



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-T-1	31110 BRDGVLE 60.0 31120 FRUTLDJT 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	104.45	<100	<100	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-2	31110 BRDGVLE 60.0 31120 FRUTLDJT 60.0 1	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie Breaker	110.86	119.75	28.37	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-3	31110 BRDGVLE 60.0 31120 FRUTLDJT 60.0 1	Eagle Rock-Redbud & Cortina-Mendocino No.1 115 kV Lines	P7	DCTL	104.86	108.73	29.63	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-4	31120 FRUTLDJT 60.0 31122 FTSWRDJT 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	106.59	<100	<100	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-5	31120 FRUTLDJT 60.0 31122 FTSWRDJT 60.0 1	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie Breaker	112.55	121.08	23.82	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-6	31120 FRUTLDJT 60.0 31122 FTSWRDJT 60.0 1	Eagle Rock-Redbud & Cortina-Mendocino No.1 115 kV Lines	P7	DCTL	107.02	111.19	25.79	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-7	31122 FTSWRDJT 60.0 31116 GRBRVLE 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	104.53	<100	<100	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-8	31122 FTSWRDJT 60.0 31116 GRBRVLE 60.0 1	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie Breaker	110.26	118.44	21.98	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-9	31122 FTSWRDJT 60.0 31116 GRBRVLE 60.0 1	Eagle Rock-Redbud & Cortina-Mendocino No.1 115 kV Lines	P7	DCTL	104.97	109.11	24.09	<100	<100	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-10	31208 CLOVRDLE 115 31210 MPE TAP 115 1	Eagle Rock-Redbud & Cortina-Mendocino No.1 115 kV Lines	P7	DCTL	100.49	95.84	93.51	<100	<100	<100	<100	<100	Adjust Generation
NCNB-T-11	31224 INDIN VL 115 31215 LUCERNJ1 115 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	104.62	69.36	69.56	<100	<100	<100	<100	<100	Reduce Indian Valley generation
NCNB-T-12	31246 BELLVUE 115 31248 PENNGRVE 115 1	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie Breaker	109.83	111.57	111.50	<100	<100	<100	<100	<100	Drop Load at Santa Rosa
NCNB-T-13	31246 BELLVUE 115 31248 PENNGRVE 115 1	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	109.90	111.46	111.51	<100	<100	<100	<100	<100	Drop Load at Santa Rosa
NCNB-T-14	31248 PENNGRVE 115 31254 CORONA 115 1	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie Breaker	114.64	116.73	116.82	<100	<100	<100	<100	<100	Drop Load at Santa Rosa
NCNB-T-15	31248 PENNGRVE 115 31254 CORONA 115 1	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	114.72	116.61	116.83	<100	<100	<100	<100	<100	Drop Load at Santa Rosa
NCNB-T-16	31254 CORONA 115 31255 LAKEVLE 115 1	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie Breaker	108.49	110.57	110.90	<100	<100	<100	<100	<100	Drop Load at Santa Rosa
NCNB-T-17	31254 CORONA 115 31255 LAKEVLE 115 1	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	108.56	110.46	110.91	<100	<100	<100	<100	<100	Drop Load at Santa Rosa
NCNB-T-18	31334 CLER LKE 60.0 31335 GRANITE 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	130.27	36.88	39.41	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-19	31334 CLER LKE 60.0 31335 GRANITE 60.0 1	Konocti - Eagle Rock 60kV	P1-2	Line	127.42	38.72	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-20	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	116.83	20.17	18.06	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-21	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie Breaker	90.06	109.75	99.16	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-22	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	Eagle Rock-Redbud & Cortina-Mendocino No.1 115 kV Lines	P7	DCTL	<100	102.74	98.87	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project



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NCNB-T-23	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	Konocti - Eagle Rock 60kV	P1-2	Line	112.03	<100	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-24	31335 GRANITE 60.0 31336 HPLND JT 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	135.85	42.25	45.11	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-25	31335 GRANITE 60.0 31336 HPLND JT 60.0 1	Konocti - Eagle Rock 60kV	P1-2	Line	133.09	44.35	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-26	31336 HPLND JT 60.0 31206 HPLND JT 115 2	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie Breaker	110.04	94.91	83.64	81.29	68.82	59.94	<100	<100	Clear Lake 60kV reinforcement Project
NCNB-T-27	31336 HPLND JT 60.0 31370 CLVRDLJT 60.0 1	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie Breaker	Nconv	Nconv	Nconv	114.25	116.12	112.49	<100	<100	Add a redundant tie breaker at Fulton 60kV
NCNB-T-28	31336 HPLND JT 60.0 31370 CLVRDLJT 60.0 1	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	115.56	116.70	114.12	<100	<100	Close Switch # 25 at Fitch Mountain to transfer Fitch mountain and Badger stations to Fulton #1 60kV line. Drop load, if needed.
NCNB-T-29	31370 CLVRDLJT 60.0 31374 GYSRJCT1 60.0 1	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie Breaker	Nconv	Nconv	Nconv	99.97	101.61	98.44	<100	<100	Add a redundant tie breaker at Fulton 60kV
NCNB-T-30	31370 CLVRDLJT 60.0 31374 GYSRJCT1 60.0 1	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	101.12	102.12	99.86	<100	<100	Close Switch # 25 at Fitch Mountain to transfer Fitch mountain and Badger stations to Fulton #1 60kV line. Drop load, if needed.
NCNB-T-31	31374 GYSRJCT1 60.0 31382 FTCHMTNP 60.0 1	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie Breaker	Nconv	Nconv	Nconv	100.02	101.65	98.48	<100	<100	Add a redundant tie breaker at Fulton 60kV
NCNB-T-32	31374 GYSRJCT1 60.0 31382 FTCHMTNP 60.0 1	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	101.17	102.16	99.91	<100	<100	Close Switch # 25 at Fitch Mountain to transfer Fitch mountain and Badger stations to Fulton #1 60kV line. Drop load, if needed.
NCNB-T-33	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	122.80	<100	<100	<100	<100	<100	<100	<100	Fulton - Fitch Mountain 60kV line reconductor
NCNB-T-34	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie Breaker	110.52	<100	<100	<100	<100	<100	<100	<100	Fulton - Fitch Mountain 60kV line reconductor
NCNB-T-35	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	Eagle Rock-Cortina 115kV Lines & Cortina-Mendocino No.1 115kV	P7	DCTL	104.15	<100	<100	<100	<100	<100	<100	<100	Fulton - Fitch Mountain 60kV line reconductor
NCNB-T-36	32568 IGNACIO 115 32570 LS GLLNS 115 3	Ignacio-San Rafael #2 & Ignacio-San Rafael #1 115kV Lines	P7	DCTL	<100	<100	115.72	<100	<100	<100	<100	<100	Drop load at San Rafael
NCNB-T-37	32568 IGNACIO 115 32574 SAN RAFL 115 2	Ignacio-San Rafael #1 & Ignacio-Las Gallinas #1 115kV Lines	P7	DCTL	<100	<100	131.88	<100	<100	<100	<100	<100	Ignacio - Alto Voltage conversion project. Reconductor the line to a higher rating (at least 620 Amps)
NCNB-T-38	32568 IGNACIO 115 32574 SAN RAFL 115 2	Ignacio-San Rafael #1 & Las Gallinas-San Rafael #3 115kV Lines	P7	DCTL	<100	<100	102.09	<100	<100	<100	<100	<100	Ignacio - Alto Voltage conversion project. Reconductor the line to a higher rating (at least 620 Amps)



