2800]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
GLENWOOD 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.80	continue to monitor future load forecast
GRANT 115	P1-2:A18:52:_ NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_ RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
HICKS 230	P2-4:A18:2:_ METCALF 230KV - SECTION 1D & 2D	P2	Bus/Breaker	1.03	1.07	0.92	1.05	1.06	1.03	1.06	0.98	1.04	1.07	1.06	0.90	Sensitivity only
HICKS 230	P1-1:A18:4:_ LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_ NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
HICKS 230	P1-1:A18:4:_ LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_ NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
HILLSDLE 60	P5-5:A10:2:_ JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.89	0.88	0.84	0.93	0.97	0.95	0.87	0.82	0.95	0.98	0.88	0.84	Project: Jefferson 230 kV Bus Upgrade
HILLSDLE 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.88	1.03	1.01	0.93	1.03	0.95	1.03	1.00	0.96	0.98	1.03	1.00	Sensitivity only
HLF MNBY 60	P5-5:A10:2:_ JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.85	0.84	0.79	0.91	0.96	0.93	0.83	0.75	0.94	0.98	0.83	0.79	Project: Jefferson 230 kV Bus Upgrade
HLF MNBY 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.84	1.02	1.02	0.91	1.03	0.93	1.03	1.00	0.95	0.98	1.02	1.02	Sensitivity only
HNTRS PT 115	P1-2:A18:51:_ LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_ TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
IBM-BALY 115	P1-2:A18:51:_ LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_ DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
IBM-HRRS 115	P1-2:A18:51:_ LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_ DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
IUKA 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:6:_SANRAMON 230/60KV TB 1	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
IUKAJCT 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:6:_SANRAMON 230/60KV TB 1	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
JARVIS 115	P2-4:A16:24:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	0.96	0.95	0.90	1.01	1.02	0.97	0.96	0.97	0.96	1.02	0.95	0.92	continue to monitor future load forecast
JARVIS 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
JARVIS 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.97	0.96	0.85	1.02	1.02	0.99	0.97	0.97	0.99	1.02	0.96	0.86	continue to monitor future load forecast
JARVIS 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
JENNINGS 60	Base case	P0	Normal	1.01	1.03	0.94	1.03	1.06	1.04	1.04	0.99	1.02	1.04	1.03	0.92	continue to monitor future load forecast
JENNINGS 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.02	0.91	1.02	1.06	1.04	1.04	0.97	1.02	1.03	1.02	0.88	Sensitivity only
JENNINGS 60	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	0.98	0.83	1.00	1.04	1.02	1.00	0.93	0.98	1.02	0.98	0.76	continue to monitor future load forecast
JENNINGS 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.77	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
JENNINGS 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.77	continue to monitor future load forecast
JENNINGS 60	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.97	0.99	0.86	1.00	1.05	1.02	1.01	0.94	0.99	1.02	0.99	0.82	continue to monitor future load forecast
JV BART 115	P2-4:A16:24:_NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Bus/Breaker	0.96	0.95	0.90	1.01	1.02	0.97	0.96	0.97	0.96	1.02	0.95	0.92	continue to monitor future load forecast
JV BART 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
JV BART 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.97	0.96	0.85	1.02	1.02	0.99	0.97	0.97	0.99	1.02	0.96	0.86	continue to monitor future load forecast
JV BART 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
LAKEWD-C 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
LAKEWD-M 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
LAS PLGS 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A10:55:_JEFFERSON-LAS PULGAS 60KV [7200]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
LAS PLGS 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.64	0.63	0.59	0.77	0.86	0.82	0.62	0.55	0.79	0.87	0.62	0.59	Project: Jefferson 230 kV Bus Upgrade
LAS PLGS 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.63	1.01	1.00	0.77	1.03	0.82	1.01	0.97	0.79	0.87	1.01	0.99	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
LAWRENCE 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
LAWRENCE 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.00	1.01	0.88	1.01	1.03	1.02	1.01	0.96	1.01	1.02	1.01	0.80	continue to monitor future load forecast
LAWRENCE 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
LAWRENCE 115	P7-1:A17:12_Newark-Applied Materials & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	1.01	1.01	0.93	1.01	1.03	1.03	1.02	0.98	1.01	1.01	1.01	0.87	Sensitivity only
LIVERMRE 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:7:_LS PSTAS 230/60KV TB 4	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
LIVRMR_2 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:7:_LS PSTAS 230/60KV TB 4	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
LLAGAS 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-2:A18:43:_MORGAN HILL-LLAGAS 115KV [2800]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
