

Study Area: PG&E Greater Fresno
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
(New) Los Banos-C560SS 230 kV Line	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	Generation re	DCTL	2.52	9.94	1.06	50.32	81.22	8.79	102.17	59.43	Sensitivity only
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	2.27	8.63	0.53	50	80.67	7.48	Diverge	57.91	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	1.92	8.76	0.9	49.57	80.64	7.72	Diverge	57.99	Sensitivity only
(New)Oro Loma-Mendota 115kV Line	PANOCH1 115KV SECTION 1D	P2	Bus/Breaker	45.32	45.2	48.3	89.51	96.75	46.03	16.95	102.45	Sensitivity only
	DAIRYLAND-MENDOTA 115KV [1360] & PANOCH1-MENDOTA 115KV [3230]	P6	N-1-1	<100	<100	<100	<100	146.01	<100	<100	98.84	Generation re-dispatch
	PANOCH1-ORO LOMA 115KV [3240] (PANOCH1-PANOCH2)	P2-1	Line Section w/o Fault	23.53	24.69	26.9	106.81	27.52	24.69	23.51	34.13	Generation re-dispatch
	PANOCH2 115KV SECTION 2D	P2	Bus/Breaker	23.55	24.7	26.9	104.5	28.44	24.7	23.54	38.26	Generation re-dispatch
(New)Woodward-Shepherd 115 kV Line (34414 34348)	HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	22.09	15.13	22.82	89.83	104.2	15.24	8.62	100.06	Generation re-dispatch
	HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780]	P7	DCTL	32.96	24.85	32.04	76.92	105.31	25.14	10.1	93.62	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	13.88	16.89	22.04	106.3	98.97	16.8	13.79	105.62	Generation re-dispatch
Atwater-Merced 115 kV Line (34110 34144)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	23.62	38.78	Diverge	41.39	7.72	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	23.73	38.77	Diverge	41.4	7.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
Barton-Airways-Sanger 115 kV Line (34359 34408)	MUSTANG SW STA-GREGG 230KV [4700] & TRANQUILLITY SW STA-KEARNEY 230KV [5380]	P6	N-1-1	<100	<100	<100	107.62	<100	<100	<100	<100	Generation re-dispatch
	HERNDON 115KV SECTION 2D	P2	Bus/Breaker	38.66	26.76	34.64	78.58	111.47	27.04	6.18	105.26	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	103.93	<100	<100	<100	Generation re-dispatch
	TRANQUILLITY SW STA-KEARNEY 230KV [5380] (MCMULLN1-KEARNEY)	P2-1	Line Section w/o Fault	11.2	18.13	21.6	Diverge	56	18.45	4.91	83.81	Generation re-dispatch
	MUSTANG SW STA-GREGG 230KV [4700] (GREGG-HENTAP1)	P2-1	Line Section w/o Fault	21.02	35.43	33.36	Diverge	58.53	35.92	14.09	87.6	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYS- MCMULLN1 #1 230KV [0]	P7	DCTL	30.71	45.62	44.7	107.19	18.98	46.59	5.96	66.85	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DCTL	25.63	40.53	39.46	101.77	21.12	41.38	5.58	67.35	Generation re-dispatch
Ballota - Warnerville 230 kV Line	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	28.5	25.55	16.59	53.4	54.28	25.19	100.83	97.63	Sensitivity only
	Lines #7 & #8 - Warnerville-Standiford 115kV Out	P7	DCTL	60.33	28.33	20.39	55.9	48.92	28.12	132.95	73.58	Sensitivity only

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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Benito - Wardenville 230 kV Line	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	35.54	28.57	18.43	56.86	61.2	28.05	Diverge	112	Sensitivity only
Chowchilla-Kerckhoff #2 115 kV Line (34105 34121)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	47.47	48.65	Diverge	39.67	54.96	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	50.01	48.58	Diverge	40.15	56.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170]	P6	N-1-1	103.8	<100	<100	<100	<100	<100	196.23	80.07	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	70.57	42.77	66.04	6.53	116.6	43.48	3.29	58.85	Generation re-dispatch
	HERNDON #1 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	69.57	41.82	65.04	6.51	117.53	42.52	4.02	59.67	Continue to Monitor
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	5.45	28.17	5.55	38.3	97.27	26.97	Diverge	55.59	Sensitivity only
	DAIRYLAND-MENDOTA 115KV [1360] & WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<100	<100	<100	<100	104.77	<100	80.6	133.38	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
Dairyland-Mendota 115 kV Line (34150 34154)	PANOCHÉ-MENDOTA 115KV [3230]	P1	N-1	87.69	46.05	46.98	1.54	19.12	46.54	107.9	40.83	Sensitivity only
	PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV	P2	Bus/Breaker	88.33	46.1	48.65	10.99	25.16	46.6	107.99	43.67	Sensitivity only
Dos Amigos PP-Panoche #3 230 kV Line	PANOCHÉ 230KV - SECTION 1E & 1D	P2	Bus/Breaker	48.36	22.62	14.24	5.2	51.46	22.17	101.34	43.52	Sensitivity only
	PADREFLATSSS 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	39.84	19.58	10.92	15.46	46.87	19.21	103.34	37.44	Sensitivity only
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	36.04	20.42	12.42	10.34	51.91	19.95	106.55	43.22	Sensitivity only
	LOS BANOS-PADRE FLAT SW STA 230KV [1092]	P1	N-1	39.89	19.61	10.97	15.44	51.45	19.24	112.13	42.36	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	56.67	31.15	19.92	19.19	72.74	30.11	Diverge	64.36	Sensitivity only
El Capitan-Wilson 115 kV Line (34136 34138)	ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & WILSON-ATWATER #2 115KV [4160]	P6	N-1-1	114.4	116.07	118.81	<100	<100	117.26	<100	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
Exchequer 115/70/13.8 kV Transformer (34112 34223)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	16.11	38.23	Diverge	25.12	12.35	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan

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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Exchequer 115/70/15.0 kV Transformer (34112 34202)	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	17.16	38.23	Diverge	25.13	13.04	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
Exchequer-Le Grand 115 kV Line (34112 34116)	WILSON-MERCED #1 115KV [4180] & EXCHEQUR 70/115KV TB 1	P6	N-1-1	100.07	100.08	<100	<100	<100	100.07	<100	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	16.76	105.11	Diverge	107.94	19.31	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	13.83	105.08	Diverge	107.85	17.13	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	MUSTANG SW STA-GREGG 230KV [4700] & EXCHEQUR 70/115KV TB 1	P6	N-1-1	<100	<100	<100	117.52	<100	<100	<100	<100	Generation re-dispatch
	MERCED 115KV SECTION 1D	P2	Bus/Breaker	58.39	62.19	97.43	37.56	66.38	61.94	120.39	64.81	Sensitivity only
	MERCED 115 KV #1 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	58.39	49.8	97.08	29.64	53.7	49.57	120.38	38.97	Sensitivity only
	MERCED - 1D 115KV & ATWATER-LIVINGSTON-MERCED LINE	P2	Bus/Breaker	58.39	62.19	97.42	37.52	66.38	61.94	120.38	64.81	Sensitivity only
	EXCHEQUR 70/115KV TB 1	P1	N-1	71.92	77.94	111.19	59.25	32.32	78.96	117.2	48.78	Continue to Monitor future forecast
Gates-Gregg 230 kV Line	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	6.21	19.77	11.41	49.5	86.32	18.33	110.3	71.17	Sensitivity only
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	9.63	21.43	13.37	49.58	85.73	19.95	110.57	71.67	Sensitivity only
	LOSBANOS 500/230KV TB 1 & GATES-MUSTANG SW STA #1 230KV [2604]	P6	N-1-1	<100	<100	<100	58.36	114.23	<100	99.51	105.08	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	17.94	15.13	23.06	16.92	101.02	14.91	62.67	68.9	Generation re-dispatch
	GATES-MUSTANG SW STA #1 230KV [2604]	P1	N-1	14.53	39.61	29.27	56.18	107.88	37.64	137.06	99.25	Generation re-dispatch
	GATES F 230KV - MIDDLE BREAKER BAY 5	P2	Bus/Breaker	14.36	39.52	29.27	56.18	107.79	37.56	136.49	99.25	Generation re-dispatch
	GATES F 230KV - MIDDLE BREAKER BAY 4	P2	Bus/Breaker	14.25	39.8	29.1	56.05	107.95	37.85	136.7	99.18	Generation re-dispatch
Gregg-Ashlan 230 kV Line (30810 30845)	GREGG-HERNDON #1 230KV [4830] & GREGG-HERNDON #2 230KV [4840]	P6	N-1-1	99.49	99.55	99.52	<100	130.73	99.54	93.55	72.63	Generation re-dispatch
GWF-Kingsburg 115 kV Line (34429 34428)	MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<100	<100	<100	<100	<100	<100	99.47	Diverge	Sensitivity only
	MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0]	P6	N-1-1	<100	<100	<100	<100	154.81	<100	<100	<100	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	44.1	63.4	71.59	81.21	108.34	65.74	31.99	23.24	Generation re-dispatch

