

Study Area: PG&E North Coast & North Bay
Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-T-001	GRANITE-HPLND JT 60 kV 1 1	P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861] &	P1-2	T-line	103.02	91.16	34.38	<100	<100	<100	71.55	<100			Approved Clear Lake Reinforcement Project. Interim: Redispatch Geysers, Potter Valley gens
NCNB-T-002	MOLINO-TRNTN_JC 60 kV 1 1	P1-2:A2:62:_FULTON-LAGUNA-COTATI-SNMALDFL 60kV [6911] &	P1-2	T-line	87.27	76.19	85.96	<100	<100	<100	60.95	50.57			Monitor line loading due to long lead time
NCNB-T-003	PETLMA A-LKVLE JT 60 kV 1 1	P1-2:A2:66:_LAKEVILLE-PETALUMA C 60kV [7350] &	P1-2	T-line	100.53	86.04	94.6	106.24	104.01	100.19	63.89	54.66			Reconductor/replace limiting equipment at Petaluma A station
NCNB-T-004	LAKEVLE-LKVLE JT 60 kV 1 1	P1-2:A2:66:_LAKEVILLE-PETALUMA C 60kV [7350] &	P1-2	T-line	94.14	80.57	88.59	<100	<100	<100	59.83	51.23			Reconductor the Lakeville #1 60 kV Line to address without BTM sensitivity overloads
NCNB-T-005	GRANITE-HPLND JT 60 kV 1 1	P2-1:A2:55:_KONOCTI-EAGLE ROCK 60kV [6861] (KONOCTI6-EGLE RCK) &	P2-1	Open-ended line	103.02	91.16	34.38	<100	<100	<100	71.55	56.33			Approved Clear Lake Reinforcement Project. Redispatch Geysers, Potter Valley gens
NCNB-T-006	NAPA-TULCY JT 60 kV 1 1	P2-1:A2:86:_TULUCAY-NAPA #2 60kV [8190] (TULUCAY-BSLT TAP) &	P2-1	Open-ended line	123.06	<100	<100	122.76	<100	<100	81.33	<100			Interim: Action Plan. Upgrade and increase capacity of the approved Napa-Tulucay 60 kV Reconductoing project
NCNB-T-007	IGNACO B-WOODACRE 60 kV 1 1	P2-1:A6:23:_IGNACIO-BOLINAS #2 60kV [7180] (IGNACO B-STAF_JCT) &	P2-1	Open-ended line	80.87	71.67	82.92	<100	<100	<100	44.67	32.27			Ignacio-Bolinas-Stafford area 115 Voltage Conversion. Reconductor Ignacio-Bolinas #2 60 kV line to address without BTM sensitivity overloads
NCNB-T-008	STAF_JCT-TOCA_JCT 60 kV 1 1	P2-1:A6:23:_IGNACIO-BOLINAS #2 60kV [7180] (IGNACO B-STAF_JCT) &	P2-1	Open-ended line	82.03	72.5	85.75	<100	<100	<100	42.68	30.07			Ignacio-Bolinas-Stafford area 115 Voltage Conversion. Reconductor Ignacio-Bolinas #2 60 kV line to address without BTM sensitivity overloads
NCNB-T-009	STAFFORD-STAF_JCT 60 kV 1 1	P2-1:A6:23:_IGNACIO-BOLINAS #2 60kV [7180] (IGNACO B-STAF_JCT) &	P2-1	Open-ended line	55.05	48.71	57.61	<100	<100	<100	28.68	20.17			Ignacio-Bolinas-Stafford area 115 Voltage Conversion. Reconductor Ignacio-Bolinas #2 60 kV line to address without BTM sensitivity overloads

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NCNB-T-010	OLEMA-BOLINAS 60 kV 1 1	P2-1:A6:23:_IGNACIO-BOLINAS #2 60kV [7180] (IGNACO B-STAF_JCT) &	P2-1	Open-ended line	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	105.58	74.69			Ignacio-Bolinas-Stafford area 115 Voltage Conversion. Reconductor Ignacio-Bolinas #1 60 kV line/Drop load	
NCNB-T-011	GRANITE-HPLND JT 60 kV 1 1	P2-3:A2:27:_EGLE RCK - MA 115kV & EAGLE ROCK-CORTINA line &	P2-3	Circuit breaker	106.23	95.63	96.62	<100	<100	<100	74.79	62.13			Approved Clear Lake Reinforcement Project. Redispatch Geysers, Potter Valley gens to address sensitivity scenariooverloads	
NCNB-T-012	MOLINO-TRNTN_JC 60 kV 1 1	P2-3:A2:61:_LAGUNA - 1D 60kV & FULTON-LAGUNATP-COTATI-SNMA TAP line &	P2-3	Circuit breaker	87.27	76.19	85.96	<100	<100	<100	60.95	<100			Monitor line loading for sensitivity scenario overloads due to long lead time	
NCNB-T-013	PETLMA A-LKVLE JT 60 kV 1 1	P2-3:A2:66:_LAKEVILLE - 1D 60kV & LAKEVILLE-PETALUMA C line &	P2-3	Circuit breaker	94.09	80.31	88.25	<100	<100	<100	59.69	51.22			Reconductor or replace limiting equipment at Petaluma A station to address without BTM sensitivity overloads	
NCNB-T-014	WILLITS-LYTNVLE 60 kV 1 1	P2-3:A2:39:_MENDOCNO - MA 60kV & MENDOCINO-PHILO JCT-HOPLAND line &	P2-3	Circuit breaker	NConv	NConv	96.43	NConv	NConv	NConv	NConv	59.14			Add a new line. Interim: Open Gerbreville-Laytonville line at Willits or Bridgeville depending on whether Humboldt or Geysers feeds load.	
NCNB-T-015	KEKAWAKA-LYTNVLE 60 kV 1 1	P2-3:A2:39:_MENDOCNO - MA 60kV & MENDOCINO-PHILO JCT-HOPLAND line &	P2-3	Circuit breaker	NConv	NConv	116.58	NConv	NConv	NConv	NConv	72.51			Add a new line. Interim: Open Gerbreville-Laytonville 60 kV Line and radialize and feed load via Humboldt	
NCNB-T-016	LAKEVILLE-VACA-DIX 230 kV 1 1	P2-4:A2:3:_LAKEVILLE 230kV - Section 2E & 2D &	P2-4	Bus-tie	94.8	<100	<100	<100	<100	<100	64.32	<100			Upgrade the Approved Vaca Dixon-Lakeville reconductoring project to address without BTM sensitivity overloads	
NCNB-T-017	TULUCAY-VACA-DIX 230 kV 1 1	P2-4:A2:1:_LAKEVILLE 230kV - Section 1E & 2E &	P2-4	Bus-tie	93.84	<100	<100	<100	<100	<100	69.94	<100			Upgrade the Approved Vaca Dixon-Lakeville reconductoring project to address without BTM sensitivity overloads	
NCNB-T-018	PENNGRVE-CORONA 115 kV 1 1	P2-4:A2:7:_FULTON 115kV - Section 2D & 1D &	P2-4	Bus-tie	104.78	98.23	105.96	103.5	104.24	104.38	71.44	59.16			Reconductor Corona-Lakeville 115 kV Line (Lakeville-Corona-Penngrove sections)	

