APPENDIX C:
Reliability Assessment Study Results

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Bulk
Thermal Overloads

California ISO

Monitored Facility	Contingency Description	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation
24591 MN VINCNT 11 500 24590 MN VINCNT 12 500 1 1	P1-2:A0:24: MIDWAY-VINCENT 500KV 2[0]	P1-2	L-1	102%	103%	34%	91%	46%	48%	53%	18%	102%	45%	103%	Existing operational procedure.
24593 MN VINCNT 21 500 24592 MN VINCNT 22 500 2 1	P1-2:A0:23: MIDWAY-VINCENT 500KV 1[0]	P1-2	L-1	105%	105%	34%	91%	47%	48%	54%	18%	104%	46%	105%	
30005 ROUND MT 500 30065 RD MT 1M 500 1 1	P1-2:A0:3: CAPTJACK-OLINDA 500KV [0]	P1-2	L-1	6%	20%	42%	54%	88%	92%	75%	104%	18%	87%	18%	Continue to monitor
30005 ROUND MT 500 30065 RD MT 1M 500 1 1	P1-3:A0:1:_OLINDA 500/230KV TB 1	P1-3	L-1	38%	27%	59%	19%	89%	99%	86%	115%	23%	90%	27%	Continue to monitor
30040 TESLA 500 30042 METCALF 500 1 1	P1-2:A0:15: MOSSLANDING-LOSBANOS 500KV [6040]	P1-2	L-1	52%	73%	26%	52%	30%	27%	10%	18%	86%	29%	104%	Sensitivity only
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P1-2:A0:12: TESLA-METCALF 500KV [6110]	P1-2	L-1	74%	61%	42%	75%	47%	70%	53%	61%	113%	47%	88%	Sensitivity only
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P1-3:A0:8: TESLA 500/230KV TB 2	P1-3	L-1	70%	52%	47%	76%	44%	70%	60%	65%	104%	46%	74%	
30055 GATES 500 34607 GATES11M 13.8 11 1	P1-3:A0:17: GATES 500/230KV TB 12	P1-3	L-1	26%	58%	23%	85%	60%	43%	98%	96%	129%	52%	131%	Sensitivity only
30055 GATES 500 34657 GATES12M 13.8 12 1	P1-3:A0:15: LOSBANOS 500/230KV TB 1	P1-3	L-1	28%	48%	21%	65%	45%	23%	73%	74%	95%	39%	101%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P1-3:A0:16: GATES 500/230KV TB 11	P1-3	L-1	33%	63%	23%	88%	62%	33%	100%	100%	134%	54%	138%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P1-3:A0:18: MIDWAY 500/230KV TB 11	P1-3	L-1	29%	51%	21%	66%	49%	19%	78%	76%	93%	43%	105%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P1-3:A0:19: MIDWAY 500/230KV TB 12	P1-3	L-1	29%	51%	21%	66%	49%	19%	78%	76%	93%	43%	105%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P1-3:A0:22: DIABLOCNYN2 25/500KV TB 1	P1-3	L-1	31%	52%	21%	64%	40%	21%	70%	72%	97%	34%	106%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P1-3:A0:32: MANNING 500/230KV TB 2	P1-3	L-1	N/A	50%	22%	69%	N/A	23%	75%	78%	N/A	N/A	105%	
30245 ROUND MT 230 30065 RD MT 1M 500 1 1	P1-2:A0:3: CAPTJACK-OLINDA 500KV [0]	P1-2	L-1	6%	20%	40%	54%	86%	91%	73%	103%	18%	86%	18%	Continue to monitor
30245 ROUND MT 230 30065 RD MT 1M 500 1 1	P1-3:A0:1: OLINDA 500/230KV TB 1	P1-3	L-1	38%	26%	56%	19%	88%	97%	83%	113%	23%	88%	26%	
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	P1-2:A0:12: TESLA-METCALF 500KV [6110]	P1-2	L-1	85%	97%	81%	103%	61%	86%	31%	91%	71%	46%	71%	Continue to monitor
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	P1-2:A0:37: MANNING - METCALF 500 kV [0]	P1-2	L-1	N/A	N/A	85%	103%	N/A	90%	35%	97%	N/A	N/A	N/A	
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	P1-5:A0:1: METCALF-SJB MONOPOLE	P1-5	L-1	N/A	92%	87%	104%	N/A	92%	37%	100%	N/A	N/A	64%	
30622 EIGHT MI 230 30624 TESLA E 230 1 1	P1-3:A0:5: TABLE MTN 500/230KV TB 5	P1-3	L-1	0%	16%	17%	13%	148%	31%	20%	24%	13%	149%	3%	Project: Table Mtn 500/230kV Transformer
30640 TESLA C 230 30655 PPASSJCT 230 2 1	P1-2:A0:12:_TESLA-METCALF 500KV [6110]	P1-2	L-1	70%	90%	81%	104%	37%	30%	34%	78%	67%	38%	80%	Continue to monitor
30640 TESLA C 230 30655 PPASSJCT 230 2 1	P1-2:A0:37: MANNING - METCALF 500 kV [0]	P1-2	L-1	N/A	N/A	85%	102%	N/A	35%	41%	84%	N/A	N/A	N/A	
30640 TESLA C 230 30655 PPASSJCT 230 2 1	P1-3:A0:8: TESLA 500/230KV TB 2	P1-3	L-1	64%	78%	84%	103%	34%	30%	37%	80%	57%	37%	65%	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P1-2:A0:12: TESLA-METCALF 500KV [6110]	P1-2	L-1	74%	61%	42%	74%	46%	68%	53%	60%	113%	47%	87%	Sensitivity only
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P1-3:A0:8: TESLA 500/230KV TB 2	P1-3	L-1	70%	52%	46%	76%	44%	68%	58%	63%	104%	45%	74%	
30655 PPASSJCT 230 30631 NEWARK E 230 2 1	P1-2:A0:12: TESLA-METCALF 500KV [6110]	P1-2	L-1	82%	106%	70%	90%	43%	26%	30%	68%	79%	45%	95%	Project: Tesla-Newark 230kV Line No. 2 Reconductoring.
30731 LS ESTRS 230 38901 SSS 230 1 1	P1-2:A0:14: METCALF-MOSSLANDING 500KV [6050]	P1-2	L-1	86%	92%	96%	100%	70%	84%	92%	104%	83%	70%	89%	Continue to monitor
30731 LS ESTRS 230 38901 SSS 230 1 1	P1-2:A0:32: METCALFHVDC-METCALF #1 500KV [0]	P1-2	L-1	N/A	93%	98%	103%	N/A	85%	93%	104%	N/A	N/A	90%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P1-3:A0:11: METCALF 500/230KV TB 11	P1-3	L-1	86%	92%	96%	101%	70%	84%	92%	104%	83%	70%	89%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P1-3:A0:12: METCALF 500/230KV TB 12	P1-3	L-1	86%	92%	96%	100%	70%	84%	92%	104%	83%	70%	89%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P1-3:A0:35: METCALF 500/230KV TB 14	P1-3	L-1	N/A	N/A	96%	100%	N/A	84%	92%	104%	N/A	N/A	N/A	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P1-2:A0:32: METCALFHVDC-METCALF #1 500KV [0]	P1-2	L-1	N/A	61%	99%	99%	N/A	63%	81%	110%	N/A	N/A	48%	Continue to monitor
30735 METCALF 230 30731 LS ESTRS 230 1 3	P1-2:A0:32: METCALFHVDC-METCALF #1 500KV [0]	P1-2	L-1	N/A	60%	98%	99%	N/A	63%	81%	110%	N/A	N/A	48%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P1-2:A0:32: METCALFHVDC-METCALF #1 500KV [0]	P1-2	L-1	N/A	59%	97%	97%	N/A	63%	80%	108%	N/A	N/A	46%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P1-2:A0:11: TRACY-LOSBANOS 500KV [6130]	P1-2	L-1	63%	51%	97%	94%	53%	61%	79%	108%	56%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P1-2:A0:13: TESLA-LOSBANOS 500KV [6100]	P1-2	L-1	64%	51%	97%	95%	53%	62%	80%	109%	58%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P1-2:A0:6: TABLE MT-VACA 500KV [6090]	P1-2	L-1	65%	53%	94%	96%	50%	58%	75%	103%	57%	52%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P1-3:A0:10: TESLA 500/230KV TB 6	P1-3	L-1	73%	57%	98%	103%	57%	66%	82%	111%	71%	60%	47%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P1-3:A0:8: TESLA 500/230KV TB 2	P1-3	L-1	69%	56%	99%	101%	50%	59%	77%	107%	62%	54%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P1-2:A0:11: TRACY-LOSBANOS 500KV [6130]	P1-2	L-1	63%	51%	97%	93%	53%	61%	79%	108%	56%	57%	39%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P1-2:A0:13: TESLA-LOSBANOS 500KV [6100]	P1-2	L-1	63%	51%	97%	94%	53%	62%	80%	109%	58%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P1-2:A0:6: TABLE MT-VACA 500KV [6090]	P1-2	L-1	65%	53%	94%	96%	50%	58%	75%	103%	57%	52%	42%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P1-3:A0:10: TESLA 500/230KV TB 6	P1-3	L-1	73%	57%	98%	103%	57%	66%	82%	111%	71%	60%	47%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P1-3:A0:8: TESLA 500/230KV TB 2	P1-3	L-1	69%	56%	99%	101%	50%	59%	77%	107%	62%	54%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P1-2:A0:11: TRACY-LOSBANOS 500KV [6130]	P1-2	L-1	62%	50%	95%	91%	52%	60%	78%	107%	56%	56%	37%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P1-2:A0:13: TESLA-LOSBANOS 500KV [6100]	P1-2	L-1	63%	50%	95%	92%	52%	60%	79%	107%	57%	56%	38%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P1-3:A0:10: TESLA 500/230KV TB 6	P1-3	L-1	72%	55%	96%	101%	56%	64%	81%	109%	70%	59%	45%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P1-3:A0:8: TESLA 500/230KV TB 2	P1-3	L-1	69%	55%	98%	99%	50%	58%	76%	105%	61%	53%	41%	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P1-2:A0:12:_TESLA-METCALF 500KV [6110]	P1-2	L-1	42%	47%	41%	62%	26%	53%	43%	53%	126%	30%	N/A	Sensitivity only