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NCNB-T-39	32655 TULCAY1 60.0 32662 TULCY JT 60.0 1	TULUCAY-BSLT TAP #1 60 kV	P2-1	Line Section Open	116.62	<100	<100	<100	<100	<100	<100	<100	Napa - Tulucay 60kV line upgrade
NCNB-T-40	32656 NAPA 60.0 32662 TULCY JT 60.0 1	TULUCAY-BSLT TAP #1 60 kV	P2-1	Line Section Open	139.13	115.26	117.28	<100	<100	<100	<100	<100	Napa - Tulucay 60kV line upgrade
NCNB-T-41	32666 IGNACO B 60.0 32674 WOODACRE 60.0 1	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	<100	<100	<100	<100	<100	Reconductor the line between Bolinas and Olema. Line is currently rated 17 MVA emergency.
NCNB-T-42	32667 IG JCT 60.0 32678 SAN_RFLJ 60.0 1	Ignacio-Alto-Sausalito #2 & #1 60kV Lines	P7	DCTL	142.90	144.78	<100	<100	<100	<100	<100	<100	Ignacio - Alto Voltage conversion project.
NCNB-T-43	32669 STAF_JCT 60.0 32673 TOCA_JCT 60.0 1	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	<100	<100	<100	<100	<100	Reconductor the line between Bolinas and Olema. Line is currently rated 17 MVA emergency.
NCNB-T-44	32671 BOLINAS 60.0 32674 WOODACRE 60.0 1	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	<100	<100	<100	<100	<100	Reconductor the line between Bolinas and Olema. Line is currently rated 17 MVA emergency.
NCNB-T-45	32672 OLEMA 60.0 32671 BOLINAS 60.0 1	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	130.10	126.33	120.19	<100	<100	Reconductor the line between Bolinas and Olema. Line is currently rated 17 MVA emergency.
NCNB-T-46	32673 TOCA_JCT 60.0 32672 OLEMA 60.0 1	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	Nconv	Nconv	Nconv	104.52	101.19	95.73	<100	<100	Reconductor the line between Bolinas and Olema. Line is currently rated 17 MVA emergency.
NCNB-T-47	32673 TOCA_JCT 60.0 32672 OLEMA 60.0 1	IGNACO B-WOODACRE #1 60 kV	P2-1	Line Section Open	106.23	105.47	101.74	<100	<100	<100	<100	<100	Reconductor the line between Bolinas and Olema. Line is currently rated 17 MVA emergency.
NCNB-T-48	32678 SAN_RFLJ 60.0 32680 GREENBRE 60.0 1	Ignacio-Alto-Sausalito #2 & #1 60kV Lines	P7	DCTL	141.92	143.79	<100	<100	<100	<100	<100	<100	Ignacio - Alto Voltage conversion project.
NCNB-T-49	31110 BRDGVILLE 60.0 31120 FRUTLDJT 60.0 1	Geyser #3 - Eagle Rock 115 kv Line and Cortina - Mendocino No.1 115 kV (Mendocino - Lucerne Jct1)	P6	Multiple Contingency	<100	104.14	<100	<100	98.38	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-50	31116 GRBRVILLE 60.0 31118 KEKAWAKA 60.0 1	Cortina - Mendocino No.1 115 kV (Mendocino - Lucerne Jct1) and Eagle Rock - Cortina 115 kV Line (Lower Lake Jct - Highland J2)	P6	Multiple Contingency	<100	<100	<100	99.04	<100	<100	100.14	<100	Adjust Humboldt bay generation



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NCNB-T-51	31120 FRUTLDJT 60.0 31122 FTSWRDJT 60.0 1	Cortina - Mendocino No.1 115 kV (Mendocino - Lucerine Jct1) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	103.93	96.88	<100	107.44	97.31	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-52	31122 FTSWRDJT 60.0 31116 GRBRVLE 60.0 1	Ukiah-Hopland-Cloverdale 115 kV (Ukiah - City of Ukiah) and Cortina - Mendocino No.1 115 kV (Mendocino - Lucerine Jct1)	P6	Multiple Contingency	<100	104.84	<100	<100	96.85	<100	<100	<100	New Bridgeville - Garberville 115kV line
NCNB-T-53	31224 INDIN VL 115 31215 LUCERNJ1 115 1	Eagle Rock - Redbud 115 kV Line (Eagle rock - Highland J1) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	105.45	99.06	96.08	<100	<100	<100	<100	Adjust Indian valley unit
NCNB-T-54	31229 REDBUDJ2 115 31222 REDBUD 115 1	Cortina - Mendocino No.1 115 kV (Mendocino - Lucerine Jct1) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	107.11	93.18	85.64	<100	<100	<100	<100	Adjust Generation
NCNB-T-55	31236 FULTON 115 31238 MONROE1 115 1	Corona- Lakeville 115kV Line and Fulton-Santa Rosa No.2 115 kV Line (Fulton - Monroe 2)	P6	Multiple Contingency	<100	119.81	121.60	120.74	90.80	90.29	<100	<100	Drop load at Santa Rosa
NCNB-T-56	31236 FULTON 115 31239 MONROE2 115 1	Corona- Lakeville 115kV Line and Fulton-Santa Rosa No.1 115 kV Line (Fulton - Monroe 1)	P6	Multiple Contingency	<100	119.19	120.98	120.17	90.37	<100	<100	<100	Drop load at Santa Rosa
NCNB-T-57	31238 MONROE1 115 31240 SNTA RSA 115 1	Corona- Lakeville 115kV Line and Fulton-Santa Rosa No.2 115 kV Line (Fulton - Monroe 2)	P6	Multiple Contingency	<100	109.94	111.70	111.00	<100	<100	<100	<100	Drop load at Santa Rosa
NCNB-T-58	31239 MONROE2 115 31240 SNTA RSA 115 1	Corona- Lakeville 115kV Line and Fulton-Santa Rosa No.1 115 kV Line (Fulton - Monroe 1)	P6	Multiple Contingency	<100	100.36	102.31	102.02	<100	<100	<100	<100	Drop load at Santa Rosa
NCNB-T-59	31246 BELLVUE 115 31248 PENNGRVE 115 1	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	<100	NConv	NConv	<100	<100	<100	<100	<100	Mitigation Under Review
NCNB-T-60	31246 BELLVUE 115 31248 PENNGRVE 115 1	Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroe 2) and Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroe 1)	P6	Multiple Contingency	<100	110.47	111.58	111.48	<100	<100	<100	<100	Drop load at Santa Rosa
NCNB-T-61	31248 PENNGRVE 115 31254 CORONA 115 1	Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroe 1) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroe 2)	P6	Multiple Contingency	<100	115.31	116.74	116.91	<100	<100	<100	<100	Drop load at Santa Rosa
NCNB-T-62	31254 CORONA 115 31255 LAKEVILLE 115 1	Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroe 2) and Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroe 1)	P6	Multiple Contingency	<100	109.10	110.58	110.86	<100	<100	<100	<100	Drop load at Santa Rosa
NCNB-T-63	31258 SONOMA 115 32564 PUEBLO 115 1	FULTON 230/115 kV Bank # 9 and FULTON 230/115 kV Bank # 4	P6	Multiple Contingency	<100	NConv	NConv	<100	<100	<100	<100	<100	Mitigation Under Review



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NCNB-T-64	31262 CACHE J2 115 31229 REDBUDJ2 115 1	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	<100	101.08	<100	<100	<100	<100	<100	<100	Adjust Generation
NCNB-T-65	31300 MENDOCNO 60.0 31327 UKIAH JT 60.0 1	FULTON 115/60.00 KV BANK NO.1 and FULTON 115/60.00 KV BANK NO.2	P6	Multiple Contingency	Nconv	NConv	NConv	NConv	NConv	NConv	NConv	<100	Mitigation Under Review
NCNB-T-66	31300 MENDOCNO 60.0 31330 UPPR LKE 60.0 1	Clear Lake- Hopland 60 kV Line (Clear Lake - Granite) and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	NConv	<100	<100	Nconv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-67	31300 MENDOCNO 60.0 31330 UPPR LKE 60.0 1	Eagle Rock 115/60 KV Bank #1 and Clear Lake- Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	<100	NConv	<100	<100	NConv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-68	31326 PHLO JCT 60.0 31336 HPLND JT 60.0 1	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	<100	104.61	<100	92.69	<100	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-69	31326 PHLO JCT 60.0 31336 HPLND JT 60.0 1	Mendocino- Ukiah 115 kV(Mendocino - Calpella) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	105.51	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-70	31327 UKIAH JT 60.0 31326 PHLO JCT 60.0 1	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	<100	111.21	98.30	102.19	98.21	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-71	31327 UKIAH JT 60.0 31326 PHLO JCT 60.0 1	Konocti - Eagle Rock 60kV and Ukiah-Hopland- Cloverdale 115 kV (Ukiah - Hopland Jct)	P6	Multiple Contingency	<100	99.93	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-72	31327 UKIAH JT 60.0 31326 PHLO JCT 60.0 1	Mendocino- Ukiah 115 kV(Mendocino - Calpella) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	113.33	98.38	99.44	99.21	<100	90.25	<100	Clear Lake 60kV reinforcement project
NCNB-T-73	31327 UKIAH JT 60.0 31326 PHLO JCT 60.0 1	Ukiah-Hopland-Cloverdale 115 kV (Ukiah - Hopland Jct) and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	102.22	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-74	31330 UPPR LKE 60.0 31332 HARTLEY 60.0 1	Clear Lake- Hopland 60 kV Line (Clear Lake - Granite) and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	NConv	<100	<100	Nconv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-75	31332 HARTLEY 60.0 31334 CLER LKE 60.0 1	Clear Lake- Hopland 60 kV Line (Clear Lake - Granite) and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	NConv	<100	<100	Nconv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-76	31334 CLER LKE 60.0 31335 GRANITE 60.0 1	Eagle Rock 115/60 KV Bank #1 and Hartley - Clear Lake 60kV	P6	Multiple Contingency	<100	NConv	<100	<100	Nconv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-77	31334 CLER LKE 60.0 31335 GRANITE 60.0 1	Konocti - Eagle Rock 60kV and Mendocino - Clearlake 60 kV Line (Mendocino - Upper Lake)	P6	Multiple Contingency	<100	NConv	<100	<100	Nconv	<100	<100	<100	Clear Lake 60kV reinforcement project