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NCNB-T-019	CORONA-LAKEVILLE 115 kV 1 1	P2-4:A2:7:_FULTON 115kV - Section 2D & 1D &	P2-4	Bus-tie	99.1	92.85	99.95	108.8	109.47	109.4	67.72	<100			Reconductor Corona-Lakeville 115 kV Line (Lakeville-Corona-Pennngrove sections)
NCNB-T-020	GRANITE-HPLND JT 60 kV 1 1	P3: P1-1:A2:19:_POTTRVLY 2kV Gen Unit 1 & P1-2:A2:58:_KONOCITI-EAGLE ROCK 60kV [6861]	P3	L-1/G-1	102.85	<100	<100	<100	<100	<100	<100	<100			Upgrade approved Clear Lake Reinforcement Project to address sensitivity overloads. Redispatch Geysers, Potter Valley gens
NCNB-T-021	PETLMA A-LKVLE JT 60 kV 1 1	P3: P1-1:A2:9:_GEYSER11 14kV Gen Unit 1 & P1-2:A2:66:_LAKEVILLE-PETALUMA C 60kV [7350]	P3	L-1/G-1	<100	<100	<100	108.58	106.37	102.23	<100	<100			Reconductor/Replace limiting equipment at Petaluma A station
NCNB-T-022	PENNGRVE-CORONA 115 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	95.13	81.34	50.33	<100	<100	<100	57.02	41.22			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-023	CORONA-LAKEVILLE 115 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	<100	<100	<100	100.86	98.58	56.03	<100	<100			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-024	MLNO JCT-LAGUNATP 60 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	99.28	79.39	50.92	<100	<100	<100	55.18	47.93			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-025	COTATI-PETC_JCT 60 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	157.37	129.09	90.66	130.2	126.59	74.88	92.33	76.25			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-026	PETLMA A-LKVLE JT 60 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	110.55	91.04	64.65	114.89	111.68	67.19	65.2	53.76			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-027	LAKEVILLE-LKVLE JT 60 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	103.51	85.25	60.57	<100	<100	<100	61.06	50.4			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-028	COTATI-SNMA TAP 60 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	98.87	78.32	49.92	<100	<100	<100	55.09	47.75			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads
NCNB-T-029	SNMA TAP-LAGUNATP 60 kV 1 1	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P5-5	Relay	109.17	88.44	56.44	<100	<100	<100	64.48	54.32			Action Plan. Upgrade protection to achieve redundancy for addressing sensitivity overloads

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NCNB-T-030	TULUCAY-VACA-DIX 230 kV 1 1	P6: P1-2:A2:9:_VACA-LAKEVILLE #1 230kV [5840] & P1-2:A2:3:_GEYSR18-LAKEVILLE-GEYSR20-SNTAFE-GEYSR13 230kV [4781]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Approved Vaca Dixon-Lakeville reconductoring project	
NCNB-T-031	KEKAWAKA-LYTNVLE 60 kV 1 1	P6: P1-2:A2:24:_CORTINA-MENDOCINO #1 115kV [1330] & P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Monitor. reduce generation at Humboldt Bay to address sensitivity overloads/SPS	
NCNB-T-032	INDIN VL-LUCERNJ1 115 kV 1 1	P6: P1-2:A2:13:_EAGLE ROCK-REDBUD 115kV [1480] & P1-2:A2:12:_EAGLE ROCK-CORTINA 115kV [1470]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Monitor due to long lead time of sensitivity overloads/SPS	
NCNB-T-033	INDIN VL-CORTINA 115 kV 1 1	P1-2:A2:13:_EAGLE ROCK-REDBUD 115kV [1480] & P1-2:A2:12:_EAGLE ROCK-CORTINA 115kV [1470]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Monitor due to long lead time of sensitivity overloads/SPS	
NCNB-T-034	FULTON-MONROE2 115 kV 1 1	P1-2:A2:27:_FULTON-SANTA ROSA #1 115kV [1620] & P1-2:A2:34:_CORONA-LAKEVILLE 115kV [4311]	P6	N-1-1	108.14	102.56	109.28	101.34	101.44	101.62	<100	<100			Interim: Gen dispatch/Action Plan/SPS. Reconductor parallel lines	
NCNB-T-035	MONROE1-SNTA RSA 115 kV 1 1	P1-2:A2:28:_FULTON-SANTA ROSA #2 115kV [1630] & P1-2:A2:34:_CORONA-LAKEVILLE 115kV [4311]	P6	N-1-1	99.23	<100	100.7	<100	<100	<100	<100	<100			Gen redispatch/Action Plan to address sensitivity overloads. SPS	
NCNB-T-036	BELLVUE-PENNGRVE 115 kV 1 1	P1-2:A2:27:_FULTON-SANTA ROSA #1 115kV [1620] & P1-2:A2:28:_FULTON-SANTA ROSA #2 115kV [1630]	P6	N-1-1	99.9	<100	101.96	<100	<100	<100	<100	<100			Reconductor/SPS. Action Plan	
NCNB-T-037	PENNGRVE-CORONA 115 kV 1 1	P1-2:A2:27:_FULTON-SANTA ROSA #1 115kV [1620] & P1-2:A2:28:_FULTON-SANTA ROSA #2 115kV [1630]	P6	N-1-1	104.66	<100	106.79	<100	<100	<100	<100	<100			Reconductor. Action Plan/SPS	