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P1-2:A0:15: MOSSLANDING-LOSBANOS 500KV [6040]	P1-2	L-1	33%	38%	47%	61%	71%	65%	51%	62%	133%	75%	N/A	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P1-3:A0:14: MOSSLAND 500/230KV TB 9	P1-3	L-1	21%	28%	42%	62%	10%	53%	36%	57%	118%	14%	N/A	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P1-3:A0:15: LOSBANOS 500/230KV TB 1	P1-3	L-1	29%	N/A	N/A	N/A	20%	N/A	N/A	N/A	114%	25%	N/A	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P1-3:A0:16: GATES 500/230KV TB 11	P1-3	L-1	28%	N/A	N/A	N/A	17%	N/A	N/A	N/A	116%	22%	N/A	
30765 LOSBANOS 230 30790 PANOCHE 230 2 1	P1-3:A0:16: GATES 500/230KV TB 11	P1-3	L-1	33%	25%	30%	52%	10%	22%	36%	42%	102%	15%	56%	
30902 GATES E 230 34607 GATES11M 13.8 11 1	P1-3:A0:17: GATES 500/230KV TB 12	P1-3	L-1	27%	59%	24%	87%	61%	45%	100%	98%	130%	53%	133%	Sensitivity only
30906 GATES F 230 34657 GATES12M 13.8 12 1	P1-3:A0:16: GATES 500/230KV TB 11	P1-3	L-1	32%	62%	23%	87%	61%	32%	98%	98%	130%	53%	135%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P1-3:A0:18: MIDWAY 500/230KV TB 11	P1-3	L-1	29%	50%	20%	65%	48%	19%	77%	75%	91%	42%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P1-3:A0:19: MIDWAY 500/230KV TB 12	P1-3	L-1	29%	50%	20%	65%	48%	18%	77%	75%	91%	42%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P1-3:A0:20: MIDWAY 500/230KV TB 13	P1-3	L-1	29%	50%	20%	65%	48%	19%	77%	75%	90%	42%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P1-3:A0:22: DIABLOCNYN2 25/500KV TB 1	P1-3	L-1	31%	52%	20%	62%	39%	21%	69%	71%	94%	33%	103%	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P1-2:A0:16: LOSBANOS-GATES 500KV 3[6000]	P1-2	L-1	42%	N/A	N/A	N/A	32%	N/A	N/A	N/A	104%	38%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P1-2:A0:17: LOSBANOS-GATES 500KV 1[0]	P1-2	L-1	42%	N/A	N/A	N/A	39%	N/A	N/A	N/A	110%	45%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P1-2:A0:20: GATES-MIDWAY 500KV [5990]	P1-2	L-1	45%	N/A	N/A	N/A	25%	N/A	N/A	N/A	104%	30%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P1-3:A0:16: GATES 500/230KV TB 11	P1-3	L-1	46%	N/A	N/A	N/A	21%	N/A	N/A	N/A	121%	27%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P1-3:A0:17: GATES 500/230KV TB 12	P1-3	L-1	45%	N/A	N/A	N/A	23%	N/A	N/A	N/A	114%	29%	N/A	
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	P1-2:A0:12: TESLA-METCALF 500KV [6110]	P1-2	L-1	N/A	105%	90%	98%	N/A	71%	57%	78%	N/A	N/A	105%	Project: San Jose B - NRS 230 kV line
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	12326%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
365224 Q1135 230 365223 Q1135Q1391 230 1 1	P1-2:A0:32: METCALFHVDC-METCALF #1 500KV [0]	P1-2	L-1	N/A	27%	21%	27%	N/A	4%	54%	114%	N/A	N/A	31%	Continue to monitor
30560 E. SHORE 230 30527 PITTSBURG-E 230 1 1	RUSTY EC CC PLANT	P1	G-1	<100%	<100%	<100%	13380%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Refer to GBA results.
30700 SANMATEO 230 30527 PITTSBURG-E 230 1 1	RUSTY EC CC PLANT	P1	G-1	<100%	<100%	<100%	10372%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30560 E. SHORE 230 30527 PITSBG E 230 1 1	RUSTY EC CC PLANT	P1	G-1	<100%	10679%	11951%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	RUSTY EC CC PLANT	P1	G-1	<100%	10251%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30585 LS PSTAS 230 30630 NEWARK D 230 1 1	RUSTY EC CC PLANT	P1	G-1	<100%	<100%	11011%	10508%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30040 TESLA 500 30042 METCALF 500 1 1	METCALF-MOSSLANDING 500KV [6050]	P6	N-1/N-1	<100%	10760%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Project: Manning-Metcalf 500 kV line.
24591 MN VINCNT 11 500 24590 MN VINCNT 12 500 1 1	P2-1:A0:15: MIDWAY-VINCENT #2 500kV [9512] (MIDWAY-MN VINCNT 21)	P2-1	bus-bkr	102%	103%	34%	91%	46%	48%	53%	18%	102%	45%	102%	Existing operational procedure.
24591 MN VINCNT 11 500 24590 MN VINCNT 12 500 1 1	P2-1:A0:31: MIDWAY-VINCENT #2 500kV [9512] (MN VINCNT 22-VINCENT)	P2-1	bus-bkr	102%	102%	33%	91%	46%	48%	53%	18%	101%	45%	102%	
24591 MN VINCNT 11 500 24590 MN VINCNT 12 500 1 1	P2-3:A0:38: MIDWAY 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	102%	102%	30%	90%	44%	44%	54%	21%	103%	43%	102%	
24593 MN VINCNT 21 500 24592 MN VINCNT 22 500 2 1	P2-1:A0:14: MIDWAY-VINCENT #1 500kV [9511] (MIDWAY-MN VINCNT 11)	P2-1	bus-bkr	104%	105%	34%	91%	47%	48%	54%	19%	104%	46%	105%	
24593 MN VINCNT 21 500 24592 MN VINCNT 22 500 2 1	P2-1:A0:30: MIDWAY-VINCENT #1 500kV [9511] (MN VINCNT 12-VINCENT)	P2-1	bus-bkr	104%	105%	33%	91%	47%	48%	54%	18%	104%	46%	104%	
24593 MN VINCNT 21 500 24592 MN VINCNT 22 500 2 1	P2-3:A0:37: MIDWAY 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	105%	105%	34%	91%	47%	48%	54%	18%	104%	46%	105%	
30005 ROUND MT 500 30065 RD MT 1M 500 1 1	P2-1:A0:17: CAPTJACK-OLINDA 500kV [9514] (CJ OL 13-OLINDA)	P2-1	bus-bkr	9%	21%	41%	56%	86%	89%	73%	103%	23%	86%	22%	Continue to monitor
30005 ROUND MT 500 30065 RD MT 1M 500 1 1	P2-3:A0:4: OLINDA 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	6%	20%	42%	54%	88%	92%	75%	104%	18%	87%	18%	
30040 TESLA 500 30042 METCALF 500 1 1	P2-3:A0:21: MOSSLAND 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	57%	88%	29%	61%	32%	22%	10%	21%	77%	33%	103%	Sensitivity only
30040 TESLA 500 30042 METCALF 500 1 1	P2-3:A0:22: MOSSLAND 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	52%	73%	26%	52%	30%	27%	10%	18%	86%	29%	104%	
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	86%	72%	53%	88%	48%	73%	60%	67%	125%	49%	98%	Sensitivity only
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	75%	62%	44%	77%	47%	71%	57%	63%	114%	48%	88%	
30052 MANNING 500 300502 LB_MW_21 500 2 1	P2-3:A0:30:_GATES 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	N/A	24%	112%	24%	N/A	108%	55%	60%	N/A	N/A	10%	Continue to monitor
30055 GATES 500 34607 GATES11M 13.8 11 1	P2-3:A0:29: GATES 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	26%	58%	23%	85%	60%	43%	98%	96%	129%	52%	131%	Sensitivity only
30055 GATES 500 34657 GATES12M 13.8 12 1	P2-3:A0:37: MIDWAY 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	29%	51%	21%	66%	49%	19%	78%	76%	93%	43%	105%	Sensitivity only
30055 GATES 500 34657 GATES12M 13.8 12 1	P2-3:A0:39: MIDWAY 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	29%	51%	21%	66%	49%	19%	79%	76%	93%	43%	105%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P2-3:A0:40: MIDWAY 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	29%	51%	21%	66%	49%	19%	78%	76%	93%	43%	105%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P2-3:A0:49: MANNING 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	N/A	50%	22%	70%	N/A	23%	75%	78%	N/A	N/A	104%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P2-3:A0:50: MANNING 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	N/A	50%	23%	69%	N/A	24%	75%	78%	N/A	N/A	105%	
30245 ROUND MT 230 30065 RD MT 1M 500 1 1	P2-3:A0:4: OLINDA 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	6%	20%	40%	54%	86%	91%	73%	103%	18%	86%	18%	Continue to monitor
30526 PITSBG D 230 38952 TBC PTB1 230 1 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	94%	97%	105%	N/A	98%	93%	93%	N/A	N/A	94%	Continue to monitor
30585 LS PSTAS 230 30630 NEWARK D 230 1 1	P2-3:A0:13:_TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	84%	109%	96%	100%	47%	91%	23%	76%	84%	24%	93%	Project: Manning-Metcalf 500 kV line.