LOCKHD 1 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
LOCKHD 1 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.01	0.87	1.01	1.02	1.02	1.01	0.98	1.02	1.01	1.01	0.86	continue to monitor future load forecast
LOCKHD 1 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
LOCKHD 1 115	P7-1:A17:12_Newark-Applied Materials & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	1.01	1.02	0.93	1.01	1.03	1.03	1.03	0.98	1.02	1.01	1.02	0.88	Sensitivity only
LOCKHD 2 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
LOCKHD 2 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.01	0.87	1.01	1.03	1.02	1.02	0.98	1.02	1.01	1.01	0.86	continue to monitor future load forecast
LOCKHD 2 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
LOCKHD 2 115	P7-1:A17:10_Britton-Monta Vista & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	1.00	1.01	0.93	1.01	1.04	1.02	1.02	0.98	1.01	1.01	1.01	0.90	Sensitivity only
LONESTAR 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only
LOS ALTS 60	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.00	1.01	0.87	1.02	1.05	1.03	1.05	0.97	1.01	1.03	1.01	0.82	continue to monitor future load forecast
LOS GATS 60	P1-2:A17:34:_MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	0.97	1.02	0.85	0.98	1.07	1.02	1.02	0.91	1.00	1.01	1.01	0.82	continue to monitor future load forecast
LOS GATS 60	P2-2:A17:48:_LOS GATS 60KV SECTION 1A	P2	Bus/Breaker	0.97	1.02	0.85	0.98	1.07	1.02	1.02	0.91	1.00	1.01	1.01	0.82	continue to monitor future load forecast
LOS GATS 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A17:34:_MONTA VISTA-LOS GATOS 60KV [7610]	P3	G-1/N-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	0.78	continue to monitor future load forecast
LOS GATS 60	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.03	1.03	0.88	1.02	1.06	1.04	1.05	0.98	1.04	1.03	1.03	0.84	continue to monitor future load forecast
LOS GATS 60	P1-2:A16:21:_TESLA-NEWARK #2 230KV [5354] & P1-2:A17:34:_MONTA VISTA-LOS GATOS 60KV [7610]	P6	N-1-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.78	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
LOYOLA 60	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.02	0.89	1.03	1.05	1.03	1.05	0.98	1.03	1.03	1.02	0.84	continue to monitor future load forecast
MABURY 115	P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P1	N-1	0.97	1.02	0.90	1.00	1.02	1.00	1.00	0.95	0.99	1.01	1.02	0.88	continue to monitor future load forecast
MABURY 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	1.01	0.86	0.99	1.02	1.00	0.99	0.94	0.98	1.01	1.01	0.82	continue to monitor future load forecast
MABURY 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P3	G-1/N-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
MABURY 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.00	1.01	0.86	1.02	1.04	1.02	1.02	0.97	1.02	1.03	1.01	0.85	continue to monitor future load forecast
MABURY 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
MABURY 115	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	0.97	1.01	0.88	0.99	1.02	1.00	1.00	0.95	0.99	1.01	1.01	0.87	continue to monitor future load forecast
MABURY 60	Base case	P0	Normal	1.01	1.03	0.94	1.03	1.06	1.04	1.04	0.99	1.02	1.04	1.03	0.92	continue to monitor future load forecast
MABURY 60	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.02	0.91	1.02	1.06	1.04	1.04	0.97	1.02	1.04	1.02	0.88	Sensitivity only
MABURY 60	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	0.98	0.83	1.00	1.05	1.02	1.00	0.93	0.98	1.02	0.98	0.76	continue to monitor future load forecast
MABURY 60	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.77	continue to monitor future load forecast
MABURY 60	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.77	continue to monitor future load forecast
MABURY 60	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.97	0.99	0.86	1.00	1.05	1.02	1.01	0.94	0.99	1.02	0.99	0.82	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
MARITIME 115	P1-2:A8:70:_PITTSBURG-MARTINEZ #2 115KV [3330] MOAS OPENED ON PITTSBURG_W.P.BART & P1-2:A16:26:_GRANT-EDES 115KV [0]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
MARTIN C 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
MCKEE 115	P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P1	N-1	0.97	1.02	0.89	0.99	1.03	1.00	1.00	0.95	0.99	1.01	1.02	0.88	continue to monitor future load forecast
MCKEE 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	1.02	0.86	0.99	1.03	1.00	1.00	0.94	0.99	1.01	1.02	0.82	continue to monitor future load forecast
MCKEE 115	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A16:48:_NEWARK-DIXON LANDING 115KV [2990]	P3	G-1/N-1	>0.9	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
MCKEE 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.02	0.87	1.02	1.04	1.03	1.02	0.97	1.02	1.04	1.02	0.86	continue to monitor future load forecast
MCKEE 115	P1-2:A16:21:_TESLA-NEWARK #2 230KV [5354] & P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	continue to monitor future load forecast
MCKEE 115	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	0.97	1.02	0.88	0.99	1.03	1.00	1.00	0.95	0.99	1.01	1.02	0.86	continue to monitor future load forecast
MEDW LNE 115	P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