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					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A		
NCNB-T-038	CORONA-LAKEVILLE 115 kV 1 1	P1-2:A2:27:_FULTON-SANTA ROSA #1 115kV [1620] & P1-2:A2:28:_FULTON-SANTA ROSA #2 115kV [1630]	P6	N-1-1	98.99	<100	100.72	<100	<100	<100	<100	<100			Reconductor/SPS. Gen redispatch. Action Plan	
NCNB-T-039	MENDOCINO-UKIAH JT 60 kV 1 1	P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE & P1-2:A2:14:_MENDOCINO-UKIAH 115kV [2420] MOAS OPENED on MENDOCINO_CALPELLA	P6	N-1-1	109.26	100.07	98.69	<100	<100	<100	<100	<100			Gen redispatch/Action Plan or SPS to address sensitivity overloads	
NCNB-T-040	MENDOCINO-UPPR LKE 60 kV 1 1	P1-2:A2:54:_CLEAR LAKE-HOPLAND 60kV [6390] & P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861]	P6	N-1-1	NonConv	NonConv	<100	117.34	112.97	<100	150.02	100.78			Load transfer/Action Plan. Reconductor/SPS	
NCNB-T-041	PHLO JCT-HPLND JT 60 kV 1 1	P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE & P1-2:A2:14:_MENDOCINO-UKIAH 115kV [2420] MOAS OPENED on MENDOCINO_CALPELLA	P6	N-1-1	108.42	<100	<100	<100	<100	<100	<100	<100			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-042	UKIAH JT-PHLO JCT 60 kV 1 1	P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE & P1-2:A2:14:_MENDOCINO-UKIAH 115kV [2420] MOAS OPENED on MENDOCINO_CALPELLA	P6	N-1-1	109.32	100.13	98.75	<100	<100	<100	<100	<100			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-043	UPPR LKE-HARTLEY 60 kV 1 1	P1-2:A2:54:_CLEAR LAKE-HOPLAND 60kV [6390] & P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861]	P6	N-1-1	NonConv	NonConv	<100	109.01	104.97	<100	140.49	<100			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-044	HARTLEY-CLER LKE 60 kV 1 1	P1-2:A2:54:_CLEAR LAKE-HOPLAND 60kV [6390] & P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861]	P6	N-1-1	NonConv	NonConv	<100	<100	<100	<100	107.84	<100			Action Plan/SPS to also address sensitivity overloads	

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NCNB-T-045	CLER LKE-GRANITE 60 kV 1 1	P1-2:A2:44:_MENDOCINO-HARTLEY 60kV [7510] & P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861]	P6	N-1-1	NonConv	NonConv	<100	<100	<100	<100	110.2	<100			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-046	CLER LKE-KONOCTI6 60 kV 1 1	P1-2:A2:13:_EAGLE ROCK-REDBUD 115kV [1480] & P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE	P6	N-1-1	116.13	106.58	120.02	<100	<100	<100	<100	101.62			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-047	GRANITE-HPLND JT 60 kV 1 1	P1-2:A2:44:_MENDOCINO-HARTLEY 60kV [7510] & P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861]	P6	N-1-1	181.35	158.77	<100	<100	<100	<100	113.71	<100			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-048	GRANITE-HPLND JT 60 kV 1 1	P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861] & P1-2:A2:71:_HOMSTKTP-MIDDLTWN #1 115kV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Action Plan/SPS to address sensitivity overloads	
NCNB-T-049	HPLND JT-HPLND JT 115 kV 2 1	P1-2:A2:14:_MENDOCINO-UKIAH 115kV [2420] MOAS OPENED on MENDOCNO_CALPELLA & P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE	P6	N-1-1	155.41	146.21	152.43	144.21	143.23	141.71	126.15	113.81			Action Plan. Reverse Power Relay will trip. Load drop if overload persists post Hopland bank tripping via existing Reverse Power Relay activation	
NCNB-T-050	HPLND JT-CLVRDLJT 60 kV 1 1	P1-3:A2:33:_FULTON 115/60kV TB 2 & P1-3:A2:32:_FULTON 115/60kV TB 1	P6	N-1-1	NonConv	NonConv	NonConv	136.36	138.07	141.95	NonConv	159.14			Reconductor/SPS. Action Plan.	
NCNB-T-051	MOLINO-MLNO JCT 60 kV 1 1	P1-3:A2:33:_FULTON 115/60kV TB 2 & P1-3:A2:32:_FULTON 115/60kV TB 1	P6	N-1-1	114.04	108.94	116.24	<100	<100	<100	<100	<100			Action Plan/SPS to also address sensitivity overloads	
NCNB-T-052	MLNO JCT-FULTON 60 kV 1 1	P1-3:A2:22:_LAKEVILE 230/60kV TB 5 & P1-3:A2:21:_LAKEVILE 230/60kV TB 3	P6	N-1-1	NonConv	<100	235.8	115.87	115.09	115.76	106.47	<100			Add new transformer at Lakeville/ Action Plan (Drop load)	
NCNB-T-053	MLNO JCT-LAGUNATP 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv			Reconductor/SPS. Action Plan	

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NCNB-T-054	CLVRDLJTGYSRJCT1 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	119.17	120.67	124.06	NonConv	149.99			Reconductor/SPS. Action Plan	
NCNB-T-055	GYSRJCT1-FTCHMTNP 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	218.57	221.99	118.65	120.09	123.1	NonConv	149.01			Reconductor/SPS. Action Plan	
NCNB-T-056	FULTON-FTCHMTNP 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	<100	<100	<100	<100	<100	NonConv	<100			Reconductor/SPS. Action Plan	
NCNB-T-057	COTATI-PETC_JCT 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv			SPS/Action Plan. Add new 115/60 kV transformer at Lakeville/Reconductor Fulton-Molino-Cotati-Pet A-Lakeville Jct 60 kV line section	
NCNB-T-058	COTATI-SNMA TAP 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv			SPS/Action Plan. Add new 115/60 kV transformer at Lakeville/Reconductor Fulton-Molino-Cotati-Pet A-Lakeville Jct 60 kV line section	
NCNB-T-059	MCDWLLSW-LAKEVLE 60 kV 1 1	P1-3:A2:22:_LAKEVILE 230/60kV TB 5 & P1-3:A2:21:_LAKEVILE 230/60kV TB 3	P6	N-1-1	133.24	<100	132.52	<100	<100	<100	<100	<100			Add new transformer at Lakeville/Reconductor/SPS. Action Plan/Drop load	
NCNB-T-060	PETC_JCT-PETLMA A 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	164.08	157.24	NonConv	NonConv			SPS/Action Plan. Add new 115/60 kV transformer at Lakeville/Reconductor Fulton-Molino-Cotati-Pet A-Lakeville Jct 60 kV line section	
NCNB-T-061	PETLMA A-LKVLE JT 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv			SPS/Action Plan. Add new 115/60 kV transformer at Lakeville/Reconductor Fulton-Molino-Cotati-Pet A-Lakeville Jct 60 kV line section	
NCNB-T-062	SNMA TAP-LAGUNATP 60 kV 1 1	P1-3:A2:22:_LAKEVILE 230/60kV TB 5 & P1-3:A2:21:_LAKEVILE 230/60kV TB 3	P6	N-1-1	NonConv	NonConv	NonConv	155.4	155	156.83	157.48	116.08			SPS/Action Plan. Add new 115/60 kV transformer at Lakeville/Reconductor Fulton-Molino-Cotati-Pet A-Lakeville Jct 60 kV line section	