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NCNB-T-78	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	Clear Lake- Hopland 60 kV Line (Clear Lake - Granite) and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	109.99	<100	<100	128.53	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-79	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	Cortina - Mendocino No.1 115 kV (Mendocino - Lucerine Jct1) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	108.83	117.21	108.13	<100	99.63	78.10	<100	Adjust Generation
NCNB-T-80	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	Eagle Rock 115/60 KV Bank #1 and Hartley - Clear Lake 60kV	P6	Multiple Contingency	<100	NConv	<100	<100	<100	<100	<100	<100	Clear lake 60kV reinforcement project
NCNB-T-81	31334 CLER LKE 60.0 31338 KONOCTI6 60.0 1	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	NConv	<100	<100	<100	<100	<100	<100	Clear lake 60kV reinforcement project
NCNB-T-82	31335 GRANITE 60.0 31336 HPLND JT 60.0 1	Hartley - Clear Lake 60kV and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	Nconv	<100	<100	Nconv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-83	31336 HPLND JT 60.0 31206 HPLND JT 115 2	Eagle Rock 115/60 KV Bank #1 and Mendocino -Clearlake 60 kV Line (Mendocino - Upper Lake)	P6	Multiple Contingency	<100	NConv	<100	<100	NConv	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-84	31336 HPLND JT 60.0 31370 CLVRDLJT 60.0 1	Eagle Rock - Cortina 115 kV Line (Lower Lake Jct - Highland J2) and Eagle Rock- Fulton-Silverado 115 kv (Eagle rock - Silverado Jct2	P6	Multiple Contingency	<100	98.40	98.86	99.39	100.57	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-85	31338 KONOCTI6 60.0 31340 LOWR LKE 60.0 1	Eagle Rock 115/60 KV Bank #1 and Hartley - Clear Lake 60kV	P6	Multiple Contingency	<100	109.11	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-86	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	Hopland 115/60 kV Bank #2 and Clear Lake - Eagle Rock 60 kV Line (Clear Lake - Konocti)	P6	Multiple Contingency	<100	110.74	<100	<100	<100	<100	<100	<100	Fulton - Fitch Mountain 60kV line reconductor
NCNB-T-87	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	MENDOCINO - REDBUD 115 KV (Mendocino-LUCERN JCT2) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	<100	101.65	<100	<100	<100	<100	<100	<100	Fulton - Fitch Mountain 60kV line reconductor
NCNB-T-88	31378 FULTON 60.0 31382 FTCHMTNP 60.0 1	Ukiah-Hopland-Cloverdale 115 kV (Ukiah - Hopland Jct) and Konocti - Eagle Rock 60kV	P6	Multiple Contingency	<100	NConv	<100	<100	<100	<100	<100	<100	Clear Lake 60kV reinforcement project
NCNB-T-89	31396 DUNBAR 60.0 32650 ST.HELNA 60.0 1	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	NConv	NConv	NConv	NConv	NConv	NConv	<100	Mitigation Under Review
NCNB-T-90	32568 IGNACIO 115 32570 LS GLLNS 115 3	Ignacio - San Rafael No. 1 115 kV Line and Ignacio - San Rafael No. 2 115 kV(New)	P6	Multiple Contingency	<100	<100	<100	115.69	<100	<100	<100	<100	Mitigation Under Review



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-T-91	32568 IGNACIO 115 32574 SAN RAFL 115 1	Ignacio - San Rafael No. 2 115 kV(New) and Ignacio - San Rafael No.3 115 kV Line (Ignacio - Las Gallinas)	P6	Multiple Contingency	<100	<100	<100	121.37	<100	<100	<100	<100	Mitigation Under Review
NCNB-T-92	32568 IGNACIO 115 32574 SAN RAFL 115 2	Ignacio - San Rafael No. 1 115 kV Line and Ignacio - San Rafael No. 3 115 kV Line (Las Gallinas - San Rafael)	P6	Multiple Contingency	<100	<100	<100	101.96	<100	<100	<100	<100	This line needs to be built for a higher rating as a part of the Ignacio - Alto voltage conversion project
NCNB-T-93	32568 IGNACIO 115 32574 SAN RAFL 115 2	Ignacio - San Rafael No. 1 115 kV Line and Ignacio - San Rafael No.3 115 kV Line (Ignacio - Las Gallinas)	P6	Multiple Contingency	<100	<100	<100	131.86	<100	<100	92.86	<100	This line needs to be built for a higher rating as a part of the Ignacio - Alto voltage conversion project
NCNB-T-94	32664 IGNACO A 60.0 32666 IGNACO B 60.0 1	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	<100	NConv	NConv	<100	<100	<100	NConv	<100	Mitigation Under Review
NCNB-T-95	32667 IG JCT 60.0 32678 SAN_RFLJ 60.0 1	Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD) and Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20)	P6	Multiple Contingency	<100	145.06	145.89	<100	102.14	100.95	<100	<100	Ignacio - Alto Voltage conversion project
NCNB-T-96	32667 IG JCT 60.0 32678 SAN_RFLJ 60.0 1	Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20) and Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD)	P6	Multiple Contingency	<100	144.85	145.69	<100	102.14	100.95	<100	<100	Ignacio - Alto Voltage conversion project
NCNB-T-97	32678 SAN_RFLJ 60.0 32680 GREENBRE 60.0 1	Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD) and Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20)	P6	Multiple Contingency	<100	144.04	144.87	<100	101.44	100.26	<100	<100	Ignacio - Alto Voltage conversion project
NCNB-T-98	32678 SAN_RFLJ 60.0 32680 GREENBRE 60.0 1	Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20) and Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD)	P6	Multiple Contingency	<100	143.70	144.53	<100	101.44	100.26	<100	<100	Ignacio - Alto Voltage conversion project

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

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-VD-1	BIG RIVR 60 kV	BIG RIVR 60.00 SVD ID v	P1-4	Shunt Device	1.35	1.138	6.09	6.276	6.865	5.181	5.202	5.561	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-2	FRT BRGG 60 kV	BIG RIVR 60.00 SVD ID v	P1-4	Shunt Device	0.609	0.441	4.825	5.034	5.561	4.166	4.101	4.477	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-3	CALPELLA 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 1 115.00	P2-2	Bus	5.602	2.122	9.979	10.525	10.283	8.549	8.016	6.407	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-4	HPLND JT 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 1 115.00	P2-2	Bus	3.032	1.097	5.434	5.697	5.661	4.766	4.355	3.274	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-5	UKIAH 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 1 115.00	P2-2	Bus	4.852	1.836	8.726	9.194	9.012	7.504	7.002	5.536	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-6	CALPELLA 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 2 115.00	P2-2	Bus	4.928	1.242	11.736	12.431	12.221	8.954	8.173	7.943	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-7	HPLND JT 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 2 115.00	P2-2	Bus	2.63	0.675	6.639	6.958	6.866	4.932	4.455	4.336	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-8	MENDOCNO 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 2 115.00	P2-2	Bus	5.347	1.339	12.608	13.368	13.138	9.651	8.819	8.57	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-9	REDBUD 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 2 115.00	P2-2	Bus	2.56	0.635	6.301	6.62	6.495	4.714	4.286	4.147	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-10	UKIAH 115 kV	BUS FAULT AT 31200 MENDOCNO BUS 2 115.00	P2-2	Bus	4.258	1.086	10.336	10.927	10.748	7.836	7.135	6.934	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-11	CALPELLA 115 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.339	-0.605	9.555	4.203	-0.876	-0.619	-0.25	0.159	Clear Lake 60kV reinforcement project
NCNB-VD-12	CLER LKE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	5.091	1.148	15.193	3.279	2.148	9.853	2.088	2.475	Clear Lake 60kV reinforcement project
NCNB-VD-13	EGLE RCK 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	11.97	3.034	29.474	7.775	6.966	22.443	6.918	7.417	Clear Lake 60kV reinforcement project
NCNB-VD-14	GRANITE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	4.098	1.004	13.138	2.906	1.606	7.921	1.589	1.935	Clear Lake 60kV reinforcement project
NCNB-VD-15	HARTLEY 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	4.206	0.979	12.606	2.71	1.754	8.052	1.667	2.064	Clear Lake 60kV reinforcement project
NCNB-VD-16	HPLND JT 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	1.316	0.616	7.127	1.868	0.131	2.4	0.198	0.433	Clear Lake 60kV reinforcement project
NCNB-VD-17	HPLND JT 115 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	1.05	-0.738	6.678	2.547	-0.385	0.68	0.211	0.513	Clear Lake 60kV reinforcement project
NCNB-VD-18	KONOCIT6 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	9.72	1.925	25.441	5.554	4.614	18.605	4.519	4.986	Clear Lake 60kV reinforcement project
NCNB-VD-19	LOWR LKE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	9.863	0.79	26.696	3.962	3.059	19.199	2.89	3.383	Clear Lake 60kV reinforcement project
NCNB-VD-20	LUCERNE 115 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.033	-0.463	8.115	3.463	-0.14	-0.219	-0.108	0.159	Clear Lake 60kV reinforcement project
NCNB-VD-21	MENDOCNO 115 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.195	-0.579	10.049	4.473	-0.965	-0.852	-0.341	0.086	Clear Lake 60kV reinforcement project
NCNB-VD-22	MIDDLTWN 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	10.078	-1.175	28.495	1.118	0.279	20.07	0.133	0.692	Clear Lake 60kV reinforcement project
NCNB-VD-23	REDBUD 115 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	-1.672	-1.453	7.697	1.541	-3.677	-2.714	-2.022	-1.008	Clear Lake 60kV reinforcement project
NCNB-VD-24	UKIAH 115 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.563	-0.648	8.759	3.772	-0.73	-0.245	-0.102	0.28	Clear Lake 60kV reinforcement project
NCNB-VD-25	UPPR LKE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	3.289	0.808	9.781	2.107	1.339	6.1	1.225	1.626	Clear Lake 60kV reinforcement project