MEDW LNE 115	P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
MENLO 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.79	continue to monitor future load forecast
MENLO G 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.79	continue to monitor future load forecast
MILLBRAE 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
MILLBRAE 60	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
MILPITAS 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	continue to monitor future load forecast
MILPITAS 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.02	0.86	1.02	1.04	1.03	1.02	0.97	1.02	1.03	1.01	0.84	continue to monitor future load forecast
MILPITAS 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	continue to monitor future load forecast
MILPITAS 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	1.01	1.03	0.95	1.03	1.04	1.03	1.02	1.00	1.02	1.04	1.03	0.89	Sensitivity only
MISSION 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
MOFT.FLD 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
MOFT.FLD 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.01	0.87	1.01	1.02	1.02	1.01	0.98	1.02	1.02	1.01	0.86	continue to monitor future load forecast
MOFT.FLD 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
MOFT.FLD 115	P7-1:A17:12_Newark-Applied Materials & Lawrence-Monta Vista 115 kV Lines	P7	DCTL	1.01	1.02	0.94	1.01	1.03	1.03	1.03	0.98	1.02	1.01	1.02	0.88	Sensitivity only
MONTAGUE 115	Base case	P0	Normal	1.02	1.01	0.96	1.03	1.03	1.03	1.02	1.00	1.02	1.04	1.01	0.94	Sensitivity only
MONTAGUE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.00	0.92	1.02	1.03	1.03	1.02	0.98	1.02	1.02	1.00	0.89	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
MONTAGUE 115	SVP2-2:1:_NRS 400 115 kV bus	P2	Bus/Breaker	1.01	1.00	0.87	1.03	1.03	1.02	1.01	0.99	1.01	1.03	1.00	0.85	continue to monitor future load forecast
MONTAGUE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.75	continue to monitor future load forecast
MONTAGUE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.75	continue to monitor future load forecast
MONTAGUE 115	P7-1:A18:8_Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	1.00	1.01	0.91	1.02	1.05	1.03	1.02	0.97	1.01	1.03	1.00	0.87	Sensitivity only
MRGN HIL 115	P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640] & P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Sensitivity only
MSFTSJDC 115	SVP2-2:1:_NRS 400 115 kV bus	P2	Bus/Breaker	1.02	1.00	0.89	1.03	1.03	1.03	1.01	1.00	1.02	1.04	1.00	0.87	continue to monitor future load forecast
MSFTSJDC 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
MSFTSJDC 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
MSFTSJDC 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	1.01	1.01	0.94	1.03	1.02	1.03	1.02	1.00	1.02	1.03	1.01	0.84	Sensitivity only
MT EDEN 115	P1-3:A16:1:_E. SHORE 230/115KV TB 1 & P1-3:A16:2:_E. SHORE 230/115KV TB 2	P6	N-1-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
MT VIEW 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.03	0.88	1.01	1.03	1.03	1.03	0.95	1.03	1.02	1.03	0.84	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
MT VIEW 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	Sensitivity only
NASA A 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
NASA A 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.02	0.90	1.02	1.03	1.02	1.02	0.99	1.03	1.02	1.02	0.89	continue to monitor future load forecast
NASA A 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
NASA B 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
NASA B 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.02	0.90	1.02	1.03	1.02	1.02	0.99	1.03	1.02	1.02	0.89	continue to monitor future load forecast
NASA B 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
NDUBLIN 230	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500KV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	continue to monitor future load forecast
NEWARK D 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
NEWARK D 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.00	0.88	1.03	1.03	1.02	1.01	0.99	1.02	1.03	0.99	0.89	continue to monitor future load forecast
NEWARK D 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	continue to monitor future load forecast
NORTECH 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032]	P1	N-1	1.00	0.97	0.90	1.03	1.01	1.02	0.99	0.96	1.00	1.03	0.97	0.88	continue to monitor future load forecast
NORTECH 115	SVP2-2:1:_NRS 400 115 kV bus	P2	Bus/Breaker	1.01	0.98	0.85	1.03	1.02	1.02	1.00	0.98	1.01	1.03	0.98	0.84	continue to monitor future load forecast
NORTECH 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.77	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.75	continue to monitor future load forecast
NORTECH 115	P1-2:A21:1:_SSS-NRS 230kV (SVP) & P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032]	P6	N-1-1	>0.9	>0.9	0.72	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.72	continue to monitor future load forecast
NORTECH 115	P7-1:A18:20_Newark - Los Esteros & Los Esteros - Metcalf 230 kV Lines	P7	DCTL	1.01	1.00	0.93	1.03	1.02	1.02	1.01	0.99	1.02	1.03	1.00	0.83	Sensitivity only
NRTHGRUM 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.80	continue to monitor future load forecast