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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Henrietta 230/115 kV Transformer #3 (34430 30881)	TRANQUILLITY SW STA-HELM 230KV [5370] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	127.61	<100	<100	<100	Generation re-dispatch
	Q1036SPV1 34.50KV GEN UNIT 1 & CHSR09SWSTA-MUSTANGSS 230KV [0]	P3	G1/N1	<100	<100	<100	<100	111.21	<100	<100	<100	Generation re-dispatch
	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	7.9	6.89	29.2	31.04	109.96	8.28	82.98	68.55	Generation re-dispatch
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	8.47	5.56	27.68	30.39	109.44	6.93	82.88	69.02	Generation re-dispatch
	MUSTANG SW STA-MCCALL 230KV [4710] (HENTAP2-MUSTANGSS)	P2-1	Line Section w/o Fault	9	7.03	28.18	27.2	109.69	8.64	67.24	64.61	Generation re-dispatch
	MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	Diverge	Sensitivity only
	MC CALL-CHSR09SWSTA #1 230KV [0] & HELM-MCCALL 230KV [4860]	P6	N-1-1	<100	<100	<100	<100	125.15	<100	<100	<100	Generation re-dispatch
	HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	19.41	29.21	49.97	9.91	103.71	30.53	39.84	67.67	Generation re-dispatch
	HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	18.81	24.8	46.48	14	109.28	26.18	47.7	68.54	Generation re-dispatch
	HERNDON #1 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	18.54	24.47	46.12	13.82	109.56	25.84	47.94	68.76	Continue to Monitor
	HELM-MCCALL 230KV [4860] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	8.81	8.23	29.66	30.4	101.18	9.58	64.08	57.66	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	9.71	15.24	41.14	47.88	150.76	17.56	85.11	77.88	Generation re-dispatch
	CHSR09SWSTA-MUSTANGSS 230KV [0]	P1	N-1	<100	7.06	28.23	<100	109.77	8.66	<100	<100	Generation re-dispatch
Henrietta-GWF 115 kV Line (34430 34519)	TRANQUILLITY SW STA-HELM 230KV [5370] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	125.09	<100	<100	<100	Generation re-dispatch
	Q1158S 0.42KV GEN UNIT 1 & CHSR09SWSTA-MUSTANGSS 230KV [0]	P3	G1/N1	<100	<100	<100	<100	110.03	<100	<100	<100	Generation re-dispatch
	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	7.86	6.46	28.1	30.15	108.87	7.93	82.89	67.31	Generation re-dispatch
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	8.43	4.98	26.57	29.55	108.47	6.49	83.05	67.78	Generation re-dispatch
	MUSTANG SW STA-MCCALL 230KV [4710] (HENTAP2-MUSTANGSS)	P2-1	Line Section w/o Fault	8.97	6.54	27.07	26.25	107.5	8.25	67.21	63.38	Generation re-dispatch
	MC CALL-CHSR09SWSTA #1 230KV [0] & HELM-MCCALL 230KV [4860]	P6	N-1-1	<100	<100	<100	<100	122.61	<100	<100	<100	Generation re-dispatch
	HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	19.34	28.66	48.56	8.93	101.98	29.97	39.72	66.59	Generation re-dispatch
	HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	18.75	24.44	45.14	13.75	107.69	25.8	47.79	67.46	Generation re-dispatch
	HERNDON #1 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	18.49	24.11	44.79	13.44	107.97	25.47	48.03	67.67	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	9.67	14.94	39.95	46.91	148.27	17.27	85.18	76.47	Generation re-dispatch

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				2023 Summer Peak	2026 Summer Peak	2031 Summer Peak	2023 Spring Off-Peak	2026 Spring Off-Peak	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
	HELM-MCCALL 230KV [4860] & CHSR09SWSTA-MUSTANGSS 230KV [0]	P6	N-1-1	<100	<100	<100	<100	141.25	<100	<100	<100	Generation re-dispatch
	CHSR09SWSTA-MUSTANGSS 230KV [0]	P1	N-1	<100	6.54	27.1	<100	107.57	8.24	<100	<100	Generation re-dispatch
	CHSR09SWSTA 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	<100	6.54	27.1	<100	107.57	8.24	<100	<100	Generation re-dispatch
	MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0]	P6	N-1-1	<100	<100	<100	<100	154.89	<100	<100	<100	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	7.98	9.08	27.13	33.7	108.34	11.33	31.99	23.3	Generation re-dispatch
Herndon-Ashlan 230 kV Line	GREGG-HERNDON #2 230KV [4840] & GREGG-HERNDON #1 230KV [4830]	P6	N-1-1	72.83	71.6	69.59	<100	120.26	71.45	<100	78.3	Generation re-dispatch
Herndon-Barton 115 kV Line (34408 34412)	TRANQUILITY SW STA-HELM 230KV [5370] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	101.92	<100	<100	<100	Generation re-dispatch
	HERNDON 115KV SECTION 2D	P2	Bus/Breaker	78.68	67.62	75.46	58.78	117.61	68.18	32.43	102.92	Generation re-dispatch
	HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	78.26	67.2	75.02	59.13	117.98	67.77	32.05	103.32	Generation re-dispatch
	HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE	P2	Bus/Breaker	78.71	67.63	75.49	58.73	117.61	68.19	32.42	102.92	Project: Herndon-Bullard 115 kV Reconductor In-service date: 05/24 Short term: Action plan
	HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	110.21	<100	<100	<100	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	58.69	49.84	60.43	29.15	104.54	51.1	8.42	64.02	Generation re-dispatch
Herndon-Bullard #1 115 kV Line (34409 34416)	HERNDON-BULLARD #1 115KV [1760] (HERNDON-PNDLJ1)	P2-1	Line Section w/o Fault	119.58	66.53	72.27	43.73	13.75	67.04	70.63	18.48	Project: Herndon-Bullard 115 kV Reconductor In-service date: 05/24 Short term: Action plan
	HERNDON 115KV SECTION 1D	P2	Bus/Breaker	119.65	66.57	72.23	43.99	13.82	67.08	70.53	18.55	Project: Herndon-Bullard 115 kV Reconductor In-service date: 05/24 Short term: Action plan
Herndon-Manchester 115 kV Line (34410 34412)	HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	100.8	<100	<100	<100	Generation re-dispatch
Herndon-Woodward 115 kV Line (34414 34422)	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	25.57	96.74	Diverge	4.79	67.44	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	62.84	55.35	63.97	53.53	127.27	55.92	8.77	97.62	Generation re-dispatch
	HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780]	P7	DCTL	76.54	69.21	78.2	41.14	128.46	69.9	17.84	91.17	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	109	<100	<100	<100	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	50.86	47.88	57.73	20.13	103.61	48.96	17.64	56.15	Generation re-dispatch