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

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-VD-26	BIG RIVR 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0	0	9.895	9.135	8.904	0	0	0	New Bridgeville - Garberville 115kV line
NCNB-VD-27	CALPELLA 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	6.069	2.51	13.753	13.904	13.143	9.671	9.182	8.048	New Bridgeville - Garberville 115kV line
NCNB-VD-28	CLER LKE 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	1.858	0.669	7.292	7.162	6.614	3.582	3.256	3.234	New Bridgeville - Garberville 115kV line
NCNB-VD-29	CLOVRDL 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.119	0.913	5.727	5.611	5.261	3.619	3.362	2.973	New Bridgeville - Garberville 115kV line
NCNB-VD-30	COVELO6 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	1.562	0.497	11.503	11.761	10.424	3.213	4.818	4.149	New Bridgeville - Garberville 115kV line
NCNB-VD-31	ELK 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.547	0.341	10.511	9.798	9.428	1.489	1.367	1.353	New Bridgeville - Garberville 115kV line
NCNB-VD-32	FRT BRGG 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.527	0.183	10.825	10.072	9.82	1.123	1.078	1.148	New Bridgeville - Garberville 115kV line
NCNB-VD-33	FRT SWRD 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.65	0.308	5.097	6.692	2.635	0.035	3.526	0.966	New Bridgeville - Garberville 115kV line
NCNB-VD-34	FRUITLND 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.505	0.25	4.443	5.715	2.361	0.231	2.955	0.853	New Bridgeville - Garberville 115kV line
NCNB-VD-35	GARCIA 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.548	0.341	10.506	9.796	9.425	1.489	1.367	1.357	New Bridgeville - Garberville 115kV line
NCNB-VD-36	GRANITE 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	1.906	0.665	7.604	7.43	6.912	3.773	3.457	3.405	New Bridgeville - Garberville 115kV line
NCNB-VD-37	GRBRVLE 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.841	0.362	5.682	7.804	3.027	-0.527	4.179	1.117	New Bridgeville - Garberville 115kV line
NCNB-VD-38	HARTLEY 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.105	0.805	8.759	8.496	7.913	4.042	3.682	3.712	New Bridgeville - Garberville 115kV line
NCNB-VD-39	HPLND JT 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.021	0.654	8.381	8.099	7.664	4.26	3.975	3.843	New Bridgeville - Garberville 115kV line
NCNB-VD-40	HPLND JT 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	3.494	1.483	9.12	8.999	8.455	5.862	5.493	4.876	New Bridgeville - Garberville 115kV line
NCNB-VD-41	KEKAWAKA 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.959	0.363	7.194	8.885	5.033	0.423	4.445	1.98	New Bridgeville - Garberville 115kV line
NCNB-VD-42	LYTNVLE 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	1.555	0.494	11.387	11.643	10.324	3.207	4.81	4.144	New Bridgeville - Garberville 115kV line
NCNB-VD-43	MASONITE 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.329	0.951	11.705	11.02	10.509	4.765	4.342	4.439	New Bridgeville - Garberville 115kV line
NCNB-VD-44	MENDOCNO 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.747	1.039	13.786	12.854	12.454	5.587	5.002	5.406	New Bridgeville - Garberville 115kV line
NCNB-VD-45	PHILO 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	1.092	0.66	11.002	10.33	9.851	3.086	2.833	2.815	New Bridgeville - Garberville 115kV line
NCNB-VD-46	PNT ARNA 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	0.547	0.341	10.504	9.794	9.423	1.489	1.367	1.357	New Bridgeville - Garberville 115kV line
NCNB-VD-47	PTTR VLY 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.645	1.023	13.575	12.709	12.316	5.286	4.854	5.191	New Bridgeville - Garberville 115kV line
NCNB-VD-48	UKIAH 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	5.319	2.224	12.496	12.571	11.87	8.625	8.167	7.175	New Bridgeville - Garberville 115kV line
NCNB-VD-49	UPPR LKE 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.294	0.899	10.017	9.619	9.046	4.412	4.016	4.123	New Bridgeville - Garberville 115kV line
NCNB-VD-50	WILLITS 60 kV	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker	2.217	0.785	13.177	12.468	12.034	4.686	4.556	4.792	New Bridgeville - Garberville 115kV line

Study Area: PG&E North Coast & North Bay

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-VD-51	BELLVUE 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	5.656	5.27	9.713	10.508	10.744	8.396	8.456	8.66	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-52	MONROE1 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	7.545	7.104	12.962	13.69	14.037	11.051	10.923	11.234	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-53	MONROE2 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	7.57	7.12	13.021	13.75	14.095	11.106	10.977	11.287	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-54	PENNGRVE 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	4.216	3.89	7.005	7.826	7.979	6.254	6.452	6.586	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-55	SNTA RSA 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	7.155	6.718	12.336	13.082	13.405	10.529	10.441	10.728	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-56	STONY PT 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	6.164	5.767	10.642	11.427	11.691	9.166	9.176	9.408	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-57	CALPELLA 115 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	0.869	0.401	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-58	CLER LKE 60 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	1.142	0.602	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-59	FTCH MTN 60 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	11.661	7.636	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-60	GRANITE 60 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	1.374	0.73	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-61	HPLND JT 60 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	1.985	1.062	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-62	HPLND JT 115 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	0.956	0.518	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-63	MENDOCNO 115 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	0.852	0.38	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-64	UKIAH 115 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	0.896	0.434	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add a redundant tie breaker at Fulton 60kV
NCNB-VD-65	CLER LKE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	5.396	1.305	12.778	2.54	2.591	11.535	2.54	2.761	Clear Lake 60kV reinforcement project
NCNB-VD-66	EGLE RCK 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	12.288	3.669	26.591	7.146	7.235	24.362	7.314	7.537	Clear Lake 60kV reinforcement project
NCNB-VD-67	GRANITE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	4.402	1.042	10.653	2.064	2.11	9.564	2.06	2.248	Clear Lake 60kV reinforcement project
NCNB-VD-68	HARTLEY 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	4.492	1.09	10.616	2.091	2.193	9.632	2.095	2.375	Clear Lake 60kV reinforcement project
NCNB-VD-69	KONOCIT6 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	10.038	2.56	22.558	4.926	4.883	20.523	4.915	5.106	Clear Lake 60kV reinforcement project
NCNB-VD-70	LOWR LKE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	10.187	1.802	23.6	3.448	3.212	21.203	3.215	3.356	Clear Lake 60kV reinforcement project
NCNB-VD-71	MIDDLTWN 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	10.41	0.513	25.099	0.841	0.304	22.197	0.264	0.337	Clear Lake 60kV reinforcement project
NCNB-VD-72	UPPR LKE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	3.549	0.873	8.244	1.617	1.768	7.54	1.622	1.958	Clear Lake 60kV reinforcement project
NCNB-VD-73	CALPELLA 115 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	0.909	0.427	7.929	8.649	7.782	3.932	3.736	0.761	Close switch #25 at Fitch mountain sub
NCNB-VD-74	CLER LKE 60 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	1.199	0.644	5.636	5.998	5.748	3.619	3.199	2.667	Close switch #25 at Fitch mountain sub

Study Area: PG&E North Coast & North Bay

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-VD-75	FTCH MTN 60 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	11.717	7.672	63.108	65.172	65.032	38.165	38.303	36.456	Close switch #25 at Fitch mountain sub
NCNB-VD-76	GRANITE 60 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	1.429	0.77	7.208	7.625	7.373	4.449	4.071	3.41	Close switch #25 at Fitch mountain sub
NCNB-VD-77	HPLND JT 60 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	2.034	1.097	11.359	11.894	11.638	6.639	6.358	5.356	Close switch #25 at Fitch mountain sub
NCNB-VD-78	HPLND JT 115 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	1.003	0.549	7.054	7.515	7.019	3.793	3.62	1.979	Close switch #25 at Fitch mountain sub
NCNB-VD-79	LUCERNE 115 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	0.575	0.257	5.575	6.117	5.485	2.687	2.547	0.446	Close switch #25 at Fitch mountain sub
NCNB-VD-80	MENDOCNO 115 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	0.891	0.406	8.082	8.844	7.915	3.968	3.77	0.544	Close switch #25 at Fitch mountain sub
NCNB-VD-81	UKIAH 115 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line Section Open	0.938	0.461	7.679	8.33	7.563	3.869	3.68	1.106	Close switch #25 at Fitch mountain sub
NCNB-VD-82	BELLVUE 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	5.789	5.472	9.768	10.422	10.749	8.553	8.584	8.781	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-83	MONROE1 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	7.68	7.308	13.019	13.602	14.042	11.211	11.054	11.357	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-84	MONROE2 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	7.705	7.324	13.078	13.661	14.1	11.266	11.108	11.411	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-85	PENNGRVE 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	4.347	4.088	7.057	7.745	7.984	6.405	6.576	6.702	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-86	SNTA RSA 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	7.289	6.921	12.392	12.994	13.41	10.689	10.572	10.851	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-87	STONY PT 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	6.298	5.971	10.698	11.339	11.696	9.325	9.306	9.531	Need reactive support in the Santa Rosa - Corona area
NCNB-VD-88	ALTO 60 kV	Ignacio-Alto-Sausalito #2 & #1 60kV Lines	P7	DCTL	4.022	2.291	13.121	13.518	2.609	7.196	7.105	0.705	Ignacio - Alto Voltage conversion project
NCNB-VD-89	GREENBRE 60 kV	Ignacio-Alto-Sausalito #2 & #1 60kV Lines	P7	DCTL	3.354	1.924	11.441	11.805	1.576	6.134	6.047	0	Ignacio - Alto Voltage conversion project
NCNB-VD-90	HMLTNBFD 60 kV	IGNACO A-HMLTNBFD #1 60 kV	P2-1	Line Section Open	2.662	1.658	6.804	7.049		5.762	5.808		Ignacio - Alto Voltage conversion project
NCNB-VD-91	ALTO 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line Section Open	2.039	1.251	6.808	7.141		4.65	4.665		Ignacio - Alto Voltage conversion project
NCNB-VD-92	GREENBRE 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line Section Open	2.8	1.691	8.785	9.181		6.108	6.14		Ignacio - Alto Voltage conversion project
NCNB-VD-93	NOVATO 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line Section Open	5.806	3.386	16.181	16.774		11.772	11.87		Ignacio - Alto Voltage conversion project