NWK DIST 230	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.78	continue to monitor future load forecast
NWK DIST 230	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.78	continue to monitor future load forecast
ORACLE60 60	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
PACIFICA 60	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
PERMNTE 60	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.03	1.04	0.91	1.03	1.06	1.05	1.06	1.00	1.04	1.03	1.03	0.86	Sensitivity only
PHILLIPS 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
PHILLIPS 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.01	0.89	1.01	1.02	1.01	1.01	0.98	1.02	1.01	1.00	0.87	continue to monitor future load forecast
PHILLIPS 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	continue to monitor future load forecast
PIERCY 115	P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P1	N-1	0.97	1.03	0.88	0.99	1.03	1.00	1.00	0.95	0.99	1.01	1.03	0.87	continue to monitor future load forecast
PIERCY 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	1.03	0.85	0.99	1.03	1.00	0.99	0.93	0.98	1.01	1.03	0.81	continue to monitor future load forecast
PIERCY 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.82	continue to monitor future load forecast
PIERCY 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.04	0.91	1.04	1.06	1.04	1.04	1.00	1.03	1.05	1.03	0.90	Sensitivity only
PIERCY 115	P1-2:A16:21:_TESLA-NEWARK #2 230KV [5354] & P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.82	continue to monitor future load forecast
PIERCY 115	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	0.96	1.03	0.87	0.99	1.03	1.00	1.00	0.94	0.99	1.01	1.03	0.86	continue to monitor future load forecast
POTRERO 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
POTRERO 230	P1-2:A9:5:_SAN MATEO-MARTIN 230KV [9980] & P1-3:A9:1:_POTRERO 230/115KV TB 1	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
PP STEEL 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
PT PINLE 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
RADUM 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:6:_SANRAMON 230/60KV TB 1	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
RALSTON 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-2:A10:57:_JEFFERSON-HILLSDALE JCT 60KV [7190] MOAS OPENED ON HLLSDLJT_HILDAL49	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
RALSTON 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.65	0.63	0.61	0.78	0.86	0.82	0.63	0.57	0.79	0.88	0.62	0.60	Project: Jefferson 230 kV Bus Upgrade
RALSTON 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.64	1.01	1.01	0.78	1.03	0.82	1.02	0.98	0.80	0.88	1.01	1.00	Sensitivity only
REDWOOD 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
RESEARCH 230	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only
ROSSMOOR 230	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
S.L.A.C. 230	P1-2:A10:61:_JEFFERSN-EGBERTSWSTA 230KV [0] & P1-2:A21:4:_NRS-AGNEW 60kv (SVP)	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
SAN CRLS 60	P1-3:A10:12:_CLY LND2 115/60KV TB 2 & P1-3:A10:13:_CLY LND 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
SAN MATO 60	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
SAN PBLO 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
SANMATEO 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
SANPAULA 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
SANRAMON 230	P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS & P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS	P3	G-1/N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
SARATOGA 230	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
SARATOGA 230	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.02	0.90	1.02	1.04	1.02	1.04	0.99	1.03	1.04	1.02	0.90	Sensitivity only
SARATOGA 230	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
SERRMNT E 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
SFIA 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
SFIA-MA 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
SHAWROAD 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
SHREDDER 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only
SJB DG 115	Base case	P0	Normal	1.01	1.01	0.95	1.03	1.04	1.03	1.02	0.99	1.01	1.04	1.01	0.92	continue to monitor future load forecast
SJB DG 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.00	0.91	1.02	1.04	1.03	1.02	0.97	1.01	1.03	0.99	0.88	Sensitivity only
SJB DG 115	SVP2-4:6:_NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	0.96	0.88	0.82	1.02	1.00	1.00	0.90	0.85	0.97	1.03	0.88	0.80	Project: SVP breaker upgrade project
SJB DG 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
SJB DG 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
SJB DG 115	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.99	0.99	0.90	1.02	1.03	1.02	1.01	0.97	1.00	1.03	0.99	0.87	Sensitivity only
SJB EF 115	Base case	P0	Normal	1.01	1.01	0.95	1.03	1.04	1.03	1.02	0.99	1.02	1.04	1.01	0.92	continue to monitor future load forecast
SJB EF 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.00	0.91	1.02	1.04	1.03	1.02	0.97	1.02	1.03	1.00	0.88	Sensitivity only
SJB EF 115	SVP2-4:6:_NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	0.96	0.89	0.82	1.02	1.00	1.00	0.90	0.86	0.97	1.03	0.88	0.80	Project: SVP breaker upgrade project