Study Area: **PG&E Greater Fresno**
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
	BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	43.06	36.06	43.96	69.32	121.88	36.48	1.08	103.22	Generation re-dispatch
HW_TAP-RB_TAP8 115kV Line (CCSF) (36998 36975)	COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	69.48	29.59	22.22	25.46	61.65	29.31	123.42	86.48	Sensitivity only
	BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	65.96	27.64	20.33	27.43	62.15	27.34	122.24	85.49	Sensitivity only
Intake-MOC_TAP5 230kV Line (CCSF)	PANOCHÉ-MENDOTA 115KV [3230] & Line #6-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	Diverge	<100	<100	<100	<100	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV [1060] & Line #6-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	95.7	<100	<100	<100	Diverge	Sensitivity only
	PANOCHÉ-MENDOTA 115KV [3230] & Line #5-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	Diverge	<100	<100	<100	<100	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV [1060] & Line #5-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	95.7	<100	<100	<100	Diverge	Sensitivity only
JACKSONSWSTA-Kingsburg #1 115 kV	MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0]	P6	N-1-1	<100	<100	<100	<100	152.55	<100	<100	<100	Generation re-dispatch
Kerckhoff - Clovis - Sanger #1 115 kV Line (Woodward-Shepherd) (34360 34348)	MUSTANG SW STA-GREGG 230KV [4700] & TRANQUILLITY SW STA-KEARNEY 230KV [5380]	P6	N-1-1	<100	<100	<100	101.5	<100	<100	<100	<100	Generation re-dispatch
	KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON SHARON T_OAKH_JCT	P6	N-1-1	<100	<100	<100	<100	<100	<100	100.72	<100	Sensitivity only
	HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	4.93	10.34	5.38	98.17	93.07	10.2	5.98	101.32	Generation re-dispatch
	BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	21.62	29.46	24.73	114.32	87.84	29.47	15.62	106.94	Generation re-dispatch
Kingsriver-Sanger-Reedley 115 kV Line (34366 34389)	MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	147.49	140.03	159.29	99.59	<100	144.61	<100	<100	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
Le Grand-Dairyland 115 kV Line	PANOCHÉ-MENDOTA 115KV [3230]	P1	N-1	89.25	67.23	69.58	12.8	36.19	68.12	123.97	59.57	Sensitivity only
	PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV	P2	Bus/Breaker	89.55	67.26	71.28	25.76	42.49	68.15	123.94	62.61	Sensitivity only
	PANOCHÉ1 115KV SECTION 1D	P2	Bus/Breaker	89.97	67.22	69.59	13.54	36.92	68.11	123.93	59.43	Sensitivity only
	PANOCHÉ1 - 1D 115KV & PANOCHÉ-MENDOTA LINE	P2	Bus/Breaker	89.99	67.22	69.59	13.52	36.96	68.11	123.97	59.43	Sensitivity only
	KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & PANOCHÉ-MENDOTA 115KV [3230]	P6	N-1-1	<100	<100	<100	<100	<100	<100	115.59	<100	Sensitivity only
Los Banos-Dos Amigos 230 kV Line	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	30.42	27.78	8.07	57	102.26	25.92	Diverge	92.35	Install Redundant protection
	LOSBANOS 230KV SECTION 2D	P2	Bus/Breaker	34.57	26.96	11.83	52.8	102.54	26.09	131.97	84.51	Generation re-dispatch
	LOS BANOS-PADRE FLAT SW STA 230KV [1092]	P1	N-1	30.05	24.62	9.53	35.02	80.29	23.97	101.44	66.3	Sensitivity only

Study Area: PG&E Greater Fresno
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Los Banos-Panoche #2 230 kV Line	GATES SECTION D & E 230 kV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	46.67	44.66	25.12	41.53	117.41	42.83	Diverge	104.57	Install Redundant protection
Manchester - Airways - Sanger 115 kV Line (34410 34368)	MUSTANG SW STA-GREGG 230KV [4700] & TRANQUILLITY SW STA-KEARNEY 230KV [5380]	P6	N-1-1	<100	<100	<100	109.41	<100	<100	<100	<100	Generation re-dispatch
	KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & BARTON-AIRWAYS-SANGER 115KV [1060]	P6	N-1-1	<100	<100	<100	Diverge	<100	<100	<100	99.61	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	111.41	<100	<100	<100	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	28.85	17.59	30.89	9.33	105.39	18.66	31.6	72.05	Generation re-dispatch
McCall 230/115 kV Transformer #2	MC CALL 230KV - SECTION 1D & 2D	P2	Bus/Breaker	83.95	78.04	83.76	108.89	4.95	78.95	35.67	50.8	Generation re-dispatch
McCall 230/115 kV Transformer #3	MC CALL 115KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	83.34	82.2	91.15	125.44	19.95	83.56	38.65	44.77	Generation re-dispatch
McCall-Kingsburg #1 115 kV Line (34370 34385)	MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<100	<100	<100	<100	<100	<100	82.02	Diverge	Sensitivity only
	MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0]	P6	N-1-1	<100	<100	<100	<100	144.61	<100	<100	<100	Generation re-dispatch
McCall-Kingsburg #2 115 kV Line	MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<100	<100	<100	<100	<100	<100	76.41	Diverge	Sensitivity only
	MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0]	P6	N-1-1	<100	<100	<100	<100	140.6	<100	<100	<100	Generation re-dispatch
McCall-Reedley 115 kV Line (Reedley-Wahtoke) (34382 34380)	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	111.63	107.48	112.71	<100	<100	109.81	<100	<100	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
McCall-Sanger #2 115 kV Line (34366 34370)	MCCALL-REEDLEY 115KV [2320] & MCCALL-SANGER #3 115KV [2350]	P7	DCTL	44.48	50.81	57.18	100.56	5.79	51.96	21.85	47.44	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
McCall-Sanger #3 115 kV Line (34366 34370)	MUSTANG SW STA-GREGG 230KV [4700] (GREGG-HENTAP1)	P2-1	Line Section w/o Fault	30.73	41.63	44.16	Diverge	9.94	42.63	12.95	51.86	Generation re-dispatch
	MCCALL-SANGER #1 115KV [2330] & MCCALL-SANGER #2 115KV [2340]	P7	DCTL	43.48	52.99	60.41	125.69	10.04	54.21	25.99	65.49	Generation re-dispatch
	MC CALL 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	49.54	56.57	63.7	111.97	6.44	57.85	24.48	52.82	Generation re-dispatch
	HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	37.17	49.11	51.92	101.26	21.27	50.47	16.11	36.95	Generation re-dispatch
	TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	2.74	2.74	0.49	58.14	105.39	2.74	2.73	59.71	Generation re-dispatch
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	2.74	2.74	0.49	54.3	101.44	2.74	2.73	60.44	Generation re-dispatch
	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	2.74	2.74	0.49	71.74	134.36	2.74	2.74	77.91	Generation re-dispatch

Study Area: **PG&E Greater Fresno**
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Mendota-San Joaquin-Helm 70 kV Line	PANOCHÉ-MENDOTA 115KV [3230] & LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND	P6	N-1-1	<100	<100	<100	108.15	<100	<100	<100	<100	Generation re-dispatch
	PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV	P2	Bus/Breaker	42.78	9.36	28.77	134.09	74.21	9.68	39.52	51.94	Generation re-dispatch
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	2.74	2.74	0.48	61.93	134.02	2.74	2.74	78.14	Generation re-dispatch
	NORTHSTAR 0.36KV GEN UNIT 1 & TRANQUILLITY SW STA-HELM 230KV [5370]	P3	G1/N1	<100	<100	<100	<100	104.32	<100	<100	<100	Generation re-dispatch
Merced 115/70 kV Transformer #2 (34202 34146)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	29.11	92.33	Diverge	73.68	62.14	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	32.91	92.31	Diverge	73.69	64.8	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<100	<100	<100	<100	<100	<100	106.95	<100	Sensitivity only
Merced Falls-Exchequer 70 kV Line (34321 34230)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	55.6	196.93	Diverge	142.21	59.22	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	60.77	196.92	Diverge	142.22	62.85	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170]	P6	N-1-1	65.31	<100	<100	<100	<100	<100	144.87	<100	Sensitivity only
	DAIRYLAND-MENDOTA 115KV [1360] & WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<100	<100	<100	<100	<100	<100	90.15	103.69	Sensitivity only
Merced-Merced Falls 70 kV Line (34202 34230)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	44.41	192.19	Diverge	147.9	68.97	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	49.56	192.19	Diverge	147.91	72.76	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<100	<100	<100	<100	<100	<100	144.17	<100	Sensitivity only
MOC_TAP5-Warnerville 230kV Line (CCSF)	WOODWARD-SHEPHERD 115KV [1895] & Line #6-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	Diverge	Sensitivity only
	PANOCHÉ-MENDOTA 115KV [3230] & Line #6-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	Diverge	<100	<100	<100	<100	Generation re-dispatch
	WOODWARD-SHEPHERD 115KV [1895] & Line #5-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	Diverge	Sensitivity only