Study Area: **PG&E North Coast & North Bay**
Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A		
NCNB-T-063	LAKEVILLE-LKVLE JT 60 kV 1 1	P1-3:A2:32:_FULTON 115/60kV TB 1 & P1-3:A2:33:_FULTON 115/60kV TB 2	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv			SPS/Action Plan. Add new Lakeville 115/60 kV transformer bank/Reconductor	
NCNB-T-064	IGNACIO- LS GLLNS 115 kV 3 1	P1-2:A6:15:_IGNACIO-SAN RAFAEL #1 115kV [1850] & P1-2:A6:28:_IGNACIO-SAN RAFL #2 115kV [0]	P6	N-1-1	<100	<100	105.24	<100	<100	<100	<100	<100			Monitor. Reconductor/SPS. Action Plan	
NCNB-T-065	IGNACIO-SAN RAFL 115 kV 1 1	P1-2:A6:28:_IGNACIO-SAN RAFL #2 115kV [0] & P1-2:A6:14:_IGNACIO-SAN RAFAEL #3 115kV [1860] MOAS OPENED on IGNACIO_LS GLLNS	P6	N-1-1	<100	<100	<100	<100	<100	110.33	<100	<100			Action Plan. SPS	
NCNB-T-066	IGNACIO-SAN RAFL 115 kV 2 1	P1-2:A6:15:_IGNACIO-SAN RAFAEL #1 115kV [1850] & P1-2:A6:14:_IGNACIO-SAN RAFAEL #3 115kV [1860] MOAS OPENED on IGNACIO_LS GLLNS	P6	N-1-1	<100	<100	119.78	<100	<100	<100	<100	<100			Upgrade Ignacio-Alto Voltage Conversion project with higher rated conductors	
NCNB-T-067	LS GLLNS-SAN RAFL 115 kV 3 1	P1-2:A6:15:_IGNACIO-SAN RAFAEL #1 115kV [1850] & P1-2:A6:28:_IGNACIO-SAN RAFL #2 115kV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Monitor. Action Plan to address sensitivity overloads	
NCNB-T-068	SAN RAFL-Greenbrae 115 kV 1 1	P1-3:A6:9:_IGNACIO 115/60kV TB 1 & P1-3:A6:8:_IGNACIO 115/60kV TB 3	P6	N-1-1	<100	<100	122.51	<100	<100	<100	<100	<100			Monitor. Ignacio-Alto Voltage Conversion project. Action Plan	
NCNB-T-069	IG JCT-SAN_RFLJ 60 kV 1 1	P1-2:A6:23:_IGNACIO-ALTO-SAUSALITO #2 60kV [7170] & P1-2:A6:24:_IGNACIO-ALTO-SAUSALITO #1 60kV [7160]	P6	N-1-1	128.1	118.23	<100	104.62	104.13	<100	<100	<100			Ignacio-Alto Voltage Conversion project/SPS. Action Plan	
NCNB-T-070	SAN_RFLJ-GREENBRE 60 kV 1 1	P1-2:A6:24:_IGNACIO-ALTO-SAUSALITO #1 60kV [7160] & P1-2:A6:23:_IGNACIO-ALTO-SAUSALITO #2 60kV [7170]	P6	N-1-1	127.18	117.43	<100	<100	<100	<100	<100	<100			Action Plan. SPS to also address sensitivity overloads	

Study Area: **PG&E North Coast & North Bay**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A		
NCNB-T-071	GREENBRE-ALTO 60 kV 1 1	P6: P1-3:A6:8:_IGNACIO 115/60kV TB 3 & P1-3:A6:9:_IGNACIO 115/60kV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100			Monitor. Action Plan/SPS to address long term sensitivity overload	
NCNB-T-072	BELLVUE-PENNGRVE 115 kV 1 1	P7-1:A2:14:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 Lines &	P7	N-2 (DCTL)	99.9	93.56	101.96	<100	<100	<100	68.16	56.26			SPS/Action Plan. Reconductor Lakeville-Corona-Pennngrove-Bellvue line sections.	
NCNB-T-073	PENNGRVE-CORONA 115 kV 1 1	P7-1:A2:14:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 Lines &	P7	N-2 (DCTL)	104.66	98.19	106.79	103.4	104.12	104.3	71.43	59.17			SPS/Action Plan. Reconductor Lakeville-corona-Pennngrove-Bellvue line sections.	
NCNB-T-074	CORONA-LAKEVLLE 115 kV 1 1	P7-1:A2:14:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 Lines &	P7	N-2 (DCTL)	98.99	92.81	100.72	108.7	109.34	109.31	67.72	<100			SPS/Action Plan. Reconductor Lakeville-Corona-Pennngrove-Bellvue line sections.	
NCNB-T-075	HPLND JT-CLVRDLJT 60 kV 1 1	P7-1:A2:6:_GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO Lines &	P7	N-2 (DCTL)	80.52	99.86	100.81	<100	<100	<100	80.46	87.52			Monitor line loading due to long lead line.	
NCNB-T-076	MOLINO-TRNTN_JC 60 kV 1 1	P7-1:A2:24:_FULTON-SANTA ROSA #1 & FULTON-MOLINO-COTATI Lines &	P7	N-2 (DCTL)	<100	<100	85.94	<100	<100	<100	<100	<100			Monitor line loading due to long lead line for sensitivity scenarion overloads	
NCNB-T-077	COTATI-PETC_JCT 60 kV 1 1	P7-1:A2:10:_FULTON-IGNACIO #1 & FULTON-LAKEVILLE Lines &	P7	N-2 (DCTL)	75.27	51.87	68.74	<100	<100	<100	16.8	20.05			Monitor line loading due to long lead line for sensitivity scenarion overloads	
NCNB-T-078	IGNACIO-LS GLLNS 115 kV 3 1	P7-1:A6:23:_Ignacio - San Rafael #1 & #2 Lines &	P7	N-2 (DCTL)	<100	<100	105.24	<100	<100	<100	<100	<100			Monitor. Reconductor. Action Plan	
NCNB-T-079	IG JCT-SAN_RFLJ 60 kV 1 1	P7-1:A6:6:_IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 Lines &	P7	N-2 (DCTL)	128.15	118.23	<100	118.21	122.17	<100	78.87	57.76			Upgrade Ignacio-Alto Voltage Conversion project to also address sensitivity scenario overloads	
NCNB-T-080	SAN_RFLJ-GREENBRE 60 kV 1 1	P7-1:A6:6:_IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 Lines &	P7	N-2 (DCTL)	127.28	117.43	<100	106.9	110.49	<100	78.34	57.35			Upgrade Ignacio-Alto Voltage Conversion project to also address sensitivity scenario overloads	
NCNB-T-081	IGNACIO-SAN RAFL 115 kV 2 1	P7-1:A6:14:_Ignacio-San Rafael #1 & Las Gallinas-San Rafael #3 115kV Lines &	P7	N-2 (DCTL)	<100	<100	95.12	<100	<100	<100	<100	<100			Monitor. Upgrade Ignacio-Alto Voltage Conversion project to also address sensitivity scenario overloads	