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
SJB EF 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
SJB EF 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
SJB EF 115	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.99	0.99	0.90	1.02	1.04	1.02	1.01	0.97	1.00	1.03	0.99	0.87	Sensitivity only
SN BRNOT 60	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only
SN JSE A 115	Base case	P0	Normal	1.01	1.01	0.95	1.03	1.04	1.03	1.02	0.99	1.02	1.04	1.01	0.92	continue to monitor future load forecast
SN JSE A 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.00	0.92	1.02	1.04	1.03	1.02	0.98	1.02	1.03	1.00	0.88	Sensitivity only
SN JSE A 115	SVP2-4:6:_NRS 400 115 kV bus tie breaker to NRS 300 115 kV bus	P2	Bus/Breaker	0.97	0.90	0.83	1.02	1.00	1.01	0.91	0.87	0.97	1.03	0.89	0.81	Project: SVP breaker upgrade project
SN JSE A 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
SN JSE A 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
SN JSE A 115	P7-1:A18:16_Metcalf - El Patio No. 1 & 2 115 kV Lines	P7	DCTL	1.00	0.99	0.90	1.02	1.04	1.02	1.01	0.96	1.00	1.03	0.99	0.87	Sensitivity only
SN LNDRO 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
SNANDRES 60	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-2:A30:3:_TESLA-METCALF 500kV	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
SNTH LNE 60	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Sensitivity only
ST TRESA 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
STANFORD 60	Base case	P0	Normal	0.98	0.98	0.93	0.98	0.99	1.02	0.99	0.96	0.98	0.99	0.98	0.91	Sensitivity only
STANFORD 60	P1-4:A17:1:_MONTAVIS SVD=V	P1	N-1	0.96	0.96	0.91	>0.9	>0.9	>0.9	0.97	0.94	0.97	>0.9	0.96	0.90	Sensitivity only
STANFORD 60	P2-4:A18:2:_METCALF 230KV - SECTION 1D & 2D	P2	Bus/Breaker	0.97	0.99	0.89	0.99	1.00	1.02	0.99	0.94	0.99	1.00	0.99	0.87	continue to monitor future load forecast
STANFORD 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A10:7:_JEFFERSN 230/60KV TB 2	P3	G-1/N-1	>0.9	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
STANFORD 60	P7-1:A17:17_Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	0.97	0.98	0.90	0.98	0.99	1.01	0.99	0.95	0.99	0.99	0.98	0.89	Sensitivity only
STATIN J 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
STD. OIL 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Sensitivity only
STELLING 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.00	1.02	0.84	0.99	1.03	1.02	1.02	0.93	1.02	1.01	1.02	0.80	continue to monitor future load forecast
STELLING 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
STONE 115	Base case	P0	Normal	1.01	1.01	0.95	1.03	1.05	1.04	1.03	0.99	1.02	1.04	1.01	0.93	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
STONE 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.01	0.92	1.02	1.05	1.04	1.03	0.98	1.02	1.04	1.00	0.89	Sensitivity only
STONE 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	0.97	0.84	1.00	1.04	1.02	1.00	0.93	0.98	1.02	0.97	0.78	continue to monitor future load forecast
STONE 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.79	continue to monitor future load forecast
STONE 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.79	continue to monitor future load forecast
STONE 115	P7-1:A18:17_Metcalf - Evergreen #1 and #2 115 kV Lines	P7	DCTL	0.97	0.97	0.87	1.00	1.04	1.02	1.01	0.94	0.99	1.02	0.97	0.84	continue to monitor future load forecast
SUNOL 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:6:_SANRAMON 230/60KV TB 1	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
SWIFT 115	P1-2:A18:34:_SWIFT-METCALF 115KV [3900]	P1	N-1	0.99	1.02	0.92	1.00	1.04	1.01	1.01	0.97	1.01	1.02	1.02	0.89	Sensitivity only
SWIFT 115	P2-4:A18:21:_MTCALF E 115KV - SECTION 1E & 2E	P2	Bus/Breaker	0.98	1.01	0.88	1.00	1.03	1.01	1.00	0.95	1.00	1.01	1.01	0.83	continue to monitor future load forecast
SWIFT 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A18:34:_SWIFT-METCALF 115KV [3900]	P3	G-1/N-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	continue to monitor future load forecast
SWIFT 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.02	0.89	1.03	1.05	1.03	1.03	0.99	1.03	1.04	1.02	0.87	continue to monitor future load forecast
SWIFT 115	P1-2:A18:34:_SWIFT-METCALF 115KV [3900] & P1-2:A16:51:_NEWARK-MILPITAS #2 115KV [3080]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
SWIFT 115	P7-1:A18:6_Swift - Metcalf & Piercy - Metcalf 115 kV Lines	P7	DCTL	0.99	1.02	0.90	1.00	1.03	1.01	1.00	0.96	1.01	1.01	1.01	0.87	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
TASSAJAR 230	P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P3	G-1/N-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
TASSAJAR 230	P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
TESORO 230	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
TIDEWATR 230	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
TRIMBLE 115	Base case	P0	Normal	1.02	1.01	0.96	1.03	1.03	1.03	1.02	1.00	1.02	1.04	1.01	0.94	Sensitivity only
TRIMBLE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS	P1	N-1	1.01	1.00	0.92	1.02	1.03	1.03	1.02	0.98	1.02	1.02	1.00	0.89	Sensitivity only
TRIMBLE 115	SVP2-2:1:_NRS 400 115 kV bus	P2	Bus/Breaker	1.01	1.00	0.87	1.03	1.03	1.02	1.01	0.99	1.01	1.03	1.00	0.85	continue to monitor future load forecast
TRIMBLE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
TRIMBLE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.78	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.76	continue to monitor future load forecast
TRIMBLE 115	P7-1:A18:8_Los Esteros - Trimble & Los Esteros - Montague 115 kV	P7	DCTL	1.00	1.01	0.92	1.02	1.05	1.03	1.02	0.97	1.01	1.03	1.00	0.87	Sensitivity only