Study Area: **PG&E Greater Fresno**
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
	PANOCHÉ-MENDOTA 115KV [3230] & Line #5-Intake-Warnerville 230kV Line Out	P6	N-1-1	<100	<100	<100	Diverge	<100	<100	<100	<100	Generation re-dispatch
MOSSLNSW-LASAGUILASS #2 230KV	PANOCHÉ 230KV - SECTION 2E & 1E	P2	Bus/Breaker	23.71	14.47	7.46	32.38	66.13	14.49	105.56	70.84	Sensitivity only
	LOSBANOS 230KV - SECTION 1D & 2D	P2	Bus/Breaker	18.37	10.73	4.99	41.16	75.95	10.77	120.03	80.85	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	25.39	20.6	9.98	34.72	88.59	20.02	Diverge	97.3	Sensitivity only
NORTHSTAR-Mendota 115 kV Line	Q1127-MENDOTA #1 115KV [0]	P1	N-1	86.62	9.31	15.75	0.98	72.99	10.08	101.02	72.32	Sensitivity only
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] (2)	P7	DCTL	85.52	9.06	14.7	0.98	71.36	9.9	100.43	71.16	Sensitivity only
	MENDOTA 115KV - MIDDLE BREAKER BAY 5	P2	Bus/Breaker	86.62	9.31	15.75	0.98	72.99	10.08	101.02	72.32	Sensitivity only
	HELMS-GREGG #1 230KV [4870] & HELMS-GREGG #2 230KV [4880]	P7	DCTL	85.8	12.58	16.19	0.97	72.01	13.39	101.27	70.61	Sensitivity only
	HELMS PP2 230KV SECTION 1E	P2	Bus/Breaker	85.73	9.78	15.37	0.98	72.37	10.5	100.32	71.16	Sensitivity only
Panoche-Gates 230 kV Line #1	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	59.56	43.67	42.33	32.33	64.9	41.47	Diverge	68.4	Sensitivity only
Panoche-Gates 230 kV Line #2	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	59.56	43.67	42.33	32.33	64.9	41.47	Diverge	68.4	Sensitivity only
Panoche-Lasaguilass 230 kV Line #2	PANOCHÉ 230KV - SECTION 2E & 1E	P2	Bus/Breaker	20.16	1.96	18.51	56.59	62.76	2.25	103.77	51.28	Sensitivity only
Panoche-Mendota 115 kV Line (34157 34155)	WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	Diverge	Diverge	<100	35.73	80.82	Diverge	114.4	61.6	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Diverge	Diverge	<100	34.8	80.75	Diverge	114.57	62.34	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON-LE GRAND 115KV [4170]	P1	N-1	58.92	33.4	31.3	35.66	69.19	34.2	109.95	61.5	Sensitivity only
	WILSON A 115KV SECTION 1D	P2	Bus/Breaker	58.15	33.8	<100	35.73	69.36	34.62	109.65	61.6	Sensitivity only
	WILSON A - 1D 115KV & WILSONSTCOM-WILSON A #1 LINE	P2	Bus/Breaker	58.15	33.8	<100	35.73	69.36	34.62	109.65	61.6	Sensitivity only
	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	47.82	37.28	38.19	57.74	84.99	38.24	111.38	63.58	Sensitivity only
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	45.59	33.84	34.72	48.72	83.39	34.66	116.8	61.07	Sensitivity only
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	51.52	30.08	31.07	49.04	72.8	31.07	113.38	61.69	Sensitivity only
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	51.59	29.52	30.59	49.33	73.03	30.5	Diverge	62.07	Sensitivity only
	MELONES-WILSON 230KV [5080] & WARNERVILLE-WILSON 230KV [5870]	P7	DCTL	44.4	40.34	41.12	51.05	69.87	41.23	103.35	51.67	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	48.79	31.75	<100	47.52	69.33	32.6	Diverge	57.47	Sensitivity only
	COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	55.14	28.11	29.14	44.81	65.48	28.82	104.82	51.58	Sensitivity only

Study Area: PG&E Greater Fresno
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
	BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	53.73	29.62	30.59	46.28	65.91	30.37	104.1	51.15	Sensitivity only
Panoche-PADREFLATSSS 230 kV Line	PANOCHÉ 230KV SECTION 2E	P2	Bus/Breaker	38.64	20.77	8.96	25.42	50.76	20.27	102.56	38.55	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	41.38	25.51	14.35	23.76	63.87	24.47	Diverge	56.13	Sensitivity only
Panoche-Schindler #1 115 kV Line (34155 34350)	TRANQUILLITY SW STA-HELM 230KV [5370] & PANOCHÉ-EXCELSIOR SW STA #2 115KV [3260]	P6	N-1-1	<100	<100	<100	<100	94.92	<100	<100	104.5	Sensitivity only
	PANOCHÉ-EXCELSIOR SW STA #2 115KV [3260] (CHENYT-EXCELSIORSS)	P2-1	Line Section w/o Fault	91.59	35.73	77.97	27.26	83.67	35.68	3.21	100.39	Sensitivity only
	PANOCHÉ-EXCELSIOR SW STA #2 115KV [3260]	P1	N-1	89.69	33.84	76.15	27.26	83.66	33.83	3.2	100.38	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	92.56	34.27	<100	27.36	89.95	34.91	Diverge	101.2	Sensitivity only
	EXCELSIORSS 115KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	89.69	33.84	76.15	27.26	83.66	33.83	3.2	100.38	Sensitivity only
Panoche-Schindler #2 115 kV Line (34149 34158)	TRANQUILLITY SW STA-HELM 230KV [5370] & PANOCHÉ-EXCELSIOR SW STA #1 115KV [3250] MOAS OPENED ON PANOCHÉ1_KAMM	P6	N-1-1	<100	<100	<100	<100	124.24	<100	<100	103	Continue to monitor Fresno procedure
	PANOCHÉ1 115KV SECTION 1D	P2	Bus/Breaker	30.2	23.63	26.69	27.2	83.5	23.59	9.48	103.1	Sensitivity only
	PANOCHÉ1 - 1D 115KV & PANOCHÉ-MENDOTA LINE	P2	Bus/Breaker	30.2	23.63	26.69	27.21	83.5	23.59	9.48	103.1	Sensitivity only
	PANOCHÉ1 - 1D 115KV & PANOCHÉ-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	30.2	23.63	26.69	27.2	83.5	23.59	9.48	103.1	Sensitivity only
	PANOCHÉ1 - 1D 115KV & PANOCHÉ-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	30.2	23.63	26.69	27.2	83.5	23.59	9.48	103.1	Sensitivity only
RB_TAP8-Stanford 115kV Line (CCSF)	COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	68.9	29.29	21.94	26.21	61.41	29.01	122.81	85.72	Sensitivity only
	BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	65.38	27.34	20.05	28.19	61.91	27.04	121.63	84.72	Sensitivity only
Reedley 115/70 kV Transformer #2 (34492 34380)	REEDLEY 115KV - RING R5 & R4	P2	Bus/Breaker	98.41	97.73	99.76	69.09	24.43	100.1	54.24	26.05	Sensitivity only
Sanger-Reedley 115 kV Line (34487 34490)	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	108.63	103.21	111.27	<100	<100	105.34	<100	<100	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
Schindler 115/70 kV Transformer #1 (34562 34354)	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	122.39	62.51	113.03	16.07	82.72	63.22	Diverge	54.71	Redundant Relay Project
	GATES D 230KV SECTION 2D	P2	Bus/Breaker	104.79	46.77	102.23	13.51	71.64	47.76	10.55	44.91	Operating solution avilbale
	PANOCHÉ-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231]	P7	DCTL	59.66	8.01	58.46	35.88	102.85	8.64	21.09	151.41	Continue to monitor Fresno procedure