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-VD-01	LOWR LKE 60 kV	P1-2:A2:58:_KONOCTI-EAGLE ROCK 60kV [6861]	P1-2	T-line	15.609	13.956	<5.0	14.097	13.249	<5.0	10.326	5.947			Under review
NCNB-VD-02	EGLE RCK 60 kV	P1-3:A2:29:_EGLE RCK 115/60kV TB 1	P1-3	Transformer	18.196	16.456	5.68	16.604	15.566	5.058	12.34	6.813			Under review
NCNB-VD-03	BIG RIVR 60 kV	P1-4:A2:1:_BIG RIVR SVD=v	P1-4	Shunt device	<5.0	-5.359	-5.051	<5.0	<5.0	<5.0	-6.604	<5.0			Action Plan/ Radialize
NCNB-VD-04	LOWR LKE 60 kV	P2-1:A2:55:_KONOCTI-EAGLE ROCK 60kV [6861] (KONOCTI6-EGLE RCK)	P2-1	Open-ended line	15.609	13.956	<5.0	14.097	13.249	<5.0	10.326	5.947			Under review
NCNB-VD-05	NOVATO 60 kV	P2-1:A6:20:_IGNACIO-ALTO 60kV [7150] (IGNACO A-IG JCT)	P2-1	Open-ended line	14.104	13.151	N/A	14.108	14.376	N/A	8.065	<5.0			Under review
NCNB-VD-06	STAFFORD 60 kV	P2-1:A6:23:_IGNACIO-BOLINAS #2 60kV [7180] (IGNACO B-STAF_JCT)	P2-1	Open-ended line	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	15.843	8.131			Under review
NCNB-VD-07	WOODACRE 60 kV	P2-1:A6:24:_IGNACIO-BOLINAS #1 60kV [7140] (IGNACO B-WOODACRE)	P2-1	Open-ended line	12.269	11.202	12.117	12.188	12.465	12.095	7.391	<5.0			Under review
NCNB-VD-08	EGLE RCK 60 kV	P2-2:A2:24:_EGLE RCK 115kV Section MA	P2-2	Bus	<10.0	<10.0	<10.0	16.157	16.003	<10.0	<10.0	<10.0			Under review
NCNB-VD-09	LOWR LKE 60 kV	P2-2:A2:58:_EGLE RCK 60kV Section 1D	P2-2	Bus	<10.0	<10.0	<10.0	14.097	<10.0	<10.0	<10.0	<10.0			Under review
NCNB-VD-10	EGLE RCK 60 kV	P2-3:A2:29:_EGLE RCK - MA 115kV & EGLE RCK-FULTON-SILVERDO line	P2-3	Circuit breaker	18.924	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0			Under review
NCNB-VD-11	WILLITS 60 kV	P2-3:A2:39:_MENDOCNO - MA 60kV & MENDOCINO-PHILO JCT-HOPLAND line	P2-3	Circuit breaker	NonConv	NonConv	10.845	NonConv	NonConv	NonConv	NonConv	8.558			Open Gerbreville-Laytonville line at Willits or Bridgeville depending on whether Humboldt or Geysers feeds load.
NCNB-VD-12	LOWR LKE 60 kV	P2-3:A2:27:_EGLE RCK - MA 115kV & EAGLE ROCK-CORTINA line	P2-3	Circuit breaker	<10.0	14.269	16.912	<10.0	<10.0	15.028	11.321	6.025			Under review
NCNB-VD-13	SNTA RSA 115 kV	P2-4:A2:7:_FULTON 115kV - Section 2D & 1D	P2-4	Bus-tie	10.981	9.453	10.576	11.396	10.931	11.153	7.851	<10.0			Under review
NCNB-VD-14	SONOMA 115 kV	P2-4:A2:10:_LAKEVILLE 115kV - Section 1D & 2D	P2-4	Bus-tie	11.553	10.194	11.361	10.314	10.51	9.708	<10.0	<10.0			Under review
NCNB-VD-15	CALISTGA 60 kV	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay)	P5-5	Relay failure	12.158	10.585	<10.0	14.103	13.92	<10.0	6.231	<10.0			Under review
NCNB-VD-16	FULTON 115 kV	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay)	P5-5	Relay failure	12.899	10.696	<10.0	14.016	12.832	<10.0	9.276	6.429			Under review
NCNB-VD-17	ALTO 60 kV	P7-1:A6:6:_IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 Lines	P7	N-2 (DCTL)	11.093	10.264	<10.0	11.069	11.874	<10.0	5.775	<10.0			Under review

Study Area: PG&E North Coast & North Bay

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-VD-18	MONROE2 115 kV	P7-1:A2:14:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 Lines	P7	N-2 (DCTL)	11.41	9.935	11.847	11.861	11.385	11.661	8.258	5.14			Under review
NCNB-VD-19	SNTA RSA 115 kV	P7-1:A2:14:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 Lines	P7	N-2 (DCTL)	10.874	9.415	11.286	11.314	10.823	11.084	7.842	<10.0			Under review
NCNB-VD-20	SONOMA 115 kV	P7-1:A2:15:_LAKEVILLE-SONOMA #1 & LAKEVILLE-SONOMA #2 Lines	P7	N-2 (DCTL)	10.401	9.15	10.435	9.087	9.297	8.802	<10.0	<10.0			Under review
X-VD-21															
X-VD-22															
X-VD-23															
X-VD-24															
X-VD-25															
X-VD-26															
X-VD-27															
X-VD-28															
X-VD-29															
X-VD-30															
X-VD-31															
X-VD-32															
X-VD-33															
X-VD-34															
X-VD-35															