Study Area: PG&E North Coast & North Bay

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-VD-94	SAUSALTO 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line Section Open	2.026	1.244	6.831	7.167		4.688	4.705		Ignacio - Alto Voltage conversion project
NCNB-VD-95	BOLINAS 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	3.549	1.821	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-96	OLEMA 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	8.617	4.913	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-97	STAFFORD 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	11.665	6.465	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-98	TOCALOMA 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	10.363	5.845	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-99	WOODACRE 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line Section Open	1.44	0.693	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-100	BOLINAS 60 kV	IGNACO B-WOODACRE #1 60 kV	P2-1	Line Section Open	5.027	3.567	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-101	OLEMA 60 kV	IGNACO B-WOODACRE #1 60 kV	P2-1	Line Section Open	2.149	1.298	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-102	WOODACRE 60 kV	IGNACO B-WOODACRE #1 60 kV	P2-1	Line Section Open	6.012	4.228	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Reconductor the line between Olema and Bolinas
NCNB-VD-103	CLER LKE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	5.46	1.156	12.871	2.581		11.605	2.387		Clear Lake 60kV reinforcement project
NCNB-VD-104	GRANITE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	4.456	0.921	10.733	2.099		9.623	1.916		Clear Lake 60kV reinforcement project
NCNB-VD-105	HARTLEY 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	4.546	0.966	10.699	2.127		9.693	1.889		Clear Lake 60kV reinforcement project
NCNB-VD-106	KONOCTI6 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	10.149	2.28	22.708	4.992	4.949	20.644	4.83	5.171	Clear Lake 60kV reinforcement project
NCNB-VD-107	LOWR LKE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	10.3	1.39	23.761	3.498		21.329	3.151		Clear Lake 60kV reinforcement project
NCNB-VD-108	MIDDLTWN 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	10.526	-0.114	25.274	0.867		22.331	0.234		Clear Lake 60kV reinforcement project
NCNB-VD-109	UPPR LKE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	3.595	0.773	8.315	1.647		7.591	1.366		Clear Lake 60kV reinforcement project
NCNB-VD-110	CALPELLA 115 kV	MENDOCNO 115.00 SVD ID v	P1-4	Shunt Device	2.833	0	8.661	8.996	9.046	5.821	5.794	5.156	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-111	LUCERNE 115 kV	MENDOCNO 115.00 SVD ID v	P1-4	Shunt Device	1.989	0	5.905	6.353	6.368	4.071	4.084	3.667	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-112	MENDOCNO 115 kV	MENDOCNO 115.00 SVD ID v	P1-4	Shunt Device	3.054	0	9.359	9.711	9.764	6.293	6.272	5.571	Need additional reactive support in the Mendocino 60kV area
NCNB-VD-113	UKIAH 115 kV	MENDOCNO 115.00 SVD ID v	P1-4	Shunt Device	2.48	0	7.538	7.844	7.89	5.061	5.024	4.487	Need additional reactive support in the Mendocino 60kV area

Study Area: PG&E North Coast & North Bay

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-VD-114	COVELO6 60 kV	WILLITS-LYTNVLE #1 60 kV	P2-1	Line Section Open	-0.9	0.192	-4.436	0.447	-3.433	-4.237	-5.93	-5.274	New Bridgeville - Garberville 115kV line
NCNB-VD-115	GRBRVLE 60 kV	WILLITS-LYTNVLE #1 60 kV	P2-1	Line Section Open	0.007		-6.063		-0.802	-2.934		0.311	New Bridgeville - Garberville 115kV line
NCNB-VD-116	KEKAWAKA 60 kV	WILLITS-LYTNVLE #1 60 kV	P2-1	Line Section Open	-0.239		-5.829		-1.861	-3.448		-1.425	New Bridgeville - Garberville 115kV line
NCNB-VD-117	LYTNVLE 60 kV	WILLITS-LYTNVLE #1 60 kV	P2-1	Line Section Open	-0.896	0.191	-4.398	0.443	-3.404	-4.229	-5.92	-5.267	New Bridgeville - Garberville 115kV line

Study Area: PG&E North Coast & North Bay

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-1	SAUSALTO 60 kV	BUS FAULT AT 30445 IGNACIO BUS 1 230.00	P2-2	Bus	1.0127	1.0496	0.8996	0.8971	0.9913	0.9383	0.9439	1.0325	Ignacio - Alto Voltage conversion project
NCNB-V-2	CLER LKE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9652	1.0135	0.8315	0.9681	0.9782	0.8943	0.979	0.9775	Clear lake 60kV reinforcement project
NCNB-V-3	EGLE RCK 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9344	1.0204	0.744	0.9719	0.9778	0.8187	0.9755	0.9723	Clear lake 60kV reinforcement project
NCNB-V-4	GRANITE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9778	1.0153	0.8589	0.9766	0.9884	0.9193	0.9879	0.9858	Clear lake 60kV reinforcement project
NCNB-V-5	HARTLEY 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9676	1.0108	0.8501	0.9637	0.973	0.9041	0.9734	0.9728	Clear lake 60kV reinforcement project
NCNB-V-6	KONOCIT6 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9342	1.0202	0.7438	0.9717	0.9776	0.8185	0.9753	0.9721	Clear lake 60kV reinforcement project
NCNB-V-7	LOWR LKE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9217	1.0313	0.7075	0.9952	0.999	0.7936	0.9979	0.9952	Clear lake 60kV reinforcement project
NCNB-V-8	MIDDLTWN 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9015	1.0502	0.6518	1.0356	1.0361	0.7543	1.0355	1.0332	Clear lake 60kV reinforcement project
NCNB-V-9	UPPR LKE 60 kV	BUS FAULT AT 31220 EGLE RCK 115.00	P2-2	Bus	0.9768	1.0113	0.8843	0.9725	0.9805	0.9289	0.981	0.9811	Clear lake 60kV reinforcement project
NCNB-V-10	BELLVUE 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	0.9675	0.9792	0.89	0.8853	0.8856	0.9149	0.9223	0.9191	Drop load at Santa Rosa
NCNB-V-11	MONROE1 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	0.9554	0.9714	0.8643	0.8592	0.8594	0.8952	0.9029	0.8998	Drop load at Santa Rosa
NCNB-V-12	MONROE2 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	0.9547	0.9709	0.8629	0.8578	0.858	0.8938	0.9015	0.8985	Drop load at Santa Rosa
NCNB-V-13	SNTA RSA 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	0.9561	0.9718	0.8659	0.8608	0.861	0.8961	0.9038	0.9007	Drop load at Santa Rosa
NCNB-V-14	STONY PT 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31236 FULTON 115.00	P2-4	Tie-Breaker	0.9601	0.9717	0.8763	0.8714	0.8717	0.901	0.9085	0.9054	Drop load at Santa Rosa
NCNB-V-15	PUEBLO 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31255 LAKEVILLE 115.00	P2-4	Tie-Breaker	1.0326	1.035	0.9046	0.8988	0.9045	1.0093	0.9946	0.9979	Drop load at Santa Rosa
NCNB-V-16	SONOMA 115 kV	BUS-TIE BREAKER CB102 FAULT AT 31255 LAKEVILLE 115.00	P2-4	Tie-Breaker	1.0245	1.0312	0.8854	0.8777	0.8816	0.9986	0.9829	0.9854	Drop load at Santa Rosa
NCNB-V-17	BIG RIVR 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.035	1.035	0.9822	0.8343	0.9898	1.035	1.035	1.035	Need additional reactive support in Mendocino area
NCNB-V-18	COVELO6 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0045	0.9977	0.865	0.7095	0.8859	0.9913	0.9952	1.0037	Need additional reactive support in Mendocino area
NCNB-V-19	ELK 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0213	1.0227	0.9785	0.8554	0.9901	1.0315	1.0306	1.0337	Need additional reactive support in Mendocino area
NCNB-V-20	FRT BRGG 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0214	1.0208	0.952	0.7965	0.9564	1.0252	1.0267	1.0251	Need additional reactive support in Mendocino area
NCNB-V-21	FRT SWRD 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0301	1.0246	0.9381	0.8502	1.0274	1.0082	1.0047	1.0524	Need additional reactive support in Mendocino area
NCNB-V-22	FRUITLND 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0306	1.024	0.9478	0.8781	1.0238	1.0115	1.0079	1.0498	Need additional reactive support in Mendocino area
NCNB-V-23	GARCIA 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0211	1.0227	0.9809	0.8578	0.9925	1.0332	1.0323	1.0356	Need additional reactive support in Mendocino area
NCNB-V-24	GRBRVILLE 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0303	1.0237	0.9332	0.8201	1.033	1.0197	1.0162	1.0669	Need additional reactive support in Mendocino area
NCNB-V-25	KEKAWAKA 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0258	1.0192	0.915	0.7912	0.9933	1.0112	1.0099	1.0491	Need additional reactive support in Mendocino area
NCNB-V-26	LYTNVILLE 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.008	1.003	0.8736	0.7201	0.8942	0.9919	0.9957	1.0038	Need additional reactive support in Mendocino area