Study Area: **PG&E Greater Fresno**
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
	PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus/Breaker	8.3	44.19	12.44	36.48	102.43	43.53	20.7	151.02	Generation re-dispatch
	EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	36.87	5.7	36.13	22.31	89.14	6.2	38.07	117.96	Sensitivity only
Schindler-Coalinga #2 70 kV Line (34561 34566)	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	114.33	65.46	99.51	23.89	30.78	65.94	Diverge	12.18	Redundant Relay Project
	PANOCH-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	43.72	23.01	45.1	16.31	99.69	23.05	55.87	126.89	Sensitivity only
	PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus/Breaker	19.68	49.92	9.45	25.02	105.23	49.61	55.91	130.13	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	60.06	50.91	43.63	19.46	87.43	50.32	85.12	100.87	Sensitivity only
	GATES-MUSTANG SW STA #1 230KV [2604] & GATES-MUSTANG SW STA #2 230KV [2605]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	101.1	Sensitivity only
	EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	28.84	21.97	27.39	16.95	93.63	22.01	69.6	111.08	Sensitivity only
Schindler-Huron-Gates 70 kV Line (34559 34560)	SCHINDLR 115KV - RING R1 & R3	P2	Bus/Breaker	106.21	76.78	106.27	63.8	66.6	77.83	39.75	67.66	Operating solution avilbale
	PANOCH-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	133.87	77.74	132.84	72.96	113.92	79.07	18.19	131.37	Operating solution avilbale
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	120.42	47.6	114.75	10.32	52.22	48.32	Diverge	45.19	Redundant Relay Project
	GATES D 230KV SECTION 2D	P2	Bus/Breaker	104.42	34.7	105.58	7.72	62.56	35.64	32.97	53.14	Operating solution avilbale
	EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231]	P7	DCTL	106.68	75.35	104.82	64.11	105.16	76.5	36.43	109.32	Generation re-dispatch
	EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	106.23	76.78	106.29	63.57	66.42	77.83	39.76	67.22	Operating solution avilbale
	PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV	P2	Bus/Breaker	71.47	24.26	69.98	86.16	121.73	25.12	18.75	135.89	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	49.11	38.53	37.93	51.6	96.99	37.62	96.39	101.63	Sensitivity only
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	49.07	38.27	37.68	51.24	96.4	37.37	Diverge	100.07	Sensitivity only
	GATES-MUSTANG SW STA #1 230KV [2604] & GATES-MUSTANG SW STA #2 230KV [2605]	P6	N-1-1	<100	<100	<100	<100	93.2	<100	81.25	101.87	Sensitivity only
	TRANQUILLITY SW STA-HELM 230KV [5370]	P1	N-1	<100	<100	<100	54.82	107.74	<100	<100	48.95	Generation re-dispatch
	TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	<100	<100	<100	63.44	126.79	<100	<100	54.53	Generation re-dispatch
	TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	<100	<100	<100	46.33	119.29	<100	<100	60.24	Generation re-dispatch
	Q678 0.38KV GEN UNIT 1 & TRANQUILLITY SW STA-HELM 230KV [5370]	P3	G1/N1	<100	<100	<100	<100	119.34	<100	<100	<100	Generation re-dispatch

Study Area: PG&E Greater Fresno
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Stroud-Stroud Sw Station 70 kV Line (34474 34556)	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	<100	<100	<100	92.26	176.18	<100	<100	101.39	Generation re-dispatch
	PANOCHÉ-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231]	P7	DCTL	29.52	13.1	29.72	37.62	123.12	12.6	24.94	135.62	Operation solution availbale
	PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV	P2	Bus/Breaker	29.81	13.36	29.72	24.33	108.41	12.83	25.51	127.24	Generation re-dispatch
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	<100	<100	<100	82.57	174.45	<100	<100	98.68	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	<100	<100	<100	45.62	112.13	<100	<100	81.89	Generation re-dispatch
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	<100	<100	<100	44.33	110.04	<100	Diverge	76.37	Generation re-dispatch
	HELM 230KV SECTION 1D	P2	Bus/Breaker	<100	<100	<100	14.2	83.67	<100	<100	101.2	Sensitivity only
	GATES D 230KV SECTION 2D	P2	Bus/Breaker	29.48	13.06	29.72	17.39	107.82	12.56	24.21	103.9	Generation re-dispatch
	EXCELSIORSS-PANOCHÉ1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231]	P7	DCTL	29.52	13.1	29.72	29.76	112.46	12.6	24.93	111.03	Generation re-dispatch
Warnerville - Wilson 230 kV Line	CHSR09SWSTA-MUSTANGSS 230KV [0] & TRANQUILLITY SW STA-HELM 230KV [5370]	P6	N-1-1	<100	<100	<100	<100	175.02	<100	<100	<100	Generation re-dispatch
	PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0]	P7	DCTL	14.22	16.3	30.61	46.12	122.68	17.25	84.96	65.26	Generation re-dispatch
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	17.26	18.75	34.05	48.92	126.11	19.74	85.77	66.62	Generation re-dispatch
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	4.39	12.04	11.21	53.25	149.68	10.51	108.43	98.72	Generation re-dispatch
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	4.09	14.44	10.29	53.98	151.23	12.82	Diverge	101.76	Generation re-dispatch
	MUSTANG SW STA-GREGG 230KV [4700] (HENTAP1-MUSTANGSS)	P2-1	Line Section w/o Fault	6.79	11.29	25.59	44.39	116.08	12.27	78.5	56.42	Generation re-dispatch
	Holm Unit #1 out & GATES-MUSTANG SW STA #2 230KV [2605]	P3	G1/N1	<100	<100	<100	<100	105.26	<100	<100	<100	Generation re-dispatch
	HELMS-GREGG #1 230KV [4870] & HELMS-GREGG #2 230KV [4880]	P7	DCTL	81.76	81.78	92.32	23.53	108.92	82.6	29.06	64.69	Generation re-dispatch
	HELMS PP2 SECTION 1E & HELMS PP3 SECTION 1F 230KV	P2	Bus/Breaker	81.76	81.78	92.32	23.53	108.92	82.6	29.06	64.69	Generation re-dispatch
	HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0]	P7	DCTL	15.09	16.35	28.7	39.61	106.75	17.24	69.56	53.01	Generation re-dispatch
	GATES-MUSTANG SW STA #2 230KV [2605] & GATES-MUSTANG SW STA #1 230KV [2604]	P6	N-1-1	<100	<100	<100	<100	133.32	<100	82.7	98.57	Generation re-dispatch
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	7.5	20.76	8.93	58.06	170.32	18.53	Diverge	118.75	Redundant Relay Project
Warnerville 230/115 kV Bank #3 (CCSF) (36964 30515)	Warnerville 230/115kV Transformer #1 Out & Warnerville 230/115kV Transformer #2 Out	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	100.01	Sensitivity only
Warnerville-HW TAP 115kV Line (CCSF) (36964 36998)	COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	69.49	29.59	22.23	25.42	61.65	29.31	123.42	86.49	Sensitivity only

Study Area: PG&E Greater Fresno
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Warnerville-HW_1741 115KV Line (CCSF) (36964 38230)	BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	65.97	27.65	20.34	27.39	62.15	27.34	122.24	85.5	Sensitivity only
Warnerville-Stanford 115kV Line (CCSF) (36964 38230)	COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	69.21	29.44	22.09	25.84	61.53	29.16	123.12	86.12	Sensitivity only
	BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	65.69	27.5	20.2	27.82	62.03	27.19	121.94	85.12	Sensitivity only
Wilson-Atwater #2 115 kV Line (34134 34104)	EL CAPITAN-WILSON 115KV [1510] & ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED	P6	N-1-1	127.01	128.43	<100	<100	<100	129.81	<100	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
Wilson-Gregg 230 kV Line	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	17.58	27.73	<100	44.63	53.34	27.51	102.46	21.11	Sensitivity only
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	29.33	48.48	<100	50.13	68.88	47.69	122.81	44.93	Sensitivity only
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	29.92	51.76	<100	51.31	70.79	50.95	Diverge	49.89	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	34.65	53.7	<100	53.27	78.92	52.63	Diverge	54.61	Sensitivity only
	BORDEN 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	<100	<100	47.89	<100	<100	<100	<100	<100	Sensitivity only
Wilson-Le Grand 115 kV Line (34116 34134)	PANOCHÉ-MENDOTA 115KV [3230] (PANOCHET-MENDOTA)	P2-1	Line Section w/o Fault	51.88	23.7	<100	<100	69.97	24.46	105.49	<100	Sensitivity only
	PANOCHÉ-MENDOTA 115KV [3230]	P1	N-1	51.88	23.7	<100	<100	69.97	24.46	105.49	<100	Sensitivity only
	PANOCHÉ1 115KV SECTION 1D	P2	Bus/Breaker	52.58	23.47	<100	<100	70.28	24.23	105.47	<100	Sensitivity only
Wilson-Melones 230 kV Line	MUSTANG SW STA-GREGG 230KV [4700] (GREGG-HENTAP1)	P2-1	Line Section w/o Fault	<100	<100	34.79	Diverge	<100	<100	<100	25.17	Generation re-dispatch
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	15.94	8.45	<100	<100	46.42	9	Diverge	<100	Sensitivity only
Wilson-Merced #2 115 kV Line (34136 34144)	WILSON-MERCED #1 115KV [4180] & EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	113.52	112.45	<100	<100	<100	<100	<100	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON B 115KV SECTION 2D	P2	Bus/Breaker	112.62	111.89	<100	<100	49.24	113.19	50.91	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON A 115KV SECTION 1D	P2	Bus/Breaker	102.89	103.81	<100	<100	60.43	105.16	47.49	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2	P6	N-1-1	98.32	131.37	<100	<100	<100	134.12	<100	<100	Project: Wilson-Oro Loma Reconductoring In-service date: 01/26 Short term: Action plan