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-V-01	CALPELLA 115 kV	Base Case	P0	Normal	1.0556	<1.05	<1.05	<1.05	1.0598	<1.05	1.051	<1.05			Under review
NCNB-V-02	INDIN VL 115 kV	Base Case	P0	Normal	1.0577	1.054	<1.05	1.0521	1.0681	<1.05	1.0633	1.0503			Under review
NCNB-V-03	LUCERNE 115 kV	Base Case	P0	Normal	1.0559	<1.05	<1.05	<1.05	1.0638	<1.05	1.0585	<1.05			Under review
NCNB-V-04	MENDOCNO 115 kV	Base Case	P0	Normal	1.0622	<1.05	<1.05	<1.05	1.0668	<1.05	1.0562	<1.05			Under review
NCNB-V-05	SKAGGS 115 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.0502			Under review
NCNB-V-06	EGLER RCK 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	1.0505	<1.05	1.0515	<1.05			Under review
NCNB-V-07	FTCHMTNP 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.0501	<1.05			Under review
NCNB-V-08	FULTON 60 kV	Base Case	P0	Normal	1.0509	1.0527	1.0532	1.0529	1.054	1.0539	1.0562	1.0531			Under review
NCNB-V-09	IGNACIO B 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.0512			Under review
NCNB-V-10	MIRABEL 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.0525			Under review
NCNB-V-11	NOVATO 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.051			Under review
NCNB-V-12	SAUSALTO 60 kV	Base Case	P0	Normal	>0.95	>0.95	>0.95	>0.95	0.9467	>0.95	>0.95	>0.95			Under review
NCNB-V-13	WOHLER 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.0516			Under review
NCNB-V-14	WOODACRE 60 kV	Base Case	P0	Normal	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	<1.05	1.0502			Under review
NCNB-V-15	LOWR LKE 60 kV	P1-2:A2:58:_KONOCI-EAGLE ROCK 60kV [6861] &	P1-2	T-line	0.8468	0.8626	>0.90	0.8594	0.8756	>0.90	0.9147	0.9632			Clearlake Reinforcement Project
NCNB-V-16	EGLER RCK 60 kV	P1-3:A2:29:_EGLER RCK 115/60kV TB 1 &	P1-3	Transformer	0.8677	0.8813	0.9914	0.8792	0.8948	0.9969	0.9281	0.9704			Clearlake Reinforcement Project
NCNB-V-17	BIG RIVER 60 kV	P1-4:A2:1:_BIG RIVER SVD=v &	P1-4	Shunt device	>0.90	1.0886	1.0854	<1.10	<1.10	<1.10	1.1009	<1.10			Action Plan
NCNB-V-18	LOWR LKE 60 kV	P2-1:A2:55:_KONOCI-EAGLE ROCK 60kV [6861] (KONOCI-EAGLE RCK) &	P2-1	Open-ended line	0.8468	0.8626	>0.90	0.8594	0.8756	>0.90	0.9147	0.9632			Clearlake Reinforcement Project
NCNB-V-19	NOVATO 60 kV	P2-1:A6:20:_IGNACIO-ALTO 60kV [7150] (IGNACIO A-IG JCT) &	P2-1	Open-ended line	0.8762	0.8641	N/A	0.8775	0.8509	N/A	0.9572				Ignacio - Alto Voltage Conversion



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-V-20	TOCALOMA 60 kV	P2-1:A6:23:_IGNACIO-BOLINAS #2 60kV [7180] (IGNACO B-STAF_JCT) &	P2-1	Open-ended line	0.7021	0.7205	0.6847	0.7071	0.655	0.684	0.8836	0.9722			Under review
NCNB-V-21	WOODACRE 60 kV	P2-1:A6:24:_IGNACIO-BOLINAS #1 60kV [7140] (IGNACO B-WOODACRE) &	P2-1	Open-ended line	0.8861	0.8756	0.8832	0.8882	0.8614	0.8821	0.9586				Under review
NCNB-V-22	EGLE RCK 60 kV	P2-2:A2:24:_EGLE RCK 115kV Section MA &	P2-2	Bus fault	>0.90	>0.90	>0.90	0.8837	0.8905	>0.90	>0.90	>0.90			Clearlake Reinforcement Project
NCNB-V-23	LOWR LKE 60 kV	P2-2:A2:58:_EGLE RCK 60kV Section 1D &	P2-2	Bus fault	>0.90	>0.90	>0.90	0.8594	>0.90	>0.90	>0.90	>0.90			Under review
NCNB-V-24	COVELO6 60 kV	P2-3:A2:39:_MENDOCNO - MA 60kV & MENDOCINO-PHILO JCT-HOPLAND line &	P2-3	Circuit breaker	NonConv	NonConv	0.8768	NonConv	NonConv	NonConv	NonConv	0.877			Under review
NCNB-V-25	LOWR LKE 60 kV	P2-3:A2:27:_EGLE RCK - MA 115kV & EAGLE ROCK-CORTINA line &	P2-3	Circuit breaker	>0.90	0.8595	0.8635	>0.90	>0.90	0.883	0.9047	0.9624			Under review
NCNB-V-26	MONROE2 115 kV	P2-4:A2:7:_FULTON 115kV - Section 2D & 1D &	P2-4	Bus-tie	0.891	0.8979	0.8916	0.8844	0.8792	0.8819	0.94	0.9907			Add VAR support
NCNB-V-27	SONOMA 115 kV	P2-4:A2:10:_LAKEVILLE 115kV - Section 1D & 2D &	P2-4	Bus-tie	0.9054	0.9113	0.9044	0.9194	0.9086	0.9199	<1.10	>0.90			Under review
NCNB-V-28	KONOCITI6 60 kV	P1-1:A2:9:_GEYSER11 14kV Gen Unit 1 & P1-2:A2:58:_KONOCITI-EAGLE ROCK 60kV [6861]	P3	L-1/G-1	0.8629	0.8767	>0.90	0.8732	0.8895	>0.90	0.9246	>0.90			Clearlake Reinforcement Project
NCNB-V-29	LOWR LKE 60 kV	P1-1:A2:9:_GEYSER11 14kV Gen Unit 1 & P1-3:A2:29:_EGLE RCK 115/60kV TB 1	P3	L-1/G-1	0.8444	0.8603	>0.90	0.8556	0.8726	>0.90	0.9127	>0.90			Clearlake Reinforcement Project
NCNB-V-30	CALISTGA 60 kV	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P6	N-1-1	0.8577	0.882	>0.90	0.84	0.8428	>0.90	0.9478	>0.90			Under review
NCNB-V-31	FULTON 115 kV	P5-5:A2:1:_Fulton 230 kV BAAH Bus #1 (failure of non-redundent relay) &	P6	N-1-1	0.8885	0.9016	>0.90	0.8752	0.8775	>0.90	0.9388	0.9835			Under review
NCNB-V-32	ALTO 60 kV	P1-2:A6:23:_IGNACIO-ALTO-SAUSALITO #2 60kV [7170] & P1-2:A6:24:_IGNACIO-ALTO-SAUSALITO #1 60kV [7160]	P6	N-1-1	0.8689	0.857	>0.90	0.8704	0.8371	>0.90	>0.90	>0.90			Under review
NCNB-V-33	ANNAPOLS 60 kV	P1-3:A2:33:_FULTON 115/60kV TB 2 & P1-3:A2:32:_FULTON 115/60kV TB 1	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	NonConv	0.6302			Corrective Action Plan/Under review
NCNB-V-34	BELLVUE 115 kV	P1-2:A2:27:_FULTON-SANTA ROSA #1 115kV [1620] & P1-2:A2:28:_FULTON-SANTA ROSA #2 115kV [1630]	P6	N-1-1	0.9151	0.9206	0.9085	0.9093	0.9049	0.9075	0.9554	>0.90			Monitor