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

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-27	PHILO 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0153	1.0191	0.9768	0.8881	0.9899	1.025	1.0244	1.0299	Need additional reactive support in Mendocino area
NCNB-V-28	PNT ARNA 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.021	1.0226	0.9808	0.8577	0.9924	1.033	1.0322	1.0354	Need additional reactive support in Mendocino area
NCNB-V-29	PTTR VLY 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	0.9978	0.995	0.9052	0.7494	0.9066	1.0252	1.0301	1.0251	Need additional reactive support in Mendocino area
NCNB-V-30	WILLITS 60 kV	BUS-TIE BREAKER CB42 FAULT AT 31300 MENDOCNO 60.00	P2-4	Tie-Breaker	1.0032	1.0015	0.8847	0.7251	0.8854	0.9882	0.9929	0.9873	Need additional reactive support in Mendocino area
NCNB-V-31	FTCH MTN 60 kV	BUS-TIE BREAKER FAULT AT 31378 FULTON 60.00	P2-4	Tie-Breaker	0.9111	0.9659	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Add redundant tie breaker at Fulton 60kV
NCNB-V-32	CLER LKE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.9621	1.0119	0.8556	0.9755	0.9738	0.8774	0.9745	0.9746	Clear lake 60kV reinforcement project
NCNB-V-33	EGLE RCK 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.9312	1.014	0.7728	0.9782	0.9751	0.7995	0.9716	0.9711	Clear lake 60kV reinforcement project
NCNB-V-34	GRANITE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.9747	1.015	0.8837	0.985	0.9833	0.9029	0.9832	0.9827	Clear lake 60kV reinforcement project
NCNB-V-35	HARTLEY 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.9647	1.0097	0.87	0.9699	0.9686	0.8883	0.9691	0.9697	Clear lake 60kV reinforcement project
NCNB-V-36	KONOCIT6 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.931	1.0138	0.7727	0.978	0.9749	0.7994	0.9714	0.9709	Clear lake 60kV reinforcement project
NCNB-V-37	LOWR LKE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.9185	1.0212	0.7385	1.0003	0.9975	0.7735	0.9947	0.9954	Clear lake 60kV reinforcement project
NCNB-V-38	MIDDLTWN 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.8982	1.0333	0.6858	1.0384	1.0358	0.733	1.0341	1.0367	Clear lake 60kV reinforcement project
NCNB-V-39	UPPR LKE 60 kV	Eagle Rock 115/60 KV Bank #1	P1-3	Transformer	0.9742	1.0107	0.8996	0.9774	0.9762	0.9145	0.9771	0.9778	Clear lake 60kV reinforcement project
NCNB-V-40	FTCH MTN 60 kV	FULTON-FTCHMTNP #1 60 kV	P2-1	Line section Open	0.9105	0.9656	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Close Switch @25 at Fitch mountain sub
NCNB-V-41	BELLVUE 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	0.9662	0.9772	0.8895	0.8862	0.8855	0.9133	0.921	0.9179	Install Reactive support in the Santa Rosa - Corona corridor
NCNB-V-42	MONROE1 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	0.954	0.9693	0.8637	0.8601	0.8593	0.8936	0.9015	0.8986	Install Reactive support in the Santa Rosa - Corona corridor
NCNB-V-43	MONROE2 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	0.9534	0.9689	0.8623	0.8587	0.8579	0.8922	0.9002	0.8972	Install Reactive support in the Santa Rosa - Corona corridor
NCNB-V-44	SNTA RSA 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	0.9548	0.9697	0.8653	0.8617	0.8609	0.8945	0.9025	0.8995	Install Reactive support in the Santa Rosa - Corona corridor
NCNB-V-45	STONY PT 115 kV	Fulton-Santa Rosa #1 & #2 115kV Lines	P7	DCTL	0.9588	0.9696	0.8757	0.8723	0.8716	0.8994	0.9072	0.9041	Install Reactive support in the Santa Rosa - Corona corridor
NCNB-V-46	ALTO 60 kV	Ignacio-Alto-Sausalito #2 & #1 60kV Lines	P7	DCTL	0.9919	1.0389	0.8295	0.8253	0.9956	0.913	0.9202	1.026	Ignacio - Alto Voltage conversion project
NCNB-V-47	GREENBRE 60 kV	Ignacio-Alto-Sausalito #2 & #1 60kV Lines	P7	DCTL	0.9983	1.0427	0.8459	0.8418	1.0091	0.9235	0.9306	1.035	Ignacio - Alto Voltage conversion project
NCNB-V-48	ALTO 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line section Open	1.0117	1.0493	0.8926	0.8891	>0.9	0.9384	0.9446	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-49	GREENBRE 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line section Open	1.0039	1.045	0.8724	0.8681	>0.9	0.9238	0.9297	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-50	NOVATO 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line section Open	0.992	1.0392	0.8414	0.836	>0.9	0.9038	0.9096	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-51	SAUSALTO 60 kV	IGNACO A-IG JCT #1 60 kV	P2-1	Line section Open	1.007	1.0445	0.8816	0.878	>0.9	0.922	0.9277	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-52	BOLINAS 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line section Open	1.0075	1.0504	Nconv	Nconv	Nconv	0.9238	0.9335	0.9446	Reconductor the line between Olema and Bolinas
NCNB-V-53	OLEMA 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line section Open	0.952	1.016	Nconv	Nconv	Nconv	0.8092	0.8222	0.8386	Reconductor the line between Olema and Bolinas
NCNB-V-54	STAFFORD 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line section Open	0.9238	1.0044	Nconv	Nconv	Nconv	0.7533	0.7678	0.7866	Reconductor the line between Olema and Bolinas
NCNB-V-55	TOCALOMA 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line section Open	0.9358	1.009	Nconv	Nconv	Nconv	0.7768	0.7908	0.8087	Reconductor the line between Olema and Bolinas
NCNB-V-56	WOODACRE 60 kV	IGNACO B-STAF_JCT #1 60 kV	P2-1	Line section Open	1.0312	1.0638	Nconv	Nconv	Nconv	0.9751	0.9833	0.992	Reconductor the line between Olema and Bolinas

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

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-57	BOLINAS 60 kV	IGNACO B-WOODACRE #1 60 kV	P2-1	Line section Open	0.9927	1.0329	Nconv	Nconv	Nconv	0.8786	0.8876	0.8968	Reconductor the line between Olema and Bolinas
NCNB-V-58	WOODACRE 60 kV	IGNACO B-WOODACRE #1 60 kV	P2-1	Line section Open	0.9855	1.0284	Nconv	Nconv	Nconv	0.8598	0.869	0.8786	Reconductor the line between Olema and Bolinas
NCNB-V-59	CLER LKE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.9615	1.0134	0.8547	0.9751	>0.9	0.8767	0.976	>0.9	Clear lake 60kV reinforcement project
NCNB-V-60	GRANITE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.9742	1.0162	0.8829	0.9847	>0.9	0.9023	0.9846	>0.9	Clear lake 60kV reinforcement project
NCNB-V-61	HARTLEY 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.9642	1.011	0.8692	0.9696	>0.9	0.8877	0.9711	>0.9	Clear lake 60kV reinforcement project
NCNB-V-62	KONOCTI6 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.9299	1.0166	0.7712	0.9774	0.9743	0.7982	0.9722	0.9703	Clear lake 60kV reinforcement project
NCNB-V-63	LOWR LKE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.9174	1.0253	0.7369	0.9998	>0.9	0.7723	0.9953	>0.9	Clear lake 60kV reinforcement project
NCNB-V-64	MIDDLTWN 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.897	1.0396	0.684	1.0381	>0.9	0.7317	1.0344	>0.9	Clear lake 60kV reinforcement project
NCNB-V-65	UPPR LKE 60 kV	Konocti - Eagle Rock 60kV	P1-2	Line	0.9738	1.0117	0.8989	0.9771	>0.9	0.914	0.9796	>0.9	Clear lake 60kV reinforcement project
NCNB-V-66	MONROE2 115 kV	Fulton - Santa Rosa No.1 115 kV Line (Monroe 1 - Santa Rosa) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monoroe 2)	P6	Multiple Contingency	>0.9	>0.9	0.8764	0.8757	0.8763	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-67	SNTA RSA 115 kV	Fulton - Santa Rosa No.1 115 kV Line (Monroe 1 - Santa Rosa) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monoroe 2)	P6	Multiple Contingency	>0.9	>0.9	0.8794	0.8787	0.8793	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-68	STONY PT 115 kV	Fulton - Santa Rosa No.1 115 kV Line (Monroe 1 - Santa Rosa) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monoroe 2)	P6	Multiple Contingency	>0.9	>0.9	0.8876	0.887	0.8877	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-69	ANNAPOLS 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-70	CALISTGA 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-71	COTATI 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-72	DUNBAR 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-73	FORT RSS 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-74	FTCH MTN 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-75	FULTON 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-76	HPLND JT 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	Nconv	TBD
NCNB-V-77	LAGUNA 60 kV	FULTON 115/60.00 KV BANK NO.2 and FULTON 115/60.00 KV BANK NO.1	P6	Multiple Contingency	Nconv	Nconv	>0.9	>0.9	>0.9	Nconv	Nconv	Nconv	TBD
NCNB-V-78	CLER LKE 60 kV	FULTON 230/115 kV Bank # 4 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.8492	>0.9	>0.9	>0.9	>0.9	>0.9	3rd Fulton 230/115kV transformer