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
VALLECTS 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:6:_SANRAMON 230/60KV TB 1	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
VASCO 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A16:7:_LS PSTAS 230/60KV TB 4	P3	G-1/N-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
VASONA 230	P2-4:A18:2:_METCALF 230KV - SECTION 1D & 2D	P2	Bus/Breaker	1.02	1.06	0.92	1.05	1.05	1.03	1.06	0.98	1.04	1.07	1.05	0.90	Sensitivity only
VASONA 230	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
VASONA 230	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	continue to monitor future load forecast
VINEYARD 230	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	continue to monitor future load forecast
WALNUTCR 115	P1-2:A18:52:_NORTECH-NORTHERN RECEIVING STATION 115KV [1551] & P1-1:A8:18:_LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
WATRSLED 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.74	0.73	0.69	0.83	0.90	0.87	0.71	0.66	0.86	0.91	0.72	0.68	Project: Jefferson 230 kV Bus Upgrade
WATRSLED 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.73	1.02	1.01	0.83	1.03	0.87	1.02	0.99	0.86	0.91	1.02	1.01	Sensitivity only
WESTRN_D 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast

Study Area: Template

High/Low Voltages



Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
WESTRN_D 115	P5-5:A10:6:_PALO ALTO SW. STA. 115KV DBDB BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.01	1.00	0.86	1.02	1.03	1.02	1.02	0.97	1.02	1.02	1.00	0.85	continue to monitor future load forecast
WESTRN_D 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	continue to monitor future load forecast
WHISMAN 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.02	1.03	0.89	1.01	1.03	1.02	1.02	0.96	1.03	1.02	1.02	0.85	continue to monitor future load forecast
WHISMAN 115	P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640] & P1-2:A18:6:_LOS ESTEROS-METCALF 230KV [5353]	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Sensitivity only
WOLFE 115	P5-5:A17:1:_MONTA VISTA 115KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.00	1.02	0.84	0.99	1.03	1.02	1.02	0.93	1.02	1.01	1.02	0.80	continue to monitor future load forecast
WOLFE 115	P1-2:A18:51:_LOS ESTEROS-NORTECH 115KV [4032] & P1-1:A8:17:_DEC STG1 18.00KV & DEC CTG1 18.00KV & DEC CTG2 18.00KV & DEC CTG3 18.00KV GEN UNITS	P6	N-1-1	>0.9	>0.9	99.00	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Sensitivity only
WOODSIDE 60	P1-1:A16:4:_RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS & P1-3:A10:7:_JEFFERSN 230/60KV TB 2	P3	G-1/N-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	continue to monitor future load forecast
WOODSIDE 60	P5-5:A10:2:_JEFFERSON 230 KV BAAH BUS #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	0.64	0.63	0.59	0.77	0.86	0.82	0.62	0.55	0.79	0.88	0.62	0.59	Project: Jefferson 230 kV Bus Upgrade
WOODSIDE 60	P7-1:A10:4_Monta Vista-Jefferson Nos. 1 & 2 230 kV lines	P7	DCTL	0.63	1.01	1.00	0.77	1.03	0.82	1.01	0.97	0.80	0.88	1.01	0.99	Sensitivity only