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-V-35	BIG RIVR 60 kV	P1-2:A2:49:_FORT BRAGG-ELK 60kV [2060] MOAS OPENED on FRT BRGG_BIG RIVR & P1-4:A2:1:_BIG RIVR SVD=v	P6	N-1-1	1.2669	1.2812	1.2809	<1.10	<1.10	<1.10	1.2867	<1.10			Under review
NCNB-V-36	BOLINAS 60 kV	P1-3:A6:8:_IGNACIO 115/60kV TB 3 & P1-3:A6:9:_IGNACIO 115/60kV TB 1	P6	N-1-1	>0.90	>0.90	0.8924	>0.90	>0.90	0.8912	>0.90	>0.90			Monitor
NCNB-V-37	CALPELLA 115 kV	P1-2:A2:18:_CLOVRDLE-MPE TAP-GEYERS56 115kV [1650] MOAS OPENED on MPE TAP_MPE & P1-2:A2:14:_MENDOCINO-UKIAH 115kV [2420] MOAS OPENED on MENDOCNO_CALPELLA	P6	N-1-1	0.7756	0.818	0.8079	0.7957	0.7991	0.8147	0.8574	0.9207			Under review
NCNB-V-38	CLER LKE 60 kV	P1-2:A2:54:_CLEAR LAKE-HOPLAND 60kV [6390] & P1-2:A2:58:_KONOCITI-EAGLE ROCK 60kV [6861]	P6	N-1-1	NonConv	NonConv	NonConv	NonConv	NonConv	>0.90	0.7291	0.8872			Clearlake Reinforcement Project
NCNB-V-39	DUNBAR 60 kV	P1-3:A2:21:_LAKEVILE 230/60kV TB 3 & P1-3:A2:22:_LAKEVILE 230/60kV TB 5	P6	N-1-1	0.1966	>0.90	0.1926	0.1764	0.1748	0.1736	0.8284	>0.90			Under review
NCNB-V-40	EGLE RCK 60 kV	P1-2:A2:54:_CLEAR LAKE-HOPLAND 60kV [6390] & P1-3:A2:29:_EGLE RCK 115/60kV TB 1	P6	N-1-1	0.193	0.2231	0.965	0.2408	0.2555	>0.90	0.6864	0.8706			Clearlake Reinforcement Project
NCNB-V-41	FRT BRGG 60 kV	P1-2:A2:50:_FORT BRAGG-ELK 60kV [2060] MOAS OPENED on BIG RIVR_ELK & P1-4:A2:1:_BIG RIVR SVD=v	P6	N-1-1	1.1224	1.1359	1.1296	<1.10	<1.10	<1.10	1.1475	<1.10			Under review
NCNB-V-42	GARCIA 60 kV	P1-2:A2:43:_MENDOCINO-PHILO JCT-HOPLAND 60kV [7520] & P1-4:A2:1:_BIG RIVR SVD=v	P6	N-1-1	1.1164	1.139	1.131	<1.10	<1.10	<1.10	1.1738	<1.10			Under review
NCNB-V-43	GRANITE 60 kV	P1-2:A2:44:_MENDOCINO-HARTLEY 60kV [7510] & P1-3:A2:29:_EGLE RCK 115/60kV TB 1	P6	N-1-1	0.8657	0.8849	>0.90	0.8873	0.9116		0.9444	>0.90			Clearlake Reinforcement Project/Under review
NCNB-V-44	HOMEPROC 115 kV	P1-2:A2:12:_EAGLE ROCK-CORTINA 115kV [1470] & P1-2:A2:23:_EAGLE ROCK-CORTINA 115kV [1470] (2)	P6	N-1-1	>0.90	>0.90	0.8908	>0.90	>0.90	>0.90	>0.90	>0.90			Monitor
NCNB-V-45	IGNACO A 60 kV	P1-3:A6:9:_IGNACIO 115/60kV TB 1 & P1-3:A6:8:_IGNACIO 115/60kV TB 3	P6	N-1-1	>0.90	>0.90	0.909	>0.90	>0.90	0.9078	>0.90	>0.90			Monitor



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Winter Peak	2021 Winter Peak	2026 Winter Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	
NCNB-V-46	LOWR LKE 60 kV	P1-2:A2:58:_KONOCI-EAGLE ROCK 60kV [6861] & P1-3:A2:26:_HPLND JT 115/60kV TB 2	P6	N-1-1	0.7913	0.8244	>0.90	>0.90	>0.90	>0.90	0.8795	>0.90			Clearlake Reinforcement Project
NCNB-V-47	LOWR LKE 60 kV	P1-2:A2:58:_KONOCI-EAGLE ROCK 60kV [6861] & P1-3:A2:46:_MIDDLTWN 115/60kV TB 1	P6	N-1-1	>0.90	>0.90	0.8601	>0.90	>0.90	>0.90	>0.90	>0.90			Monitor
NCNB-V-48	MCDWLLSW 60 kV	P1-3:A2:22:_LAKEVILE 230/60kV TB 5 & P1-3:A2:21:_LAKEVILE 230/60kV TB 3	P6	N-1-1	0.2199	>0.90	0.2196	0.1975	0.1971	0.1979	0.8364	>0.90			Under review
NCNB-V-49	MONTCLLO 115 kV	P1-3:A2:17:_FULTON 230/115kV TB 4 & P1-3:A2:18:_FULTON 230/115kV TB 9	P6	N-1-1	0.9026	0.9168	>0.90	0.8915	0.8961	>0.90	0.9552	>0.90			Under review
NCNB-V-50	PNT ARNA 60 kV	P1-4:A2:1:_BIG RIVR SVD=v & P1-2:A2:49:_FORT BRAGG-ELK 60kV [2060] MOAS OPENED on FRT BRGG_BIG RIVR	P6	N-1-1	1.1951	1.2038	1.2042	<1.10	<1.10	<1.10	1.2142	<1.10			Under review
NCNB-V-51	SILVERDO 115 kV	P1-3:A2:18:_FULTON 230/115kV TB 9 & P1-3:A2:17:_FULTON 230/115kV TB 4	P6	N-1-1	0.9002	0.9149	>0.90	0.8897	0.8943	>0.90	0.9528	>0.90			Under review
NCNB-V-52	SNTA RSA 115 kV	P1-2:A2:27:_FULTON-SANTA ROSA #1 115kV [1620] & P1-2:A2:28:_FULTON-SANTA ROSA #2 115kV [1630]	P6	N-1-1	0.895	0.9016	0.8881	0.8884	0.884	0.8864	0.9422	>0.90			Add VAR support
NCNB-V-53	SONOMA 115 kV	P1-2:A2:35:_LAKEVILLE-SONOMA #1 115kV [2063] & P1-2:A2:36:_LAKEVILLE-SONOMA #2 115kV [2070]	P6	N-1-1	0.9169	0.9218	0.9136	>0.90	>0.90	>0.90	>0.90	>0.90			Action Plan/ Radialize
NCNB-V-54	ALTO 60 kV	P7-1:A6:6:_IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 Lines &	P7	N-2	0.8687	0.857	>0.90	0.8702	0.8371	>0.90	0.9565	>0.90			Ignacio - Alto Voltage Conversion
NCNB-V-55	MONROE2 115 kV	P7-1:A2:14:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 Lines &	P7	N-2	0.8921	0.8983	0.8845	0.8852	0.8803	0.8826	0.94	0.9906			Add VAR support
NCNB-V-56	SAUSALTO 60 kV	P7-1:A6:2:_LAKEVILLE-IGNACIO #1 & IGNACIO-SOBRAANTE Lines &	P7	N-2	>0.90	>0.90	>0.90	>0.90	0.8947	>0.90	>0.90	>0.90			Monitor
NCNB-V-57	SONOMA 115 kV	P7-1:A2:15:_LAKEVILLE-SONOMA #1 & LAKEVILLE-SONOMA #2 Lines &	P7	N-2	0.9169	0.9218	0.9136	0.9317	0.9207	0.9289	>0.90	>0.90			Action Plan/ Radialize