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	91%	104%	85%	108%	68%	87%	32%	94%	77%	47%	76%	Project: Manning-Metcalf 500 kV line.
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	86%	99%	82%	104%	67%	87%	31%	93%	72%	47%	72%	
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	81%	89%	107%	N/A	93%	38%	102%	N/A	N/A	53%	
30622 EIGHT MI 230 30624 TESLA E 230 1 1	P2-3:A0:3: TABLE MTN 500KV - MIDDLE BREAKER BAY 3	P2-3	bus-bkr	0%	N/A	N/A	N/A	148%	N/A	N/A	N/A	13%	149%	N/A	Off-peak only
30630 NEWARK D 230 38900 NRS 230 1 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	26%	81%	112%	N/A	44%	43%	68%	N/A	N/A	20%	Sensitivity only
30640 TESLA C 230 30655 PPASSJCT 230 2 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	78%	99%	88%	113%	38%	33%	37%	82%	75%	39%	88%	
30640 TESLA C 230 30655 PPASSJCT 230 2 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	70%	91%	82%	105%	37%	31%	35%	79%	67%	39%	81%	
30640 TESLA C 230 30655 PPASSJCT 230 2 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	71%	92%	112%	N/A	39%	45%	90%	N/A	N/A	59%	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	85%	71%	51%	86%	48%	71%	59%	66%	124%	48%	98%	Sensitivity only
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	74%	62%	43%	76%	47%	69%	56%	62%	113%	47%	88%	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	P2-3:A0:22: MOSSLAND 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	62%	46%	39%	67%	45%	67%	56%	60%	101%	46%	73%	
30655 PPASSJCT 230 30631 NEWARK E 230 2 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	92%	117%	76%	98%	45%	28%	32%	72%	88%	47%	104%	Project: Tesla-Newark 230kV Line No. 2 Reconductoring.
30655 PPASSJCT 230 30631 NEWARK E 230 2 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	83%	108%	71%	91%	44%	27%	30%	69%	80%	46%	95%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-1:A0:54: MANNING - METCALF 500kV [0] No Fault	P2-1	bus-bkr	N/A	N/A	93%	98%	N/A	81%	90%	102%	N/A	N/A	N/A	Continue to monitor
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-1:A0:55: METCALF - MANNING 500kV [0] No Fault	P2-1	bus-bkr	N/A	N/A	93%	97%	N/A	81%	90%	102%	N/A	N/A	N/A	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:12: TESLA 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	86%	92%	96%	100%	70%	84%	92%	104%	83%	70%	89%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	84%	87%	95%	98%	70%	84%	92%	104%	82%	70%	84%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	84%	87%	95%	98%	70%	84%	92%	104%	83%	70%	83%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:18: METCALF 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	86%	91%	96%	99%	70%	84%	92%	104%	83%	70%	88%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	93%	105%	93%	N/A	99%	104%	113%	N/A	N/A	90%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:20: METCALF 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	86%	92%	96%	100%	70%	84%	92%	104%	83%	70%	89%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P2-3:A0:21: MOSSLAND 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	86%	90%	96%	100%	70%	84%	92%	104%	83%	70%	87%	
30735 METCALF 230 30042 METCALF 500 11 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	54%	87%	103%	N/A	70%	65%	99%	N/A	N/A	58%	Continue to monitor
30735 METCALF 230 30042 METCALF 500 12 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	57%	92%	110%	N/A	74%	69%	105%	N/A	N/A	61%	
30735 METCALF 230 30042 METCALF 500 13 1	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	60%	97%	115%	N/A	78%	72%	111%	N/A	N/A	64%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-1:A0:22: TABLE MTN-VACA 500kV [6090] (TM VD 12-VACA-DIX)	P2-1	bus-bkr	65%	54%	94%	97%	50%	58%	75%	103%	58%	52%	44%	Continue to monitor
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-1:A0:6: TABLE MTN-VACA 500kV [6090] (TABLE MTN-TM VD 11)	P2-1	bus-bkr	65%	53%	94%	97%	50%	58%	75%	103%	58%	52%	44%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-3:A0:11: TRACY 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	63%	51%	97%	94%	53%	61%	80%	109%	56%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-3:A0:14: TESLA 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	59%	48%	97%	95%	54%	61%	81%	111%	54%	58%	38%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-3:A0:16: TESLA 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	73%	57%	98%	103%	57%	66%	82%	111%	71%	60%	47%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	61%	112%	110%	N/A	77%	93%	121%	N/A	N/A	48%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-3:A0:26: LOSBANOS 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	64%	51%	97%	95%	53%	62%	80%	109%	58%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P2-3:A0:6: VACA-DIX 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	65%	53%	94%	97%	50%	58%	76%	103%	58%	53%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-1:A0:22: TABLE MTN-VACA 500kV [6090] (TM VD 12-VACA-DIX)	P2-1	bus-bkr	65%	53%	94%	97%	50%	58%	75%	103%	58%	52%	44%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-1:A0:6: TABLE MTN-VACA 500kV [6090] (TABLE MTN-TM VD 11)	P2-1	bus-bkr	65%	53%	94%	97%	50%	58%	75%	103%	58%	52%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-3:A0:11: TRACY 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	63%	51%	97%	94%	53%	61%	79%	108%	56%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-3:A0:14: TESLA 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	59%	48%	97%	94%	54%	61%	81%	110%	54%	58%	38%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-3:A0:16: TESLA 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	73%	57%	98%	103%	57%	66%	82%	111%	71%	60%	47%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	60%	112%	110%	N/A	77%	93%	121%	N/A	N/A	48%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-3:A0:26: LOSBANOS 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	63%	51%	97%	94%	53%	62%	80%	109%	57%	57%	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P2-3:A0:6: VACA-DIX 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	65%	53%	94%	97%	50%	58%	76%	103%	58%	53%	42%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-1:A0:22: TABLE MTN-VACA 500kV [6090] (TM VD 12-VACA-DIX)	P2-1	bus-bkr	64%	52%	92%	95%	48%	56%	74%	102%	57%	52%	41%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-1:A0:6: TABLE MTN-VACA 500kV [6090] (TABLE MTN-TM VD 11)	P2-1	bus-bkr	64%	52%	92%	95%	48%	56%	74%	102%	57%	52%	41%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-3:A0:11: TRACY 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	62%	50%	95%	92%	52%	60%	78%	107%	56%	56%	37%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-3:A0:14: TESLA 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	59%	47%	95%	92%	53%	60%	80%	109%	53%	58%	36%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-3:A0:16: TESLA 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	72%	55%	96%	101%	56%	64%	81%	109%	70%	59%	45%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-3:A0:19: METCALF 500kV - Middle Breaker Bay 0	P2-3	bus-bkr	N/A	59%	111%	110%	N/A	75%	92%	120%	N/A	N/A	46%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-3:A0:26: LOSBANOS 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	63%	50%	95%	93%	52%	60%	79%	107%	56%	56%	38%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P2-3:A0:6: VACA-DIX 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	64%	51%	92%	95%	48%	56%	75%	102%	57%	52%	40%	
30755 MOSSLNSW 230 30798 LASAGLSRCTR 230 1 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	42%	48%	41%	62%	26%	53%	43%	53%	126%	30%	100%	Sensitivity only
30755 MOSSLNSW 230 30798 LASAGLSRCTR 230 1 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	42%	47%	42%	63%	26%	54%	43%	54%	126%	30%	99%	
30755 MOSSLNSW 230 30798 LASAGLSRCTR 230 1 1	P2-3:A0:21: MOSSLAND 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	26%	42%	47%	68%	19%	54%	38%	61%	128%	25%	109%	
30755 MOSSLNSW 230 30798 LASAGLSRCTR 230 1 1	P2-3:A0:22: MOSSLAND 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	33%	38%	47%	61%	71%	65%	51%	62%	133%	75%	107%	
30803 MANNING 230 30052 MANNING 500 2 1	P2-3:A0:50: MANNING 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	N/A	45%	42%	98%	N/A	49%	84%	106%	N/A	N/A	82%	Continue to monitor
30902 GATES E 230 34607 GATES11M 13.8 11 1	P2-3:A0:29: GATES 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	27%	59%	24%	87%	61%	45%	100%	98%	130%	53%	133%	Sensitivity only
30906 GATES F 230 34657 GATES12M 13.8 12 1	P2-3:A0:37: MIDWAY 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	28%	50%	20%	65%	48%	19%	77%	75%	90%	42%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P2-3:A0:39: MIDWAY 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	29%	50%	20%	65%	48%	19%	77%	75%	91%	42%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P2-3:A0:40: MIDWAY 500kV - Middle Breaker Bay 5	P2-3	bus-bkr	29%	50%	20%	65%	48%	19%	77%	75%	90%	42%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P2-3:A0:49: MANNING 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	N/A	49%	22%	68%	N/A	23%	73%	76%	N/A	N/A	102%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P2-3:A0:50: MANNING 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	N/A	49%	22%	68%	N/A	24%	74%	77%	N/A	N/A	103%	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P2-1:A0:11: LOS BANOS-GATES #1 500kV [9506] (LOSBANOS-LB GT 11)	P2-1	bus-bkr	42%	N/A	N/A	N/A	39%	N/A	N/A	N/A	110%	45%	N/A	Sensitivity only