Study Area: PG&E Greater Bay Area

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
Agnew 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	15	continue to monitor future load forecast
ALMADEN 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	11	<8	<8	<8	<8	<8	<8	<8	<8	12	continue to monitor future load forecast
BARTLP 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	<8	<8	8	<8	<8	<8	<8	<8	<8	<8	<8	9	continue to monitor future load forecast
BRITTN 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A17:28:_BRITTON-MONTA VISTA 115KV [1170]	P3	G-1/N-1	<8	<8	8	<8	<8	<8	<8	<8	<8	<8	<8	6	continue to monitor future load forecast
CALTRAINSSJ 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	13	<8	<8	<8	<8	<8	<8	<8	<8	13	continue to monitor future load forecast
CP LECEF 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	15	continue to monitor future load forecast
EL PATIO 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	11	<8	<8	<8	<8	<8	<8	<8	<8	11	continue to monitor future load forecast
EVRGRN 1 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	10	<8	<8	<8	<8	<8	<8	<8	<8	11	continue to monitor future load forecast

Study Area: PG&E Greater Bay Area

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
FMC 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	13	<8	<8	<8	<8	<8	<8	<8	<8	13	continue to monitor future load forecast
JENNINGS 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	10	<8	<8	<8	<8	<8	<8	<8	<8	11	continue to monitor future load forecast
LOS GATS 60	P1-2:A17:34:_MONTA VISTA-LOS GATOS 60KV [7610]	P1	N-1	6	2	18	4	-2	0	2	11	4	2	2	20	continue to monitor future load forecast
MABURY 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	<8	<8	8	<8	<8	<8	<8	<8	<8	<8	<8	9	continue to monitor future load forecast
MABURY 60	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	10	<8	<8	<8	<8	<8	<8	<8	<8	11	continue to monitor future load forecast
MCKEE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P3	G-1/N-1	<8	<8	9	<8	<8	<8	<8	<8	<8	<8	<8	10	continue to monitor future load forecast
MONTAGUE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	13	<8	<8	<8	<8	<8	<8	<8	<8	14	continue to monitor future load forecast
MSFTSJDC 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	15	continue to monitor future load forecast

Study Area: PG&E Greater Bay Area

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
NORTECH 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	14	<8	<8	<8	<8	<8	<8	<8	<8	15	continue to monitor future load forecast
NWK DIST 230	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	15	<8	<8	<8	<8	<8	<8	<8	<8	17	continue to monitor future load forecast
PIERCY 115	P1-2:A18:45:_PIERCY-METCALF 115KV [4318]	P1	N-1	7	2	11	6	3	4	4	8	5	5	2	11	continue to monitor future load forecast
SJB DG 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	13	continue to monitor future load forecast
SJB EF 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	12	<8	<8	<8	<8	<8	<8	<8	<8	12	continue to monitor future load forecast
SN JSE A 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	11	<8	<8	<8	<8	<8	<8	<8	<8	12	continue to monitor future load forecast
STONE 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	10	<8	<8	<8	<8	<8	<8	<8	<8	11	continue to monitor future load forecast
SWIFT 115	P1-1:A18:4:_LECEFAST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A18:34:_SWIFT-METCALF 115KV [3900]	P3	G-1/N-1	<8	<8	7	<8	<8	<8	<8	<8	<8	<8	<8	9	continue to monitor future load forecast

Study Area: PG&E Greater Bay Area

Voltage Deviation



Substation	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	2026 SP High CEC Forecast	2031 Summer Peak with High SJ Load	
TRIMBLE 115	P1-1:A18:4:_LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS & P1-2:A16:19:_NEWARK E-F BUS TIE 230KV [4640]	P3	G-1/N-1	<8	<8	13	<8	<8	<8	<8	<8	<8	<8	<8	14	continue to monitor future load forecast