Study Area: PG&E Greater Fresno
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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
Wilson-Oro Loma 115 kV Line (34162 34168)	TRANQUILLITY SW STA-KEARNEY 230KV [5380] (MCMULLN1-KEARNEY)	P2-1	Line Section w/o Fault	25.4	22.66	13.93	Diverge	7.34	23.63	30.68	58.88	Project: Wilson-Oro Loma Reconductoring In-service date: 01/26 Short term: Action plan
	PANOCHÉ-ORO LOMA 115KV [3240] (PANOCHÉJ-PANOCHÉ2)	P2-1	Line Section w/o Fault	71.02	68.06	107.98	40.32	22.04	69.48	38.21	38.79	Continue to Monitor future forecast
	PANOCHÉ2 115KV SECTION 2D	P2	Bus/Breaker	71.07	68.06	107.98	40.26	23.35	69.48	38.22	40.84	Continue to Monitor future forecast
	PANOCHÉ 230/115KV TB 1 & PANOCHÉ 230/115KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	100.22	Sensitivity only
	HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	40.39	43.95	35.81	104.22	23.98	45.46	24.24	44.3	Project: Wilson-Oro Loma Reconductoring In-service date: 01/26 Short term: Action plan
Wilson-Storey 230 kV Line #1	WILSON-BORDEN #2 230KV [9001] (WILSON-STOREYJCT2)	P2-1	Line Section w/o Fault	<100	<100	<100	104.06	<100	<100	<100	53.24	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	PANOCHÉ 230KV - SECTION 1D & 2D	P2	Bus/Breaker	7.35	17.85	<100	<100	60.23	17.57	102.84	<100	Sensitivity only
	MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	19.55	40.06	<100	<100	76.68	39.16	124.5	<100	Sensitivity only
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	20.17	43.58	<100	<100	78.61	42.65	Diverge	<100	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	25.23	45.62	<100	<100	87.29	44.45	Diverge	<100	Sensitivity only
Wilson-Storey 230 kV Line #2	WILSON-BORDEN #1 230KV [5890] & MUSTANG SW STA-GREGG 230KV [4700]	P6	N-1-1	<100	<100	<100	100.65	<100	<100	<100	<100	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
	MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	15.77	33.9	<100	<100	61.28	33.18	Diverge	<100	Sensitivity only
	GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	19.7	35.48	<100	<100	68.01	34.57	Diverge	<100	Sensitivity only

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
FIREBAGH 70 kV	ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	0.8396	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	BALCH-MCCALL 230KV [4350] & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8915	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
FIGRDN 2 230 kV	BARTON-AIRWAYS-SANGER 115KV [1060] & BALCH-MCCALL 230KV [4350]	P6	N-1-1	>0.9	>0.9	>0.9	0.8994	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
ASHLAN 230 kV	BARTON-AIRWAYS-SANGER 115KV [1060] & HERNDON 230/115KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.8996	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
FIGRDN 1 230 kV		P6	N-1-1	>0.9	>0.9	>0.9	0.8991	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
ORO LOMA 115 kV	BARTON-AIRWAYS-SANGER 115KV [1060] & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	>0.9	0.8957	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
SNTA RTA 70 kV		P6	N-1-1	>0.9	>0.9	>0.9	0.8796	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
CAL AVE 115 kV	CALIFORNIA AVE-MCCALL 115KV [2360] & SANGER-CALIFORNIA AVE 115KV [9130]	P6	N-1-1	>0.9	>0.9	0.8717	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
FIREBAGH 70 kV	CHOWCOGN 13.80KV GEN UNIT 1 & ORO LOMA-MENDOTA 70KV [9030]	P3	G-1/N-1	>0.9	>0.9	>0.9	0.8995	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
TOMATAK 70 kV		P3	G-1/N-1	>0.9	>0.9	>0.9	0.8995	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan
DOS PALS 70 kV	CHOWCOGN 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.9	>0.9	0.8836	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
LIVNGSTN 115 kV	EL CAPITAN-WILSON 115KV [1510] & ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED	P6	N-1-1	0.8959	>0.9	>0.9	>0.9	>0.9	0.8988	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
ORO LOMA 115 kV	ELNIDO 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240]	P3	G-1/N-1	>0.9	>0.9	0.8995	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
SNTA RTA 70 kV		P3	G-1/N-1	>0.9	>0.9	0.878	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
YOSEMITE 70 kV	EXCHQUER 13.80KV GEN UNIT 1 & MERCED FALLS-EXCHEQUER 70KV [8990]	P3	G-1/N-1	>0.9	>0.9	0.8996	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ASHLAN 230 kV	GREGG SVD=V & KERCKHOFF-CLOVIS-SANGER #1 115KV [1890]	P6	N-1-1	>0.9	>0.9	>0.9	0.8994	>0.9	>0.9	>0.9	>0.9	System Reconfiguration
DOS PALS 70 kV	GREGG SVD=V & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	0.8744	0.8993	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
FIREBAGH 70 kV		P6	N-1-1	>0.9	>0.9	0.8304	0.8963	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
SNTA RTA 70 kV		P6	N-1-1	>0.9	>0.9	0.8689	0.8965	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DOS PALS 70 kV	HAMMONDS 115 KV #1 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	0.9667	0.9837	0.8856	0.9257	1.0337	0.9817	0.9984	1.0044	Continue to Monitor future forecast
FIREBAGH 70 kV		P5	Non-Redundant Relay	0.9391	0.957	0.8423	0.9117	0.9742	0.9545	0.9881	0.9482	Continue to Monitor future forecast
ORO LOMA 70 kV		P5	Non-Redundant Relay	0.9746	0.9917	0.8972	0.9322	1.0285	0.99	0.9999	1.0018	Continue to Monitor future forecast
SNTA RTA 70 kV		P5	Non-Redundant Relay	0.962	0.9803	0.8802	0.9229	1.0374	0.9781	0.9985	1.0097	Continue to Monitor future forecast
CHWCHLLA 115 kV	HELMS-GREGG #1 230KV [4870] & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8925	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DOS PALS 70 kV	HELMS-GREGG #1 230KV [4870] & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	0.8795	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
SNTA RTA 70 kV		P6	N-1-1	>0.9	>0.9	0.8741	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
CHWCHLLA 115 kV	HERNDN1T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G-1/N-1	>0.9	>0.9	0.8922	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	HERNDON 230/115KV TB 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8906	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DOS PALS 70 kV	HERNDON-KEARNEY 230KV [4900] & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	0.882	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
SHARON 115 kV	HERNDON-WOODWARD 115KV [1790] & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8855	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	KERCK1-3 6.60KV GEN UNIT 3 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G-1/N-1	>0.9	>0.9	0.8938	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
SHARON 115 kV	KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8777	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8837	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ASHLAN 230 kV	KERCKHOFFPH2 115/13.8KV TB 1 & GREGG SVD=V	P6	N-1-1	>0.9	>0.9	>0.9	0.8982	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch
ASHLAN 230 kV	KERCKHOFFPH2 13.80KV GEN UNIT 1 & GREGG SVD=V	P3	G-1/N-1	>0.9	>0.9	>0.9	0.8987	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch
FIGRDN 1 230 kV		P3	G-1/N-1	>0.9	>0.9	>0.9	0.8983	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch
FIGRDN 2 230 kV		P3	G-1/N-1	>0.9	>0.9	>0.9	0.8974	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch
SHARON 115 kV	KERCKHOFFPH2 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G-1/N-1	>0.9	>0.9	0.8847	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
TOMATAK 70 kV	KERCKHOFFPH2 13.80KV GEN UNIT 1 & ORO LOMA-MENDOTA 70KV [9030]	P3	G-1/N-1	>0.9	>0.9	>0.9	0.8981	>0.9	>0.9	>0.9	>0.9	Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
REEDLEY 115 kV	KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P6	N-1-1	>0.9	>0.9	0.8922	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
REEDLEY 70 kV		P6	N-1-1	>0.9	>0.9	0.8897	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	KINGSBUR 13.80KV & SANGERCGN 13.80KV & KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G-1/N-1	>0.9	>0.9	0.8911	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DUNLAP 70 kV	KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P3	G-1/N-1	>0.9	>0.9	0.8922	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
SANDCRK 70 kV		P3	G-1/N-1	>0.9	>0.9	0.8991	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DINUBA 70 kV	KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & REEDLEY-DINUBA #1 70KV [9050]	P3	G-1/N-1	0.8891	>0.9	0.867	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
DINUBA 70 kV	KINGSRIV 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G-1/N-1	0.8889	>0.9	0.8694	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
CHWCHLLA 115 kV	LE GRAND-CHOWCHILLA 115KV [2110]	P1	N-1	0.9348	0.9291	0.8962	0.9928	1.1217	0.9269	0.9865	1.0384	Continue to Monitor future forecast
SHARON 115 kV	LE GRAND-CHOWCHILLA 115KV [2110] & MC CALL 230/115KV TB 1	P6	N-1-1	>0.9	>0.9	0.8974	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DOS PALS 70 kV		P7	DCTL	0.9667	0.9837	0.8855	0.9247	1.0332	0.9817	0.9967	1.0039	Continue to Monitor future forecast