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P2-1:A0:27: GATES-LOS BANOS 500kV [9505] (LB GT 11-GATES)	P2-1	bus-bkr	42%	N/A	N/A	N/A	39%	N/A	N/A	N/A	109%	45%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P2-3:A0:25: LOSBANOS 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	42%	N/A	N/A	N/A	38%	N/A	N/A	N/A	110%	45%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P2-3:A0:29: GATES 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	45%	N/A	N/A	N/A	23%	N/A	N/A	N/A	114%	29%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	P2-3:A0:30: GATES 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	49%	N/A	N/A	N/A	32%	N/A	N/A	N/A	119%	39%	N/A	

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Bulk
Thermal Overloads

California ISO

Monitored Facility	Contingency Description	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation
300051 RM_FR_11 500 300060 FERNROADSS 500 1 1	P2-1:A0:5: ROUND MTN-FERN RD #2 500kV [9502] (ROUND MT-RM_FR_22)	P2-1	bus-bkr	122%	117%	8%	102%	38%	62%	12%	58%	117%	38%	116%	
300053 RM_FR_22 500 300060 FERNROADSS 500 2 1	P2-1:A0:4: ROUND MTN-FERN RD #1 500kV [9501] (ROUND MT-RM_FR_11)	P2-1	bus-bkr	122%	117%	8%	102%	38%	62%	12%	58%	117%	38%	116%	
300060 FERNROADSS 500 300052 FR_TM_11 500 1 1	P2-1-A0:21: TABLE MTN-FERN RD #2 500KV [9504] (FR_TM_22-TABLE MTN)	P2-1	bus-bkr	110%	107%	23%	93%	38%	28%	9%	28%	106%	38%	106%	
300060 FERNROADSS 500 300054 FR_TM_21 500 2 1	P2-1:A0:19: TABLE MTN-FERN RD #1 500kV [9503] (FR_TM_12-TABLE MTN)	P2-1	bus-bkr	110%	107%	23%	93%	38%	28%	9%	28%	106%	38%	106%	
300002 MN_RM_11 500 300003 MN_RM_12 500 1 1	P2-A:A0:00: MALIN-ROUND MT 500KV 2[6020]	P6	N-1/N-1	120%	123%	<100%	112%	<100%	<100%	<100%	<100%	109%	<100%	108%	
40687 MALIN 500 300002 MN_RM_11 500 1 1	P2-A:A0:00: MALIN-ROUND MT 500KV 2[6020]	P6	N-1/N-1	111%	114%	<100%	104%	<100%	<100%	<100%	<100%	101%	<100%	100%	Round Mountain-Table Mountain N-1 RAS and PACIRAS actions in model for triggering contingencies.
300003 MN_RM_12 500 30005 ROUND MT 500 1 1	P2-A:A0:00: MALIN-ROUND MT 500KV 2[6020]	P6	N-1/N-1	110%	114%	<100%	104%	<100%	<100%	<100%	<100%	101%	<100%	<100%	
300006 MN_RM_23 500 30005 ROUND MT 500 2 1	CAPTJACK-OLINDA 500KV [0]	P6	N-1/N-1	10444%	10487%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30005 ROUND MT 500 300053 RM_FR_22 500 B 1	ROUND MT-FERNROADSS 500KV 1[0]	P6	N-1/N-1	10911%	11085%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30005 ROUND MT 500 300051 RM_FR_11 500 B 1	ROUND MT-FERNROADSS 500KV 2[0]	P6	N-1/N-1	10911%	11085%	<100%	10404%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30330 RIO OSO 230 30335 ATLANTC 230 1 1	TESLA 500/230KV TB 2	P6	N-1/N-1	<100%	<100%	<100%	11105%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
300153 TM_TS_11 500 300154 TM_TS_12 500 1 1	P2-1:A0:22: TABLE MTN-VACA 500kV [6090] (TM_VD_12-VACA-DIX)	P2-1	bus-bkr	100%	100%	28%	80%	20%	14%	19%	13%	102%	21%	101%	Sensitivity only
300153 TM_TS_11 500 300154 TM_TS_12 500 1 1	P2-1:A0:6: TABLE MTN-VACA 500kV [6090] (TABLE MTN-TM_VD_11)	P2-1	bus-bkr	100%	100%	27%	80%	19%	13%	19%	11%	102%	20%	101%	
300504 LB_MW_23 500 30060 MIDWAY 500 2 1	P2-3:A0:30: GATES 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	25%	24%	113%	24%	71%	109%	55%	60%	10%	75%	10%	Continue to monitor
300504 LB_MW_23 500 30060 MIDWAY 500 2 1	P2-3:A0:35: MIDWAY 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	37%	37%	102%	44%	62%	93%	41%	50%	27%	66%	26%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-1:A0:54: MANNING - METCALF 500kV [0] No Fault	P2-1	bus-bkr	N/A	N/A	99%	105%	N/A	99%	88%	97%	N/A	N/A	N/A	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-1:A0:55: METCALF - MANNING 500kV [0] No Fault	P2-1	bus-bkr	N/A	N/A	99%	106%	N/A	100%	88%	97%	N/A	N/A	N/A	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:10: TRACY 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	N/A	92%	99%	103%	N/A	100%	88%	96%	N/A	N/A	95%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:11: TRACY 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	N/A	92%	99%	103%	N/A	100%	88%	97%	N/A	N/A	95%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:12: TESLA 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	N/A	92%	99%	104%	N/A	100%	88%	96%	N/A	N/A	94%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	N/A	94%	99%	105%	N/A	100%	88%	97%	N/A	N/A	97%	Continue to monitor
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	N/A	94%	99%	105%	N/A	100%	88%	97%	N/A	N/A	96%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:18: METCALF 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	N/A	92%	99%	104%	N/A	100%	88%	96%	N/A	N/A	94%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:21: MOSSLAND 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	N/A	92%	99%	104%	N/A	100%	88%	96%	N/A	N/A	95%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:22: MOSSLAND 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	N/A	92%	99%	103%	N/A	100%	88%	96%	N/A	N/A	95%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P2-3:A0:23: MOSSLAND 500kV - Middle Breaker Bay 2	P2-3	bus-bkr	N/A	92%	99%	103%	N/A	99%	87%	96%	N/A	N/A	94%	
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	P2-3:A0:13: TESLA 500kV - Middle Breaker Bay 3	P2-3	bus-bkr	N/A	104%	89%	96%	N/A	70%	56%	76%	N/A	N/A	104%	Project: San Jose B - NRS 230 kV line
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	P2-3:A0:17: METCALF 500kV - Middle Breaker Bay 1	P2-3	bus-bkr	N/A	106%	91%	99%	N/A	72%	57%	79%	N/A	N/A	106%	
367101 Q1593SWSTA 230 30971 MIDWAY-F 230 1 1	P2-3:A0:30: GATES 500kV - Middle Breaker Bay 4	P2-3	bus-bkr	29%	77%	15%	104%	32%	87%	55%	8%	32%	22%	41%	Continue to monitor
30035 TRACY 500 37508 TCV MP1 500 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	82%	73%	60%	71%	25%	21%	55%	30%	102%	30%	96%	
30035 TRACY 500 37510 TCV MP2 500 2 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	82%	73%	60%	71%	25%	21%	55%	30%	102%	30%	96%	
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	PS-5(DC):A0:3: Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	66%	48%	42%	76%	45%	65%	61%	62%	103%	49%	76%	
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	101%	78%	62%	NConv	79%	84%	75%	82%	138%	82%	103%	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:10: Station DC Battery Supply Collinsville 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	106%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	94%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	108%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	104%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:3: Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	106%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	93%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	93%	93%	N/A	101%	N/A	N/A	N/A	N/A	N/A	
30043 GROVE 500 35665 VSC2_Int 350 2 1	PS-5(DC):A0:9: Station DC Battery Supply Diablo Canyon 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	108%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30050 LOSBANOS 500 30055 GATES 500 3 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	17%	126%	37%	N/A	127%	115%	113%	N/A	N/A	68%	
30050 LOSBANOS 500 300502 LB_MW_21 500 2 1	PS-5(DC):A0:6: Station DC Battery Supply Gates 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	17%	N/A	N/A	N/A	97%	N/A	N/A	N/A	10%	104%	N/A	
30052 MANNING 500 390010 MNMC_SC1 500 1 1	PS-5(DC):A0:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	111%	64%	N/A	121%	109%	110%	N/A	N/A	N/A	
30055 GATES 500 34607 GATES11M 13.8 11 1	PS-5(DC):A0:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	27%	36%	18%	61%	106%	36%	67%	63%	NConv	107%	NConv	
30055 GATES 500 34607 GATES11M 13.8 11 1	PS-5(DC):A0:7: Station DC Battery Supply Midway 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	NConv	NConv	117%	98%	NConv	NConv	NConv	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	65%	10%	97%	N/A	32%	94%	89%	N/A	N/A	136%	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	31%	52%	16%	67%	43%	23%	72%	74%	99%	37%	108%	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	31%	52%	21%	67%	42%	24%	74%	75%	100%	37%	108%	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	26%	51%	19%	62%	47%	18%	69%	70%	88%	42%	105%	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	32%	44%	17%	66%	104%	18%	64%	64%	65%	104%	NConv	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:7: Station DC Battery Supply Midway 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	NConv	NConv	152%	120%	NConv	NConv	NConv	
30055 GATES 500 34657 GATES12M 13.8 12 1	PS-5(DC):A0:9: Station DC Battery Supply Diablo Canyon 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	36%	52%	24%	71%	35%	29%	77%	73%	103%	29%	105%	
30107 COTWD_F2 230 30108 BRNY_FST_JCT 230 1 1	PS-5(DC):A0:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	105%	76%	103%	16%	78%	104%	62%	17%	64%	58%	64%	
30108 BRNY_FST_JCT 230 30185 PIT 1 230 1 1	PS-5(DC):A0:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	94%	65%	93%	13%	68%	93%	65%	20%	54%	48%	53%	
30460 VACA-DIX 230 30465 BAHIA 230 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	110%	72%	65%	107%	42%	44%	31%	52%	125%	42%	71%	
30460 VACA-DIX 230 30465 BAHIA 230 1 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	85%	77%	66%	NConv	61%	46%	37%	60%	101%	65%	79%	