Study Area: PG&E Greater Bay Area

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2023 Spring Off-Peak	2026 Summer Peak	2031 Summer Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 OP Heavy Renewable & Min Gas Gen	
Permanent fault on Contra Costa-Moraga Nos. CK 1 & 2 230 kV lines	P7-1	DCTL	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Temporary fault on Contra Costa-Moraga Nos. CK 1 & 2 230 kV lines	P7-1	DCTL	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Permanent fault on Tesla-Newark 230kV and Tesla-Ravenswood 230kV lines	P7-1	DCTL	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Temporary fault on Tesla-Newark 230kV and Tesla-Ravenswood 230kV lines	P7-1	DCTL	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 500/230 kV #13 Transformer 3Ø fault with normal clearing.	P1-3	N-1	No issue	No issue	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Continue to monitor
Metcalf 500/230 kV #13 Transformer 3Ø fault with normal clearing with LMEC offline in the base case.	P3-3	G-1/N-1	No issue	No issue	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Continue to monitor
Metcalf 500/230 kV #13 Transformer SLG fault with delayed clearing.	P5-3	Non-Redundant Relay	Potential WECC/NERC criteria violation	No issue	No issue	No issue	No issue	No issue	Protection upgrade
Tesla-Newark 230 kV line 3Ø fault with normal clearing with Metcalf 500/230 kV #13 Transformer offline in the base case.	P6-1	N-1-1	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 230 kV bus 3Ø fault with normal clearing with Metcalf 500/230 kV #13 Transformer offline in the base case.	P6-2	N-1-1	No issue	No issue	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Continue to monitor
Contra Costa-Gateway 230 kV SLG fault with delayed clearing.	P5-2	Non-Redundant Relay	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Contra Costa-Gateway 230 kV SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-2	Stuck Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
TBC SLG fault with normal clearing.	P1-5	N-1	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Under Review
TBC SLG fault with normal clearing with LMEC offline in the base case.	P3-5	G-1/N-1	No issue	No issue	No issue	Potential WECC/NERC criteria violation	No issue	No issue	Continue to monitor
TBC SLG fault with normal clearing with Tesla-Newark 230 kV line offline in the base case.	P6-4	N-1-1	No issue	No issue	No issue	No issue	No issue	Potential WECC/NERC criteria violation	Sensitivity only
Newark 230 kV 3Ø fault with normal clearing.	P1-2	N-1	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Tesla-Newark 230 kV line 3Ø fault with normal clearing with LMEC offline in the base case.	P3-2	G-1/N-1	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required

Study Area: PG&E Greater Bay Area

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2023 Spring Off-Peak	2026 Summer Peak	2031 Summer Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 OP Heavy Renewable & Min Gas Gen	
Monta Vista 230 kV SVD 3Ø fault with normal clearing.	P1-4	N-1	No issue	No issue	No issue	No issue	No issue	Potential WECC/NERC criteria violation	Sensitivity only
Monta Vista 230 kV SVD 3Ø fault with normal clearing with LMEC offline in the base case.	P3-4	G-1/N-1	No issue	No issue	No issue	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Continue to monitor
Monta Vista 230 kV SVD SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-4	Stuck Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Monta Vista 230 kV SVD SLG fault with delayed clearing.	P5-4	Non-Redundant Relay	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Ravenswood 230 kV SVD 3Ø fault with normal clearing with Monta Vista 230 kV SVD offline in the base case.	P6-3	Stuck Breaker	No issue	No issue	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No issue	Potential WECC/NERC criteria violation	Continue to monitor
Metcalf 230 kV bus SLG fault with normal clearing.	P2-2	Bus	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 230 kV line breaker SLG fault with normal clearing.	P2-3	Non-Bus-Tie Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 230 kV bus-tie breaker SLG fault with normal clearing.	P2-4	Bus-Tie Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 500/230 kV #13 Transformer SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-3	Stuck Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 230 kV bus SVD SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-5	Stuck Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Crocket 3Ø fault with normal clearing with LMEC offline in the base case.	P3-1	G-1/N-1	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
LMEC 3Ø fault with normal clearing.	P1-1	N-1	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
DEC 3Ø fault with normal clearing.	P1-1	N-1	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 115 kV bus-tie breaker SVD SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-6	Stuck Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Metcalf 115 kV bus SLG fault with delayed clearing.	P5-5	Non-Redundant Relay	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Protection upgrade

Study Area: PG&E Greater Bay Area

Transient Stability



Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2023 Spring Off-Peak	2026 Summer Peak	2031 Summer Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 OP Heavy Renewable & Min Gas Gen	
Los Esteros SLG fault expanded to elements lost due to stuck breaker and clear fault from remote breakers with normal clearing time.	P4-1	Stuck Breaker	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required
Los Esteros SLG fault with delayed clearing.	P5-1	Non-Redundant Relay	No issue	No issue	No issue	No issue	No issue	No issue	No mitigation required

Study Area: PG&E Greater Bay Area



Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)												Potential Mitigation Solutions
			2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	

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

Study Area: PG&E Greater Bay Area



Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)												Potential Mitigation Solutions
	2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Winter Peak	2026 Winter Peak	2031 Winter Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2031 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	

No single source substation with more than 100 MW