Study Area: PG&E North Coast & North Bay

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ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-79	EGLERCK 60 kV	FULTON 230/115 kV Bank # 4 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.7652	>0.9	>0.9	>0.9	>0.9	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-80	GRANITE 60 kV	FULTON 230/115 kV Bank # 4 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.8775	>0.9	>0.9	>0.9	>0.9	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-81	HARTLEY 60 kV	FULTON 230/115 kV Bank # 4 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.8643	>0.9	>0.9	>0.9	>0.9	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-82	ANNAPOLIS 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8083	0.8252	>0.9	0.8515	0.845	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-83	BELLVUE 115 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8811	0.894	>0.9	0.9111	0.9075	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-84	CALISTGA 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.7992	0.8188	>0.9	0.9283	0.931	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-85	COTATI 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8414	0.8585	>0.9	0.87	0.8648	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-86	FORT RSS 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8203	0.8375	>0.9	0.8624	0.8566	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-87	FTCH MTN 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8606	0.8901	>0.9	0.9146	0.9123	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-88	FULTON 115 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8492	0.8638	>0.9	0.889	0.8849	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-89	GUALALA 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.7867	0.8031	>0.9	0.8316	0.8238	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-90	GYSRVILLE 60 kV	FULTON 230/115 kV Bank # 4 and FULTON 230/115 kV Bank # 9	P6	Multiple Contingency	>0.9	>0.9	0.8789	0.8948	>0.9	0.9292	0.9245	>0.9	3rd Fulton 230/115kV transformer
NCNB-V-91	BELLVUE 115 kV	Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroee 1) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroee 2)	P6	Multiple Contingency	>0.9	>0.9	0.8851	0.8852	0.8856	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-92	MONROEE1 115 kV	Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroee 1) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroee 2)	P6	Multiple Contingency	>0.9	>0.9	0.8593	0.8592	0.8592	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-93	MONROEE2 115 kV	Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroee 1) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroee 2)	P6	Multiple Contingency	>0.9	>0.9	0.8578	0.8577	0.8578	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-94	SNTA RSA 115 kV	Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroee 1) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroee 2)	P6	Multiple Contingency	>0.9	>0.9	0.8608	0.8608	0.8609	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-95	STONY PT 115 kV	Fulton- Santa Rosa No.1 115 kV Line (Fulton - Monroee 1) and Fulton- Santa Rosa No.2 115 kV Line (Fulton - Monroee 2)	P6	Multiple Contingency	>0.9	>0.9	0.8713	0.8714	0.8716	>0.9	>0.9	>0.9	Drop load at Santa Rosa
NCNB-V-96	CLER LKE 60 kV	GEO.ENG 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.8522	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-97	EGLERCK 60 kV	GEO.ENG 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.7687	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-98	GRANITE 60 kV	GEO.ENG 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.8805	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-99	HARTLEY 60 kV	GEO.ENG 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.8667	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project

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ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)							Potential Mitigation Solutions	
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak		2025 Winter Peak
NCNB-V-100	KONOCTI6 60 kV	GEO.ENGY 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.7686	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-101	LOWR LKE 60 kV	GEO.ENGY 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.7341	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-102	MIDDLTWN 60 kV	GEO.ENGY 9.11 Generator ID 1 and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	0.681	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-103	CLOVRDLE 115 kV	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	>0.9	>0.9	0.8029	0.8282	0.8248	0.8573	0.8619	0.8612	Clear Lake 60kV reinforcement project
NCNB-V-104	GRANITE 60 kV	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	>0.9	>0.9	0.8832	0.9088	0.9079	0.9161	0.9269	0.928	Clear Lake 60kV reinforcement project
NCNB-V-105	HPLND JT 60 kV	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	>0.9	>0.9	0.85	0.8737	0.872	0.8936	0.8987	0.899	Clear Lake 60kV reinforcement project
NCNB-V-106	HPLND JT 115 kV	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	>0.9	>0.9	0.8071	0.8324	0.8292	0.8591	0.8637	0.863	Clear Lake 60kV reinforcement project
NCNB-V-107	UKIAH 115 kV	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP) and Mendocino- Ukiah 115 kV(Mendocino - Calpella)	P6	Multiple Contingency	>0.9	>0.9	0.7882	0.8139	0.8104	0.841	0.8454	0.8442	Clear Lake 60kV reinforcement project
NCNB-V-108	CLER LKE 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.8124	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-109	EGLE RCK 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.7234	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-110	GRANITE 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.8489	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-111	HPLND JT 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.9582	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-112	KONOCTI6 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.7233	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-113	LOWR LKE 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.6934	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-114	MIDDLTWN 60 kV	Hartley - Clear Lake 60kV and Eagle Rock 115/60 KV Bank #1	P6	Multiple Contingency	>0.9	>0.9	Nconv	>0.9	>0.9	0.6471	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-115	ALTO 60 kV	Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD) and Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20)	P6	Multiple Contingency	>0.9	>0.9	0.8168	0.8189	>0.9	0.9066	0.916	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-116	GREENBRE 60 kV	Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD) and Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20)	P6	Multiple Contingency	>0.9	>0.9	0.8335	0.8355	>0.9	0.9173	0.9265	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-117	ALTO 60 kV	Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20) and Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO- HMLTNBFD)	P6	Multiple Contingency	>0.9	>0.9	0.8177	0.8197	>0.9	>0.9	>0.9	>0.9	Ignacio - Alto Voltage conversion project

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

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-118	GREENBRE 60 kV	Ignacio - Alto - Sausalito No. 2 60 kV Line (IGNACIO- TWR2_20) and Ignacio - Alto - Sausalito No. 1 60 kV Line (IGNACIO-HMLTNBFD)	P6	Multiple Contingency	>0.9	>0.9	0.8343	0.8363	>0.9	>0.9	>0.9	>0.9	Ignacio - Alto Voltage conversion project
NCNB-V-119	ALTO 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	0.8612	0.8993	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-120	GREENBRE 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	0.861	0.8994	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-121	HMLTNBFD 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	0.8801	0.911	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-122	IGNACO A 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	0.8835	0.9131	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-123	TWR2_20 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	0.8801	0.911	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-124	BOLINAS 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7889	0.8598	Nconv	Nconv	0.9019	Nconv	Nconv	0.9531	TBD
NCNB-V-125	HMLTNBFD 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7957	0.8639	Nconv	Nconv	0.9288	Nconv	Nconv	0.9761	TBD
NCNB-V-126	IGNACO B 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7994	0.8662	Nconv	Nconv	0.9219	Nconv	Nconv	0.9701	TBD
NCNB-V-127	NOVATO 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.8008	0.8669	Nconv	Nconv	0.9217	Nconv	Nconv	0.9699	TBD
NCNB-V-128	OLEMA 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7825	0.8554	Nconv	Nconv	0.89	Nconv	Nconv	0.9438	TBD
NCNB-V-129	STAFFORD 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7856	0.8604	Nconv	Nconv	0.8958	Nconv	Nconv	0.9511	TBD
NCNB-V-130	TOCALOMA 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7841	0.8583	Nconv	Nconv	0.8929	Nconv	Nconv	0.9478	TBD
NCNB-V-131	TWR2_20 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7957	0.864	Nconv	Nconv	0.9287	Nconv	Nconv	0.976	TBD
NCNB-V-132	WOODACRE 60 kV	Ignacio 230/115 kV Bank #3 and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	0.7927	0.8626	Nconv	Nconv	0.9092	Nconv	Nconv	0.9582	TBD
NCNB-V-133	ALTO 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-134	BOLINAS 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-135	CARQUINZ 115 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-136	GREENBRE 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-137	HighWAY 115 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-138	HMLTNBFD 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-139	IGNACIO 115 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD

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

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-140	IGNACO A 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-141	IGNACO B 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-142	LS GLLNS 115 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-143	MEYERS 115 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-144	NOVATO 60 kV	Ignacio 230/115.00 BANK # 4 and Ignacio 230/115.00 BANK # 6	P6	Multiple Contingency	>0.9	Nconv	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	TBD
NCNB-V-145	HMLTNBFD 60 kV	Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B) and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.8801	0.911	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-146	TWR2_20 60 kV	Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B) and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.8801	0.911	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-147	BOLINAS 60 kV	Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B) and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.7983	>0.9	>0.9	0.867	TBD
NCNB-V-148	STAFFORD 60 kV	Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B) and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.7915	>0.9	>0.9	0.8649	TBD
NCNB-V-149	TOCALOMA 60 kV	Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B) and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.7883	>0.9	>0.9	0.8611	TBD
NCNB-V-150	WOODACRE 60 kV	Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B) and Ignacio B 115/60.00 kV BANK No. 1	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.8068	>0.9	>0.9	0.8728	TBD
NCNB-V-151	BOLINAS 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.7889	0.8598	Nconv	Nconv	0.9019	Nconv	Nconv	0.9531	TBD
NCNB-V-152	HMLTNBFD 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.7957	0.8639	Nconv	Nconv	0.9288	Nconv	Nconv	0.9761	TBD
NCNB-V-153	PETLMA A 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	>0.9	>0.9	Nconv	Nconv	>0.9	Nconv	Nconv	>0.9	TBD
NCNB-V-154	STAFFORD 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.7856	0.8604	Nconv	Nconv	0.8958	Nconv	Nconv	0.9511	TBD
NCNB-V-155	TOCALOMA 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.7841	0.8583	Nconv	Nconv	0.8929	Nconv	Nconv	0.9478	TBD
NCNB-V-156	TWR2_20 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.7957	0.864	Nconv	Nconv	0.9287	Nconv	Nconv	0.976	TBD
NCNB-V-157	WOODACRE 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 230/115 kV Bank #3	P6	Multiple Contingency	0.7927	0.8626	Nconv	Nconv	0.9092	Nconv	Nconv	0.9582	TBD
NCNB-V-158	BOLINAS 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.8	>0.9	>0.9	0.867	TBD
NCNB-V-159	STAFFORD 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.793	>0.9	>0.9	0.8649	TBD
NCNB-V-160	TOCALOMA 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.7898	>0.9	>0.9	0.8611	TBD

Study Area: PG&E North Coast & North Bay

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-161	WOODACRE 60 kV	Ignacio B 115/60.00 kV BANK No. 1 and Ignacio 60 kV Bus Tie (Ignacio Bus Sec. A - Bus Sec. B)	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	0.8085	>0.9	>0.9	0.8728	TBD
NCNB-V-162	CLER LKE 60 kV	Konocti - Eagle Rock 60kV and Clear Lake-Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	0.7904	>0.9	Nconv	>0.9	>0.9	Nconv	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-163	HARTLEY 60 kV	Konocti - Eagle Rock 60kV and Clear Lake-Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	0.8224	>0.9	Nconv	>0.9	>0.9	Nconv	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-164	KONOCTI6 60 kV	Konocti - Eagle Rock 60kV and Clear Lake-Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	0.7492	>0.9	Nconv	>0.9	>0.9	Nconv	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-165	LOWR LKE 60 kV	Konocti - Eagle Rock 60kV and Clear Lake-Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	0.7327	>0.9	Nconv	>0.9	>0.9	Nconv	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-166	MIDDLTWN 60 kV	Konocti - Eagle Rock 60kV and Clear Lake-Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	0.7064	>0.9	Nconv	>0.9	>0.9	Nconv	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-167	UPPR LKE 60 kV	Konocti - Eagle Rock 60kV and Clear Lake-Hopland 60 kV Line (Clear Lake - Granite)	P6	Multiple Contingency	0.8639	>0.9	Nconv	>0.9	>0.9	Nconv	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-168	GRANITE 60 kV	Konocti - Eagle Rock 60kV and Cortina - Mendocino No.1 115 kV (Mendocino - Lucerine Jct1)	P6	Multiple Contingency	>0.9	>0.9	0.868	>0.9	>0.9	0.8784	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-169	CALPELLA 115 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8175	>0.9	>0.9	0.9587	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-170	CLOVRDLE 115 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.7852	>0.9	>0.9	0.9416	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-171	COVELO6 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8682	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-172	ELK 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8814	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-173	FRT BRGG 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8844	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-174	GARCIA 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8839	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-175	HPLND JT 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.7694	>0.9	>0.9	0.9324	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-176	LYTNVLL 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8767	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-177	MASONITE 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8413	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project

Study Area: PG&E North Coast & North Bay

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-V-178	MENDOCNO 115 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8264	>0.9	>0.9	0.9647	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-179	PHILO 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8531	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-180	PNT ARNA 60 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8838	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-181	UKIAH 115 kV	Konocti - Eagle Rock 60kV and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8046	>0.9	>0.9	0.9501	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-182	MASONITE 60 kV	Konocti - Eagle Rock 60kV and Ukiah-Hopland-Cloverdale 115 kV (Ukiah - Hopland Jct)	P6	Multiple Contingency	>0.9	>0.9	0.863	>0.9	>0.9	>0.9	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-183	MENDOCNO 115 kV	Konocti - Eagle Rock 60kV and Ukiah-Hopland-Cloverdale 115 kV (Ukiah - Hopland Jct)	P6	Multiple Contingency	>0.9	>0.9	0.8645	>0.9	>0.9	0.9718	>0.9	>0.9	Clear Lake 60kV reinforcement project
NCNB-V-184	DUNBAR 60 kV	LAKEVILLE 230/60 kV Bank # 3 and LAKEVILLE 230/60 kV Bank # 5	P6	Multiple Contingency	>0.9	>0.9	0.7881	0.7843	0.8055	>0.9	>0.9	>0.9	TBD
NCNB-V-185	LAKEVLLE 60 kV	LAKEVILLE 230/60 kV Bank # 3 and LAKEVILLE 230/60 kV Bank # 5	P6	Multiple Contingency	>0.9	>0.9	0.8199	0.8186	0.8413	>0.9	>0.9	>0.9	TBD
NCNB-V-186	MCDWLLSW 60 kV	LAKEVILLE 230/60 kV Bank # 3 and LAKEVILLE 230/60 kV Bank # 5	P6	Multiple Contingency	>0.9	>0.9	0.8015	0.8004	0.8242	>0.9	>0.9	>0.9	TBD
NCNB-V-187	PETLMA A 60 kV	LAKEVILLE 230/60 kV Bank # 3 and LAKEVILLE 230/60 kV Bank # 5	P6	Multiple Contingency	>0.9	>0.9	0.836	0.835	0.8574	>0.9	>0.9	>0.9	TBD
NCNB-V-188	PETLMA C 60 kV	LAKEVILLE 230/60 kV Bank # 3 and LAKEVILLE 230/60 kV Bank # 5	P6	Multiple Contingency	>0.9	>0.9	0.7976	0.7965	0.8206	>0.9	>0.9	>0.9	TBD
NCNB-V-189	CLOVRDLE 115 kV	Mendocino- Ukiah 115 kV(Mendocino - Calpella) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8133	0.8356	0.8285	0.8608	0.8626	0.8634	Clear Lake 60kV reinforcement project
NCNB-V-190	HPLND JT 60 kV	Mendocino- Ukiah 115 kV(Mendocino - Calpella) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8591	0.8803	0.8754	0.8968	0.8993	0.9011	Clear Lake 60kV reinforcement project
NCNB-V-191	HPLND JT 115 kV	Mendocino- Ukiah 115 kV(Mendocino - Calpella) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.8174	0.8398	0.8329	0.8626	0.8644	0.8653	Clear Lake 60kV reinforcement project
NCNB-V-192	UKIAH 115 kV	Mendocino- Ukiah 115 kV(Mendocino - Calpella) and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P6	Multiple Contingency	>0.9	>0.9	0.7989	0.8216	0.8141	0.8446	0.8461	0.8466	Clear Lake 60kV reinforcement project

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

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance								Potential Mitigation Solutions
				2017 Spring Off-Peak	2020 Spring Light Load	2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Winter Peak	2020 Winter Peak	2025 Winter Peak	
NCNB-TS-1	Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P1-2	Line			voltage dip >30%.	voltage dip >30%.	voltage dip >30%.				Reassess with actual fault clearing times and SLG fault impedances where applicable.
NCNB-TS-2	NON-BUS-TIE BREAKER CB532 FAULT AT 30430 FULTON 230.00	P2-3	Breaker			voltage dip >30%.	voltage dip >30%.	voltage dip >30%.				Reassess with actual fault clearing times and SLG fault impedances where applicable.
NCNB-TS-3	BUS-TIE BREAKER CB102 FAULT AT 31200 MENDOCNO 115.00	P2-4	Tie-Breaker			voltage dip >30%.	voltage dip >30%.	voltage dip >30%.				Reassess with actual fault clearing times and SLG fault impedances where applicable.
NCNB-TS-4	GEYSER11 ID 1 and Geyser # 3 - Cloverdale 115K (Cloverdale - MPE TAP)	P3-2	G-1/L-1			voltage dip >30%.	voltage dip >30%.	voltage dip >30%.				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..	
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..	
X-SS-1										

No single source substation with more than 100 MW Load