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
FIREBAGH 70 kV	LOS BANOS-PANOCHE #1 230KV [5030] & PANOCHE-ORO LOMA 115KV [3240]	P7	DCTL	0.939	0.957	0.8422	0.9104	0.9743	0.9544	0.9863	0.948	Continue to Monitor future forecast
ORO LOMA 70 kV		P7	DCTL	0.9746	0.9917	0.8972	0.9313	1.028	0.99	0.9981	1.0012	Continue to Monitor future forecast
SNTA RTA 70 kV		P7	DCTL	0.962	0.9802	0.8801	0.9219	1.0369	0.9781	0.9967	1.0092	Continue to Monitor future forecast
CHWCHLLA 115 kV	MC CALL 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G-1/N-1	>0.9	>0.9	0.8923	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DUNLAP 70 kV	MC CALL 230.00KV GEN UNIT VS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE	P3	G-1/N-1	>0.9	>0.9	0.8987	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DINUBA 70 kV	MC CALL 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050]	P3	G-1/N-1	>0.9	>0.9	0.8692	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CAMDEN 70 kV	MCCALL-KINGSBURG #1 115KV [2290] & MCCALL-KINGSBURG #2 115KV [2301]	P7	DCTL	0.8985	0.9211	0.9029	0.9444	1.0333	0.9198	0.9323	0.9653	Generation re-dispatch
DUNLAP 70 kV	MCCALL-REEDLEY 115KV [2320] & MCCALL-SANGER #3 115KV [2350]	P7	DCTL	0.9192	0.9464	0.8959	0.9899	1.1151	0.9424	0.9628	1.0461	Continue to Monitor future forecast
TVY VLLY 70 kV	MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & KINGS RIVER-SANGER-REEDLEY 115KV [2030]	P6	N-1-1	0.897	>0.9	0.8799	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
WAHTOKE 115 kV		P6	N-1-1	>0.9	>0.9	0.8852	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DUNLAP 70 kV		P6	N-1-1	0.774	0.8231	0.7297	>0.9	>0.9	0.8113	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
OROSI 70 kV	MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	0.7975	0.8382	0.7575	>0.9	>0.9	0.8285	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
REEDLEY 115 kV		P6	N-1-1	0.8277	0.8604	0.7915	>0.9	>0.9	0.8525	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
REEDLEY 70 kV		P6	N-1-1	0.8247	0.8603	0.7852	>0.9	>0.9	0.8517	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
SANDCRK 70 kV		P6	N-1-1	0.7823	0.8308	0.7381	>0.9	>0.9	0.8196	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
STONCRRL 70 kV		P6	N-1-1	0.7859	0.8274	0.7505	>0.9	>0.9	0.8171	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
TVY VLLY 70 kV		P6	N-1-1	0.8124	0.8486	0.7719	>0.9	>0.9	0.8396	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
WAHTOKE 115 kV		P6	N-1-1	0.8197	0.8523	0.782	>0.9	>0.9	0.8443	>0.9	>0.9	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
CAL AVE 115 kV	MCCALL-WEST FRESNO #2 115KV [2370] &	P6	N-1-1	0.8859	0.8716	0.8239	>0.9	>0.9	0.8687	>0.9	>0.9	Generation re-dispatch

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
DANISHCM 115 kV	SANGER-CALIFORNIA AVE 115KV [9130]	P6	N-1-1	0.8938	0.8805	0.8346	>0.9	>0.9	0.8777	>0.9	>0.9	Generation re-dispatch
CHWCHLLA 115 kV	MCMULLN1 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G-1/N-1	>0.9	>0.9	0.8939	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DINUBA 70 kV	MCMULLN1 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050]	P3	G-1/N-1	>0.9	>0.9	0.873	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
TOMATAK 70 kV	NORTHSTAR-MENDOTA #1 115KV [0] & PANOCHÉ-MENDOTA 115KV [3230]	P6	N-1-1	>0.9	0.8774	0.8687	>0.9	>0.9	0.8773	>0.9	>0.9	Generation re-dispatch
TOMATAK 70 kV	PANOCHÉ-MENDOTA 115KV [3230]	P1	N-1	0.8783	0.8827	0.8745	0.9224	0.9814	0.8825	0.8747	0.9497	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
DOS PALS 70 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	0.9667	0.9837	0.8856	0.9257	1.0337	0.9817	0.9984	1.0044	Continue to Monitor future forecast
FIREBAGH 70 kV		P1	N-1	0.9391	0.957	0.8423	0.9117	0.9742	0.9545	0.9881	0.9482	Continue to Monitor future forecast
ORO LOMA 70 kV		P1	N-1	0.9746	0.9917	0.8972	0.9322	1.0285	0.99	0.9999	1.0018	Continue to Monitor future forecast
SNTA RTA 70 kV		P1	N-1	0.962	0.9803	0.8802	0.9229	1.0374	0.9781	0.9985	1.0097	Continue to Monitor future forecast
ORO LOMA 70 kV	PANOCHÉ-ORO LOMA 115KV [3240] & GREGG SVD=V	P6	N-1-1	>0.9	>0.9	0.8862	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ORO LOMA 70 kV	PANOCHÉ-ORO LOMA 115KV [3240] & MELONES-WILSON 230KV [5080]	P6	N-1-1	>0.9	>0.9	0.8854	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ORO LOMA 115 kV	PANOCHÉ-ORO LOMA 115KV [3240] & WILSONSTCOM SVD=V	P6	N-1-1	>0.9	>0.9	0.8633	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ORO LOMA 70 kV		P6	N-1-1	>0.9	>0.9	0.8586	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
DOS PALS 70 kV	PANOCHÉ-ORO LOMA 115KV [3240] & WILSONSTCOM-WILSONPGAE #1 115KV [0]	P6	N-1-1	>0.9	>0.9	0.8464	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
TOMATAK 70 kV	Q1028Q1029PV 34.50KV GEN UNIT 1 & PANOCHÉ-MENDOTA 115KV [3230]	P3	G-1/N-1	0.8754	0.8773	0.8691	>0.9	>0.9	0.8772	>0.9	>0.9	Generation re-dispatch
DINUBA 70 kV	REEDLEY-DINUBA #1 70KV [9050]	P1	N-1	0.8931	0.9082	0.8753	0.9779	1.1147	0.9045	0.9501	1.0443	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
WST FRSO 115 kV	SANGER-CALIFORNIA AVE 115KV [9130] & CALIFORNIA AVE-MCCALL 115KV [2360]	P6	N-1-1	>0.9	>0.9	0.8848	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
WST FRSO 115 kV	SANGER-CALIFORNIA AVE 115KV [9130] & MCCALL-WEST FRESNO #2 115KV [2370]	P6	N-1-1	0.8775	0.8586	0.809	>0.9	>0.9	0.8556	>0.9	>0.9	Generation re-dispatch
CHWCHLLA 115 kV	SANGERCGRN 115/13.8KV TB 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8934	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	SHEPHERD SVD=V & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.879	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CHWCHLLA 115 kV	TRANQUILLITY SW STA-KEARNEY 230KV [5380] & LE GRAND-CHOWCHILLA 115KV [2110]	P6	N-1-1	>0.9	>0.9	0.8906	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
CANAL 70 kV	VEGA 0.36KV GEN UNIT 1 & LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	G-1/N-1	>0.9	>0.9	0.8913	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ORO LOMA 115 kV	WARNERVILLE-WILSON 230KV [5870] & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	0.8839	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ATWATER 115 kV	WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	Diverge	Diverge	Diverge	1.0148	0.494	Diverge	0.2391	1.0285	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
BER VLLY 70 kV		P5	Non-Redundant Relay	Diverge	Diverge	Diverge	0.9615	0.8683	Diverge	0.8594	0.9742	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
ATWATER 115 kV	WILSON 230/115KV TB 1 & WILSON	P6	N-1-1	0.8726	0.8999	>0.9	>0.9	>0.9	0.8921	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
CRESSEY 115 kV		P6	N-1-1	0.8637	0.8913	>0.9	>0.9	>0.9	0.8833	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
EL CAPTN 115 kV		P6	N-1-1	0.8779	>0.9	>0.9	>0.9	>0.9	0.8958	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
GALLO 115 kV	230/115KV TB 2	P6	N-1-1	0.853	0.8812	>0.9	>0.9	>0.9	0.873	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
LIVNGSTN 115 kV		P6	N-1-1	0.8563	0.8842	>0.9	>0.9	>0.9	0.8761	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
MERCED 115 kV		P6	N-1-1	0.8865	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan
TOMATAK 70 kV	WILSON-LE GRAND 115KV [4170] & PANOCHÉ-MENDOTA 115KV [3230]	P6	N-1-1	0.8738	0.8777	0.8689	>0.9	>0.9	0.877	>0.9	>0.9	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan
YOSEMITE 70 kV		P6	N-1-1	0.8992	>0.9	>0.9	>0.9	>0.9	>0.9	0.9	>0.9	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan
ORO LOMA 70 kV	WILSON-ORO LOMA 115KV [4200] & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	>0.9	0.7808	>0.9	>0.9	>0.9	>0.9	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan
ORO LOMA 115 kV	WILSONPGAE-STOREY #2 230KV [0] & PANOCHÉ-ORO LOMA 115KV [3240]	P6	N-1-1	>0.9	>0.9	0.8991	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor future forecast
ASHLAN 230 kV	WOODWARD-SHEPHERD 115KV [1895] & BALCH-MCCALL 230KV [4350]	P6	N-1-1	>0.9	>0.9	>0.9	0.8975	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch
FIGRDN 1 230 kV	WOODWARD-SHEPHERD 115KV [1895] & HERNDON-BARTON 115KV [1750]	P6	N-1-1	>0.9	>0.9	>0.9	0.8963	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch
FIGRDN 2 230 kV		P6	N-1-1	>0.9	>0.9	>0.9	0.8954	>0.9	>0.9	>0.9	>0.9	Generation re-dispatch