30460 VACA-DIX 230 30467 PARKWAY 230 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	108%	73%	65%	107%	41%	46%	33%	58%	124%	41%	70%	
30465 BAHIA 230 30550 MORAGA 230 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	96%	66%	58%	96%	33%	48%	24%	48%	115%	34%	63%	
30467 PARKWAY 230 30550 MORAGA 230 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	98%	65%	58%	97%	35%	45%	31%	55%	116%	35%	65%	
30500 BELLOTA 230 30505 WEBER 230 1 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	52%	44%	74%	N/A	27%	42%	106%	N/A	N/A	NConv	
30515 WARNERVL 230 30516 WILSONRCTR 230 1 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	42%	79%	90%	N/A	116%	156%	140%	N/A	N/A	110%	
30515 WARNERVL 230 30516 WILSONRCTR 230 1 1	PS-5(DC):A0:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	14%	32%	59%	59%	118%	69%	94%	87%	NConv	147%	NConv	
30516 WILSONRCTR 230 30800 WILSON 230 1 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	42%	N/A	N/A	N/A	N/A	112%	100%	N/A	N/A	N/A	
30516 WILSONRCTR 230 30800 WILSON 230 4 1	PS-5(DC):A0:11: Station DC Battery Supply Manning 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	N/A	N/A	78%	N/A	N/A	115%	37%	33%	N/A	N/A	109%	
30516 WILSONRCTR 230 30800 WILSON 230 BP 1	PS-5(DC):A0:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	13%	N/A	N/A	N/A	116%	N/A	N/A	N/A	N/A	145%	N/A	
30526 PITSBG D 230 38952 TBC_PTB1 230 1 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	95%	95%	97%	N/A	93%	98%	93%	93%	112%	93%	96%	
30530 CAYETANO 230 30537 NDUBLIN 230 1 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	85%	101%	82%	NConv	66%	72%	27%	103%	91%	58%	82%	
30537 NDUBLIN 230 35219 VINEYARD 230 1 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	93%	111%	66%	NConv	70%	62%	23%	84%	106%	59%	93%	
30550 MORAGA 230 30554 CASTROVL 230 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	92%	84%	84%	103%	25%	47%	16%	45%	82%	17%	71%	
30550 MORAGA 230 30554 CASTROVL 230 1 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	91%	107%	98%	NConv	59%	61%	35%	66%	88%	55%	91%	
30554 CASTROVL 230 30631 NEWARK E 230 1 1	PS-5(DC):A0:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	85%	103%	84%	NConv	51%	63%	37%	49%	87%	47%	94%	
30567 LONETREE 230 30590 VASCOWINDJCT 230 1 1	PS-5(DC):A0:4: Station DC Battery Supply Tesla 500kV Batt	PS-5(DC)	Non-Redundant Battery/Relay	108%	86%	72%	103%	44%	72%	29%	84%	94%	38%	67%	

California ISO

Monitored Facility	Contingency Description	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation
30567 LONETREE 230 30590 VASCOWINDJCT 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	106%	100%	81%	NConv	71%	81%	44%	99%	86%	68%	80%	
30585 LS PSTAS 230 30630 NEWARK D 230 1 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	106%	101%	95%	105%	37%	92%	18%	72%	109%	20%	86%	
30585 LS PSTAS 230 30630 NEWARK D 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	105%	120%	111%	NConv	73%	104%	37%	89%	113%	60%	101%	
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	107%	98%	85%	112%	61%	88%	29%	92%	97%	44%	72%	
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	106%	113%	94%	NConv	87%	97%	44%	107%	95%	73%	84%	
30622 EIGHT MI 230 30624 TESLA E 230 1 1	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	12%	11%	36%	39%	103%	51%	26%	32%	1%	104%	5%	
30622 EIGHT MI 230 30624 TESLA E 230 1 1	PS-S(DC):AD:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	4%	22%	11%	10%	102%	36%	26%	30%	NConv	105%	NConv	
30624 TESLA E 230 30630 NEWARK D 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	92%	93%	79%	NConv	86%	65%	65%	103%	113%	90%	95%	
30624 TESLA E 230 30670 WESTLEY 230 1 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	61%	80%	96%	94%	63%	90%	63%	83%	94%	68%	106%	
30630 NEWARK D 230 30626 NWRK 7M 13.2 7 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	114%	100%	82%	NConv	77%	60%	56%	91%	104%	76%	99%	
30631 NEWARK E 230 30628 NWRK_11M 13.2 11 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	135%	119%	97%	NConv	91%	69%	65%	106%	123%	90%	117%	
30631 NEWARK E 230 30635 NWK DIST 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	141%	95%	87%	NConv	86%	73%	58%	78%	122%	86%	87%	
30635 NWK DIST 230 30731 LS ESTRS 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	150%	92%	82%	NConv	88%	73%	71%	78%	128%	88%	86%	
30635 NWK DIST 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	142%	87%	78%	NConv	84%	70%	64%	70%	121%	84%	82%	
30635 NWK DIST 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	143%	87%	78%	NConv	84%	70%	64%	70%	122%	84%	82%	
30635 NWK DIST 230 30731 LS ESTRS 230 1 4	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	143%	86%	77%	NConv	83%	68%	63%	69%	122%	82%	81%	
30640 TESLA C 230 30655 PPASSJCT 230 2 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	98%	109%	102%	NConv	66%	45%	54%	100%	99%	70%	96%	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	PS-S(DC):AD:3: Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	66%	48%	41%	76%	45%	63%	59%	61%	104%	48%	77%	
30640 TESLA C 230 33856 TESLA 6M 13.8 6 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	100%	78%	61%	NConv	78%	82%	73%	81%	130%	81%	103%	
30655 PPASSJCT 230 30631 NEWARK E 230 2 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	116%	129%	88%	NConv	79%	39%	48%	88%	117%	83%	114%	
30705 MONTAVIS 230 30730 HICKS 230 1 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	42%	45%	82%	69%	25%	59%	67%	103%	42%	26%	36%	
30705 MONTAVIS 230 30730 HICKS 230 1 2	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	42%	45%	82%	69%	25%	59%	67%	103%	42%	26%	36%	
30731 LS ESTRS 230 38901 SSS 230 1 1	PS-S(DC):AD:11: Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	92%	93%	99%	N/A	82%	91%	102%	N/A	N/A	89%	
30731 LS ESTRS 230 38901 SSS 230 1 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	86%	88%	97%	99%	69%	84%	94%	106%	81%	69%	85%	
30731 LS ESTRS 230 38901 SSS 230 1 1	PS-S(DC):AD:7: Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	86%	NConv	NConv	NConv	NConv	NConv	92%	104%	83%	NConv	90%	
30735 METCALF 230 30042 METCALF 500 14 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	N/A	143%	NConv	N/A	114%	115%	154%	N/A	N/A	N/A	
30735 METCALF 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:10: Station DC Battery Supply Collinsville 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	53%	97%	102%	N/A	62%	78%	110%	N/A	N/A	42%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	68%	55%	93%	101%	48%	55%	75%	99%	60%	51%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	68%	55%	96%	101%	48%	58%	76%	102%	60%	52%	44%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:3: Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	67%	53%	96%	101%	51%	57%	78%	104%	62%	56%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	41%	31%	108%	82%	59%	71%	100%	126%	37%	66%	22%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	PS-S(DC):AD:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	61%	48%	112%	91%	48%	71%	90%	107%	NConv	53%	NConv	
30735 METCALF 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:10: Station DC Battery Supply Collinsville 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	52%	97%	102%	N/A	62%	78%	110%	N/A	N/A	42%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	68%	55%	93%	101%	48%	55%	75%	98%	60%	51%	42%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	68%	55%	96%	101%	48%	58%	76%	102%	60%	52%	44%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:3: Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	67%	53%	95%	101%	51%	57%	78%	104%	62%	55%	43%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	42%	31%	108%	82%	58%	71%	100%	126%	37%	66%	21%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	PS-S(DC):AD:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	61%	48%	112%	90%	48%	71%	90%	107%	NConv	53%	NConv	
30735 METCALF 230 30731 LS ESTRS 230 1 4	PS-S(DC):AD:10: Station DC Battery Supply Collinsville 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	51%	95%	100%	N/A	61%	77%	108%	N/A	N/A	40%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	67%	54%	94%	99%	47%	58%	75%	101%	59%	51%	42%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	PS-S(DC):AD:3: Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	66%	52%	94%	99%	50%	55%	77%	103%	60%	55%	41%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	42%	29%	106%	80%	58%	69%	98%	124%	35%	65%	17%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	PS-S(DC):AD:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	60%	46%	110%	90%	47%	69%	88%	105%	NConv	53%	NConv	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	38%	N/A	N/A	N/A	23%	N/A	N/A	N/A	124%	27%	N/A	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	45%	N/A	N/A	N/A	30%	N/A	N/A	N/A	135%	34%	N/A	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	PS-S(DC):AD:5: Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	36%	N/A	N/A	N/A	174%	N/A	N/A	N/A	NConv	198%	N/A	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	PS-S(DC):AD:6: Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	34%	N/A	N/A	N/A	13%	N/A	N/A	N/A	142%	21%	N/A	
30755 MOSSLNSW 230 30798 LASAGLSRCTR 230 1 1	PS-S(DC):AD:4: Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	54%	43%	61%	N/A	55%	45%	56%	N/A	N/A	115%	Subject to PTO station redundant DC supply program and installation timelines.