Study Area: PG&E North Coast & North Bay

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance - Number of Voltage and Frequency Violations										Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	N/A	N/A	N/A	
NCNB-TS-01	Geyser # 9 - Lakeville 230 kV (Lakeville - SMUD GEO 230 kV)	P1-2	T-line			18								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-02	Geyser # 9 - Lakeville 230 kV (Lakeville - SMUD GEO 230 kV)	P1-2	T-line				20							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-03	Geyser # 9 - Lakeville 230 kV (Lakeville - SMUD GEO 230 kV)	P1-2	T-line					20						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-04	Geyser # 9 - Lakeville 230 kV (Lakeville - SMUD GEO 230 kV)	P1-2	T-line		18									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-05	Geyser # 9 - Lakeville 230 kV (Lakeville - SMUD GEO 230 kV)	P1-2	T-line	20										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-06	Ignacio 230/115.00 BANK # 6	P1-3	Transformer			8								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-07	Ignacio 230/115.00 BANK # 6	P1-3	Transformer		13									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-08	Ignacio 230/115.00 BANK # 6	P1-3	Transformer					11						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-09	Ignacio 230/115.00 BANK # 6	P1-3	Transformer	3										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-10	Ignacio 230/115.00 BANK # 6	P1-3	Transformer				11							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-11	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus section		16									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-12	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus section				7							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-13	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus section	16										Reassess with actual fault clearing times and SLG fault impedances where applicable



ID	Contingency	Category	Category Description	Transient Stability Performance - Number of Voltage and Frequency Violations										Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	N/A	N/A	N/A	
NCNB-TS-14	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus section			5								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-15	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus section					7						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-16	NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON 230.00	P2-3	Circuit breaker	7										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-17	NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON 230.00	P2-3	Circuit breaker			5								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-18	NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON 230.00	P2-3	Circuit breaker					7						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-19	NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON 230.00	P2-3	Circuit breaker		5									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-20	NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON 230.00	P2-3	Circuit breaker				7							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-21	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Bus tie-breaker		3									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-22	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Bus tie-breaker				5							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-23	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Bus tie-breaker			3								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-24	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	ection/stuck breaker					5						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-25	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Bus tie-breaker	5										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-26	:Geyser11 Unit 1 (Bus #31412) Stuck Breaker	P4-1	Stuck breaker					4						Reassess with actual fault clearing times and SLG fault impedances where applicable



ID	Contingency	Category	Category Description	Transient Stability Performance - Number of Voltage and Frequency Violations										Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	N/A	N/A	N/A	
NCNB-TS-27	:Geyser11 Unit 1 (Bus #31412) Stuck Breaker	P4-1	Stuck breaker	4										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-28	:Geyser11 Unit 1 (Bus #31412) Stuck Breaker	P4-1	Stuck breaker				4							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-29	:Geyser11 Unit 1 (Bus #31412) Stuck Breaker	P4-1	Stuck breaker			2								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-30	:Geyser11 Unit 1 (Bus #31412) Stuck Breaker	P4-1	Stuck breaker		2									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-31	:Geysers 9 -Lakeville 230 kV Line (30397-30435)	P4-2	line/stuck breaker				20							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-32	:Geysers 9 -Lakeville 230 kV Line (30397-30435)	P4-2	line/stuck breaker					20						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-33	:Geysers 9 -Lakeville 230 kV Line (30397-30435)	P4-2	line/stuck breaker			18								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-34	:Geysers 9 -Lakeville 230 kV Line (30397-30435)	P4-2	line/stuck brea	20										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-35	:Geysers 9 -Lakeville 230 kV Line (30397-30435)	P4-2	line/stuck breaker		18									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-36	:Ignacio 230/ 115 kV No. 6 Transformer (32568)	P4-3	former/stuck breaker				97							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-37	:Ignacio 230/ 115 kV No. 6 Transformer (32568)	P4-3	former/stuck breaker			107								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-38	:Ignacio 230/ 115 kV No. 6 Transformer (32568)	P4-3	former/stuck b	109										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-39	:Ignacio 230/ 115 kV No. 6 Transformer (32568)	P4-3	former/stuck breaker		107									Reassess with actual fault clearing times and SLG fault impedances where applicable

Study Area: PG&E North Coast & North Bay

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance - Number of Voltage and Frequency Violations										Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Summer Off-Peak	2021 Summer Light Load	N/A	N/A	N/A	N/A	N/A	
NCNB-TS-40	:Ignacio 230/ 115 kV No. 6 Transformer (32568)	P4-3	former/stuck breaker					93						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-41	:BUS FAULT AT 31220 EGLE RCK 115.00	P4-5	ection/stuck breaker					108						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-42	:BUS FAULT AT 31220 EGLE RCK 115.00	P4-5	ection/stuck breaker				136							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-43	:BUS FAULT AT 31220 EGLE RCK 115.00	P4-5	ection/stuck br	167										Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-44	:BUS FAULT AT 31220 EGLE RCK 115.00	P4-5	ection/stuck breaker		167									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-45	:BUS FAULT AT 31220 EGLE RCK 115.00	P4-5	ection/stuck breaker			138								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-46	:NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON	P4-6	ection/bus tie-breaker				87							Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-47	:NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON	P4-6	ection/bus tie-breaker		79									Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-48	:NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON	P4-6	ection/bus tie-breaker			79								Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-49	:NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON	P4-6	ection/stuck breaker					31						Reassess with actual fault clearing times and SLG fault impedances where applicable
NCNB-TS-50	:NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON	P4-6	ection/bus tie-b	71										Reassess with actual fault clearing times and SLG fault impedances where applicable

Study Area: PG&E North Coast & North Bay



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
				Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SLD-1														

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

Study Area: PG&E North Coast & North Bay



Single Source Substation with more than 100 MW Load

ID	Substation	Load Served (MW)										Potential Mitigation Solutions
		Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SS-1												

No single source substation with more than 100 MW Load