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
DOS PALS 70 kV	CHOWCOGN 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240]	P3	G1/N1	<8	<8	12.937	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
FIREBAGH 70 kV		P3	G1/N1	<8	<8	13.591	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
SNTA RTA 70 kV		P3	G1/N1	<8	<8	13.009	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DOS PALS 70 kV	ELNIDO 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240]	P3	G1/N1	<8	<8	12.921	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
FIREBAGH 70 kV		P3	G1/N1	<8	<8	13.575	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
ORO LOMA 115 kV		P3	G1/N1	<8	<8	12.689	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
ORO LOMA 70 kV		P3	G1/N1	<8	<8	12.762	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
SNTA RTA 70 kV		P3	G1/N1	<8	<8	12.993	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
CHWCHLLA 115 kV	HERNDN1T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.538	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
FIREBAGH 70 kV	HERNDN1T 13.20KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240]	P3	G1/N1	<8	<8	13.564	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	HERNDN1T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.569	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	HERNDN2T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.564	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
CHWCHLLA 115 kV	KERCK1-3 6.60KV GEN UNIT 3 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.49	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
CHWCHLLA 115 kV	KERCKHOFFPH2 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	12.179	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
SHARON 115 kV		P3	G1/N1	<8	<8	10.762	<8	<8	<8	<8	<8	Conitinue to monitor future forecast

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
DINUBA 70 kV	KERCKHOFFPH2 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	9.046	<8	9.602	<8	<8	<8	<8	<8	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
CHWCHLLA 115 kV	KINGSRIV 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.413	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	KINGSRIV 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	9.08	<8	9.489	<8	<8	<8	<8	<8	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
CHWCHLLA 115 kV	KRCDPCT1 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.451	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	KRCDPCT1 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.459	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	KRCDPCT2 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.459	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
CHWCHLLA 115 kV	LE GRAND-CHOWCHILLA 115KV [2110]	P1	N-1	8.3	8.503	10.249	3.695	-6.329	8.68	3.275	0.168	Project: Wilson – Le Grand 115 kV Line Reconductoring In-service date: 05/23
SHARON 115 kV		P1	N-1	7.323	7.527	9.084	3.217	-5.535	7.686	2.885	0.156	Project: Wilson – Le Grand 115 kV Line Reconductoring In-service date: 05/23
CHWCHLLA 115 kV	MC CALL 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.545	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	MC CALL 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.49	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
CHWCHLLA 115 kV	MCCALL1T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.667	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	MCCALL1T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	9.1	<8	9.64	<8	<8	8.875	<8	<8	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
CHWCHLLA 115 kV	MCCALL3T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.425	<8	<8	<8	<8	<8	Conitinue to monitor future forecast

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
DINUBA 70 kV	MCCALL3T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.468	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
CHWCHLLA 115 kV	MCMULLN1 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110]	P3	G1/N1	<8	<8	10.398	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DOS PALS 70 kV	MCMULLN1 230.00KV GEN UNIT VS & PANOCHÉ-ORO LOMA 115KV [3240]	P3	G1/N1	<8	<8	12.919	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
FIREBAGH 70 kV		P3	G1/N1	<8	<8	13.573	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
ORO LOMA 115 kV		P3	G1/N1	<8	<8	12.687	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
ORO LOMA 70 kV		P3	G1/N1	<8	<8	12.76	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
SNTA RTA 70 kV		P3	G1/N1	<8	<8	12.991	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DINUBA 70 kV	MCMULLN1 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050]	P3	G1/N1	<8	<8	9.552	<8	<8	<8	<8	<8	Conitinue to monitor future forecast
DOS PALS 70 kV	PANOCHÉ-ORO LOMA 115KV [3240]	P1	N-1	6.234	4.91	12.752	8.949	1.161	5.038	3.291	2.89	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan
FIREBAGH 70 kV		P1	N-1	6.433	5.062	13.396	3.347	0.808	5.197	3.329	1.129	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan
ORO LOMA 70 kV		P1	N-1	6.181	4.868	12.596	8.885	1.167	4.994	3.284	2.896	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan

Study Area: PG&E Greater Fresno

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	2026 SP High CEC Forecast	2023 SP Heavy Renewable & Min Gas Gen	2023 OP Heavy Renewable & Min Gas Gen	
SNTA RTA 70 kV		P1	N-1	6.263	4.927	12.823	8.975	1.157	5.056	3.291	2.876	Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan
DINUBA 70 kV	REEDLEY-DINUBA #1 70KV [9050]	P1	N-1	9.012	8.588	9.422	4.602	-1.213	8.794	5.613	1.774	Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan
CANAL 70 kV	VEGA 0.36KV GEN UNIT 1 & LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	G1/N1	<8	<8	9.411	<8	<8	<8	<8	<8	Conitinue to monitor future forecast

Study Area: PG&E Greater Fresno

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	
Helms unit 1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Helms unit 1 and unit 2	P3-1	G-1/N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gates 500/230kV Transformer #11	P1	T-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gates 500/230kV Transformer #12	P1	T-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Wilson 230/115kV TB #1	P1	T-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Wilson 230/115kV TB #2	P1	T-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gates 230kV Bus	P2-4	Bus Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
McCall 230kV Bus	P2-4	Bus Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Borden 230kV Bus	P2-4	Bus Breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity Only
McCall 230kV TB plus Helms unit 1	P3-3	G-1/T-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Wilson 230/115kV TB #1 & #2	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Bellota-Warnerville 230kV and Warnerville-Wilson 230kV lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Panoche-Tranquility #1 and #2 230kV Lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gates-McCall 230kV and Helms-McCall 230kV Lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gregg-Helms #1 and #2 230kV Lines Temporary	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gregg-Helms #1 and #2 230kV Lines Permanent	P7	DCTL	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	Under review with PTO
Gates-Mustang #1 and #2 230kV Lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Herndon-Barton 115kV Line and Sanger-Manchester 115kV line	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
McCall-Reedley 115kV Line and McCall- Sanger #1 115kV Line	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Melones-Wilson and Warnerville-Wilson 230kV Line	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Gregg 230kV Bus #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	No Issues	Under review with PTO
Gregg 230kV Bus #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Under review with PTO

Study Area: PG&E Greater Fresno



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 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 Fresno**



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