30761 FINKSWSTA 230 30670 WESTLEY 230 1 1	PS-S(DC):AD:8: Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	45%	50%	86%	NConv	51%	57%	86%	103%	71%	59%	67%	
30765 LOSBANOS 230 30790 PANOCHE 230 2 1	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	43%	33%	32%	55%	18%	21%	33%	38%	102%	23%	62%	
30765 LOSBANOS 230 30790 PANOCHE 230 2 1	PS-S(DC):AD:6: Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	41%	35%	42%	66%	6%	27%	47%	54%	143%	15%	76%	
30765 LOSBANOS 230 38615 DS AMIGO 230 1 1	PS-S(DC):AD:6: Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	25%	N/A	N/A	N/A	16%	N/A	N/A	N/A	129%	6%	N/A	
30790 PANOCHE 230 30791 PNCHE 1M 230 1 1	PS-S(DC):AD:1: Station DC Battery Supply Round Mtn 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	35%	13%	9%	23%	18%	51%	44%	42%	102%	17%	52%	

Monitored Facility	Contingency Description	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation
30790 PANOCHE 230 30791 PNCHE 1M 230 1 1	PS-S(DC):AD:2: Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	35%	12%	9%	23%	18%	52%	46%	43%	101%	17%	54%	
30790 PANOCHE 230 30902 GATES E 230 1 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	4%	129%	15%	N/A	121%	64%	70%	N/A	N/A	73%	
30790 PANOCHE 230 30902 GATES E 230 1 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	45%	4%	29%	35%	130%	38%	6%	4%	NConv	142%	NConv	
30790 PANOCHE 230 30902 GATES E 230 1 1	PS-S(DC):AD:6:_Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	6%	60%	74%	62%	16%	63%	79%	82%	63%	4%	136%	
30790 PANOCHE 230 30902 GATES E 230 2 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	4%	137%	16%	N/A	129%	93%	101%	N/A	N/A	78%	
30790 PANOCHE 230 30902 GATES E 230 2 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	48%	4%	31%	37%	138%	41%	9%	5%	NConv	150%	NConv	
30790 PANOCHE 230 30902 GATES E 230 2 1	PS-S(DC):AD:6:_Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	6%	64%	79%	66%	17%	67%	114%	119%	67%	5%	145%	
30797 LASAGUILASS 230 30790 PANOCHE 230 1 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	17%	35%	39%	41%	113%	46%	39%	43%	NConv	129%	NConv	
30797 LASAGUILASS 230 30790 PANOCHE 230 2 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	17%	35%	40%	42%	113%	46%	39%	43%	NConv	130%	NConv	
30800 WILSON 230 30801 STOREYJCT1 230 1 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	68%	98%	N/A	N/A	71%	88%	122%	N/A	N/A	140%	
30800 WILSON 230 30801 STOREYJCT1 230 1 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	33%	47%	58%	N/A	109%	12%	18%	62%	NConv	62%	NConv	
30800 WILSON 230 30802 STOREYJCT2 230 2 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	54%	71%	N/A	N/A	52%	67%	92%	N/A	N/A	111%	
30830 KEARNEY 230 30835 HERNDON 230 1 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	37%	28%	126%	N/A	23%	54%	67%	N/A	N/A	59%	
30879 HENTAP1 230 30885 MUSTANGSS 230 1 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	37%	31%	92%	N/A	29%	42%	60%	N/A	N/A	109%	
30879 HENTAP1 230 30885 MUSTANGSS 230 1 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	21%	3%	32%	48%	100%	12%	12%	35%	NConv	108%	NConv	
30885 MUSTANGSS 230 30906 GATES F 230 1 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	44%	3%	91%	N/A	43%	72%	71%	N/A	N/A	113%	
30885 MUSTANGSS 230 30906 GATES F 230 2 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	44%	3%	91%	N/A	43%	72%	71%	N/A	N/A	113%	
30900 GATES D 230 30889 CALFLATSSS 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	9%	NConv	NConv	NConv	162%	37%	NConv	NConv	NConv	
30900 GATES D 230 30905 TEMPLETN 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	17%	NConv	NConv	NConv	143%	30%	NConv	NConv	NConv	
30902 GATES E 230 34607 GATES11M 13.8 11 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	27%	36%	19%	62%	108%	37%	68%	65%	NConv	108%	NConv	
30902 GATES E 230 34607 GATES11M 13.8 11 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	NConv	NConv	117%	101%	NConv	NConv	NConv	
30905 TEMPLETN 230 30915 MORROBAY 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	8%	NConv	NConv	NConv	131%	22%	NConv	NConv	NConv	
30906 GATES F 230 30935 ARCO 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	5%	NConv	NConv	NConv	184%	71%	NConv	NConv	NConv	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	64%	10%	94%	N/A	31%	91%	87%	N/A	N/A	131%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	31%	51%	16%	65%	42%	23%	71%	73%	96%	36%	105%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	30%	51%	20%	66%	41%	24%	73%	73%	97%	36%	106%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:4:_Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	25%	50%	19%	61%	46%	18%	67%	69%	85%	41%	103%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	31%	44%	17%	65%	102%	18%	63%	63%	NConv	102%	NConv	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	NConv	NConv	141%	117%	NConv	NConv	NConv	
30906 GATES F 230 34657 GATES12M 13.8 12 1	PS-S(DC):AD:9:_Station DC Battery Supply Diablo Canyon 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	35%	51%	24%	70%	34%	29%	76%	71%	100%	29%	103%	
30906 GATES F 230 367101 Q1593SWSTA 230 1 1	PS-S(DC):AD:6:_Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	10%	3%	72%	41%	57%	57%	16%	9%	146%	60%	101%	
30906 GATES F 230 367101 Q1593SWSTA 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	NConv	NConv	191%	110%	NConv	NConv	NConv	
30910 ESTRELLA 230 30889 CALFLATSSS 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	NConv	21%	NConv	N/A	NConv	101%	14%	N/A	N/A	NConv	
30915 MORROBAY 230 30910 ESTRELLA 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	NConv	8%	15%	N/A	NConv	118%	24%	N/A	N/A	NConv	
30935 ARCO 230 30970 MIDWAY-E 230 1 1	PS-S(DC):AD:6:_Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	6%	30%	44%	50%	74%	5%	3%	13%	106%	68%	92%	
30935 ARCO 230 30970 MIDWAY-E 230 1 1	PS-S(DC):AD:7:_Station DC Battery Supply Midway 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	NConv	NConv	170%	84%	NConv	NConv	NConv	
37015 PROCTER 230 37009 HEDGE 230 1 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	26%	45%	47%	21%	103%	33%	26%	27%	NConv	105%	NConv	
37585 TRCY PMP 230 30625 TESLA D 230 2 1	PS-S(DC):AD:4:_Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	52%	48%	57%	118%	38%	33%	87%	80%	91%	49%	86%	
37585 TRCY PMP 230 30641 TESLA F 230 1 1	PS-S(DC):AD:4:_Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	N/A	48%	131%	N/A	38%	17%	98%	N/A	N/A	N/A	
37585 TRCY PMP 230 37508 TCY MP1 500 1 1	PS-S(DC):AD:4:_Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	83%	72%	59%	70%	25%	21%	54%	30%	102%	31%	95%	
37585 TRCY PMP 230 37510 TCY MP2 500 2 1	PS-S(DC):AD:4:_Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	83%	72%	59%	70%	25%	21%	54%	30%	102%	31%	95%	
38206 COTTLE 230 37563 MELONES 230 1 1	PS-S(DC):AD:11:_Station DC Battery Supply Manning 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	N/A	59%	107%	114%	N/A	140%	106%	96%	N/A	N/A	125%	
38206 COTTLE 230 37563 MELONES 230 1 1	PS-S(DC):AD:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	57%	55%	69%	89%	26%	78%	68%	64%	106%	28%	99%	
38206 COTTLE 230 37563 MELONES 230 1 1	PS-S(DC):AD:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	59%	56%	75%	94%	25%	81%	69%	65%	108%	27%	100%	
38206 COTTLE 230 37563 MELONES 230 1 1	PS-S(DC):AD:4:_Station DC Battery Supply Tesla 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	43%	53%	76%	78%	30%	86%	72%	69%	91%	40%	100%	
38206 COTTLE 230 37563 MELONES 230 1 1	PS-S(DC):AD:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	46%	54%	89%	87%	77%	102%	79%	73%	NConv	86%	NConv	
38206 COTTLE 230 37563 MELONES 230 1 1	PS-S(DC):AD:6:_Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	49%	51%	75%	91%	22%	85%	74%	72%	113%	25%	99%	
38610 DELTAPMP 230 30580 SANDHLWJCT 230 1 1	PS-S(DC):AD:3:_Station DC Battery Supply Vaca-Dixon 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	67%	54%	41%	107%	59%	12%	76%	40%	103%	100%	89%	
38610 DELTAPMP 230 30580 SANDHLWJCT 230 1 1	PS-S(DC):AD:8:_Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	74%	63%	48%	NConv	80%	24%	75%	50%	110%	101%	93%	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	PS-S(DC):AD:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	57%	N/A	N/A	N/A	29%	N/A	N/A	N/A	119%	34%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	PS-S(DC):AD:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	56%	N/A	N/A	N/A	30%	N/A	N/A	N/A	121%	36%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	PS-S(DC):AD:6:_Station DC Battery Supply Gates 500kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	55%	N/A	N/A	N/A	14%	N/A	N/A	N/A	166%	26%	N/A	
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	PS-S(DC):AD:8:_Station DC Battery Supply Metcalf 500-230kV Batt	PS-S(DC)	Non-Redundant Battery/Relay	51%	N/A	N/A	N/A	44%	N/A	N/A	N/A	108%	50%	N/A	

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Bulk
Thermal Overloads

California ISO

Monitored Facility	Contingency Description	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation
300502 LB_MW_21 500 300503 LB_MW_22 500 2 1	PS-S(DC):A0:6: Station DC Battery Supply Gates 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	13%	17%	108%	N/A	77%	108%	70%	69%	8%	81%	5%	
300503 LB_MW_22 500 300504 LB_MW_23 500 2 1	PS-S(DC):A0:6: Station DC Battery Supply Gates 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	13%	17%	108%	13%	77%	108%	70%	69%	8%	81%	5%	
300504 LB_MW_23 500 30060 MIDWAY 500 2 1	PS-S(DC):A0:6: Station DC Battery Supply Gates 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	18%	22%	139%	18%	98%	139%	71%	71%	13%	104%	8%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:10:_Station DC Battery Supply Collinsville 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	92%	99%	104%	N/A	100%	88%	97%	N/A	N/A	95%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:11:_Station DC Battery Supply Manning 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	92%	100%	102%	N/A	99%	86%	98%	N/A	N/A	97%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	96%	99%	104%	N/A	101%	89%	97%	N/A	N/A	101%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	97%	100%	106%	N/A	102%	90%	98%	N/A	N/A	102%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:3:_Station DC Battery Supply Vaca-Dixon 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	92%	99%	103%	N/A	100%	88%	96%	N/A	N/A	94%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:4:_Station DC Battery Supply Tesla 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	98%	100%	102%	N/A	100%	88%	98%	N/A	N/A	102%	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	94%	100%	103%	N/A	97%	89%	98%	N/A	N/A	NConv	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	PS-S(DC):A0:9:_Station DC Battery Supply Diablo Canyon 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	93%	100%	104%	N/A	104%	91%	96%	N/A	N/A	97%	
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	PS-S(DC):A0:8:_Station DC Battery Supply Metcalf 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	144%	83%	N/A	N/A	54%	43%	68%	N/A	N/A	131%	
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	PS-S(DC):A0:9:_Station DC Battery Supply Diablo Canyon 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	89%	89%	N/A	N/A	72%	59%	76%	N/A	N/A	85%	
365224 Q1135 230 365223 Q1135Q1391 230 1 1	PS-S(DC):A0:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	9%	28%	21%	28%	17%	1%	64%	118%	NConv	20%	NConv	
365224 Q1135 230 365223 Q1135Q1391 230 1 1	PS-S(DC):A0:8:_Station DC Battery Supply Metcalf 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	9%	27%	20%	28%	6%	3%	54%	111%	19%	2%	31%	
365313 Q1243 230 365300 Q1242Q1243 230 1 1	PS-S(DC):A0:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	21%	72%	52%	62%	12%	6%	33%	49%	60%	3%	90%	
365431 Q1596 500 365443 Q1596 230 1 1	PS-S(DC):A0:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	61%	76%	56%	65%	28%	23%	55%	54%	107%	23%	86%	
365431 Q1596 500 365443 Q1596 230 1 1	PS-S(DC):A0:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	60%	76%	56%	66%	28%	11%	56%	54%	107%	23%	86%	
365431 Q1596 500 365443 Q1596 230 1 1	PS-S(DC):A0:6: Station DC Battery Supply Gates 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	55%	72%	53%	63%	29%	18%	52%	54%	96%	28%	81%	
365431 Q1596 500 365443 Q1596 230 1 1	PS-S(DC):A0:8:_Station DC Battery Supply Metcalf 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	58%	70%	55%	NConv	28%	13%	50%	51%	100%	23%	78%	
365431 Q1596 500 365443 Q1596 230 1 1	PS-S(DC):A0:9:_Station DC Battery Supply Diablo Canyon 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	60%	74%	56%	66%	28%	20%	56%	54%	105%	23%	83%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:10:_Station DC Battery Supply Collinsville 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	92%	75%	93%	N/A	129%	58%	35%	N/A	N/A	31%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:11:_Station DC Battery Supply Manning 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	98%	81%	95%	N/A	129%	52%	34%	N/A	N/A	59%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	28%	99%	74%	91%	26%	130%	65%	41%	55%	15%	1%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	20%	98%	77%	96%	22%	130%	62%	41%	68%	9%	23%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:3:_Station DC Battery Supply Vaca-Dixon 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	21%	94%	74%	93%	27%	131%	63%	43%	69%	19%	33%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:4:_Station DC Battery Supply Tesla 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	35%	98%	80%	93%	21%	130%	51%	34%	89%	6%	19%	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	20%	101%	81%	96%	24%	129%	54%	36%	NConv	15%	NConv	
365465 KOLA 230 30640 TESLA C 230 1 1	PS-S(DC):A0:8:_Station DC Battery Supply Metcalf 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	78%	106%	85%	NConv	21%	131%	56%	35%	94%	5%	61%	
365941 CASTANEA 230 365942 WPSN 230 1 1	PS-S(DC):A0:1:_Station DC Battery Supply Round Mtn 500-230kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	16%	41%	28%	32%	6%	34%	21%	34%	75%	1%	90%	
365941 CASTANEA 230 365942 WPSN 230 1 1	PS-S(DC):A0:2:_Station DC Battery Supply Table Mtn 500-230-115-60kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	16%	41%	28%	33%	6%	36%	23%	34%	76%	1%	90%	
367101 Q1593SWSTA 230 30971 MIDWAY-F 230 1 1	PS-S(DC):A0:6: Station DC Battery Supply Gates 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	31%	104%	16%	137%	85%	94%	32%	39%	83%	68%	97%	
367101 Q1593SWSTA 230 30971 MIDWAY-F 230 1 1	PS-S(DC):A0:7:_Station DC Battery Supply Midway 500kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	NConv	NConv	22%	NConv	NConv	NConv	248%	83%	NConv	NConv	NConv	
390010 MNMC_SC1 500 390011 MNMC_SC2 500 1 1	PS-S(DC):A0:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	N/A	109%	64%	N/A	119%	107%	108%	N/A	N/A	N/A	
390011 MNMC_SC2 500 30042 METCALF 500 1 1	PS-S(DC):A0:5:_Station DC Battery Supply Los Banos 500-230-70kV Batt	P5-S(DC)	Non-Redundant Battery/Relay	N/A	N/A	111%	65%	N/A	121%	108%	109%	N/A	N/A	N/A	
30040 TESLA 500 33856 TESLA 6M 13.8 6 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	59%	42%	40%	N/A	44%	64%	57%	60%	95%	45%	65%	
30043 GROVE 500 35665 VSC2 Int 350 2 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	N/A	N/A	109%	93%	N/A	112%	N/A	N/A	N/A	N/A	N/A	
30055 GATES 500 34607 GATES11M 13.8 11 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	27%	45%	20%	62%	43%	38%	68%	65%	97%	38%	96%	
30055 GATES 500 34657 GATES12M 13.8 12 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	34%	54%	21%	68%	45%	22%	70%	72%	101%	40%	109%	
30731 LS ESTRS 230 38901 SSS 230 1 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	86%	92%	96%	101%	70%	84%	92%	104%	83%	70%	88%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	59%	47%	92%	85%	51%	61%	74%	103%	52%	55%	33%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	59%	46%	92%	85%	51%	61%	74%	103%	52%	55%	32%	
30735 METCALF 230 30731 LS ESTRS 230 1 4	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	59%	45%	90%	83%	51%	60%	73%	102%	51%	54%	31%	Continue to monitor
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	21%	N/A	N/A	N/A	25%	N/A	N/A	N/A	103%	30%	N/A	
30906 GATES F 230 34657 GATES12M 13.8 12 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	33%	53%	20%	67%	45%	21%	69%	71%	98%	37%	107%	
356166 SKYLINE 230 35676 VSC1 Int 350 2 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	N/A	N/A	94%	95%	N/A	97%	N/A	N/A	N/A	N/A	N/A	
356166 SKYLINE 230 356167 SANJOSEB230 230 1 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	N/A	95%	99%	104%	N/A	100%	88%	96%	N/A	N/A	99%	
356167 SANJOSEB230 230 35619 SJB EF 115 1 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	N/A	90%	89%	95%	N/A	68%	57%	76%	N/A	N/A	87%	
365431 Q1596 500 365443 Q1596 230 1 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	55%	75%	56%	63%	28%	23%	53%	54%	103%	23%	85%	
365465 KOLA 230 30640 TESLA C 230 1 1	P7-1-2: PDCI Bipole outage	P7-1	L-1/L-1	20%	96%	74%	92%	34%	132%	68%	47%	58%	27%	2%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	P7-1-1: Tracy-Tesla Tracy-LosBanos	P7-1	L-1/L-1	60%	49%	97%	93%	53%	62%	80%	109%	55%	57%	37%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	P7-1-1: Tracy-Tesla Tracy-LosBanos	P7-1	L-1/L-1	60%	49%	97%	93%	53%	62%	80%	109%	55%	57%	37%	Sensitivity only
30735 METCALF 230 30731 LS ESTRS 230 1 4	P7-1-1: Tracy-Tesla Tracy-LosBanos	P7-1	L-1/L-1	60%	47%	95%	91%	52%	60%	79%	107%	54%	57%	34%	
30755 MOSSLNSW 230 30797 LASAGUILASS 230 2 1	P7-1-1: Tracy-Tesla Tracy-LosBanos	P7-1	L-1/L-1	26%	N/A	N/A	N/A	24%	N/A	N/A	N/A	108%	29%	N/A	Sensitivity only
30590 VASCOWINDJCT 230 30530 CAYETANO 230 1 1	TESLA-METCALF 500KV [6110] & RUSTY EC CC PLANT	P3	N-1/G-1	<100%	105.73	<100%	112.43	<100%	<100%	<100%	105.69	<100%	<100%	<100%	Continue to monitor
	METCALF-SJB MONOPOLE & RUSTY EC CC PLANT	P3	N-1/G-1	<100%	100.55	<100%	115.17	<100%	<100%	<100%	112.79	<100%	<100%	<100%	
30585 LS PSTAS 230 30630 NEWARK D 230 1 1	TESLA-METCALF 500KV [6110] & COLUSA CC PLANT	P3	N-1/G-1	<100%	104.6	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Project: Manning-Metcalf 500 kV line.
	TESLA-METCALF 500KV [6110] & RUSTY EC CC PLANT	P3	N-1/G-1	<100%	110.33	<100%	101.46	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30735 METCALF 230 30042 METCALF 500 13 1	METCALF 500/230KV TB 12 & LOS MEDANOS CC PLANT	P3	N-1/G-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	102.61	<100%	<100%	<100%	Project: Metcalf 500/230 #14 transformer. Manning-Metcalf 500 kV line
	METCALF 500/230KV TB 14 & RUSTY EC CC PLANT	P3	N-1/G-1	<100%	<100%	<100%	101.15	<100%	<100%	<100%	106.22	<100%	<100%	<100%	compensation under review.
30735 METCALF 230 30042 METCALF 500 14 1	METCALF 500/230KV TB 13 & RUSTY EC CC PLANT	P3	N-1/G-1	<100%	<100%	<100%	101.15	<100%	<100%	<100%	103.55	<100%	<100%	<100%	
30655 PPASSJCT 230 30631 NEWARK E 230 2 1	TESLA-METCALF 500KV [6110] & LOS MEDANOS CC PLANT	P3	N-1/G-1	<100%	119.14	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Project: Manning-Metcalf 500 kV line.
30560 E. SHORE 230 30527 PITSBG E 230 1 1	TESLA-METCALF 500KV [6110] & RUSTY EC CC PLANT	P3	N-1/G-1	<100%	119.96	105.39	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30622 EIGHT MI 230 30624 TESLA E 230 1 1	TABLE MTN 500/230KV T8 S & DIABLOCNYN2 25.0KV GEN UNIT 1	P3	N-1/G-1	<100%	<100%	<100%	152.12	<100%	<100%	<100%	<100%	151.91	<100%	<100%	Project: Table Mtn 500/230kV Transformer
30735 METCALF 230 30042 METCALF 500 13 1	METCALF 500/230KV TB 11 & METCALF 500/230KV TB 12	P6	N-1/N-1	105.96	112.35	105.51	110.7	<100%	<100%	<100%	118.16	<100%	<100%	<100%	
	METCALF 500/230KV TB 14 & METCALF 500/230KV TB 12	P6	N-1/N-1	<100%	<100%	109.58	115.08	<100%	<100%	<100%	121.21	<100%	<100%	<100%	
	METCALF 500/230KV TB 14 & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	104.63	117.32	<100%	<100%	<100%	115.79	<100%	<100%	<100%	
	METCALF 500/230KV TB 12 & METCALF 500/230KV TB 14	P6	N-1/N-1	<100%	<100%	109.55	115.22	<100%	<100%	<100%	121.42	<100%	<100%	<100%	
30735 METCALF 230 30042 METCALF 500 12 1	METCALF 500/230KV TB 11 & METCALF 500/230KV TB 13	P6	N-1/N-1	104.15	110.44	102.47	107.58	<100%	<100%	<100%	114.81	<100%	<100%	<100%	Project: Metcalf 500/230 #14 transformer. Manning-Metcalf 500 kV line
	METCALF 500/230KV TB 14 & METCALF 500/230KV TB 13	P6	N-1/N-1	<100%	<100%	106.51	111.93	<100%	<100%	<100%	117.82	<100%	<100%	<100%	compensation under review.
30735 METCALF 230 30042 METCALF 500 11 1	METCALF 500/230KV TB 13 & METCALF 500/230KV TB 14	P6	N-1/N-1	<100%	<100%	106.39	111.93	<100%	<100%	<100%	117.9	<100%	<100%	<100%	
	METCALF 500/230KV TB 12 & METCALF 500/230KV TB 13	P6	N-1/N-1	101.65	107.69	<100%	103.43	<100%	<100%	<100%	110.39	<100%	<100%	<100%	
	METCALF 500/230KV TB 14 & METCALF 500/230KV TB 13	P6	N-1/N-1	<100%	<100%	100.24	105.34	<100%	<100%	<100%	110.88	<100%	<100%	<100%	
	METCALF 500/230KV TB 13 & METCALF 500/230KV TB 14	P6	N-1/N-1	<100%	<100%	100.13	105.34	<100%	<100%	<100%	110.96	<100%	<100%	<100%	
30300 TABLE MTN D 230 30330 RIO OSO 230 1 1	HUMBOLDTOSW-COLLINSVILLE 500kV [0] & TABLE MT-VACA 500kV [6090]	P6	N-1/N-1	<100%	<100%	<100%	106	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Continue to monitor
30655 PPASSJCT 230 30631 NEWARK E 230 2 1	MOSSLANDING-LOSBANOS 500KV [6040] & TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	129.36	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	116.09	Project: Tesla-Newark 230kV Line No. 2 Reconductoring.
30550 MORAGA 230 30554 CASTROVL 230 1 1	TESLA-METCALF 500KV [6110] & MOSSLANDING-LOSBANOS 500KV [6040]	P6	N-1/N-1	<100%	112.86	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30554 CASTROVL 230 30631 NEWARK E 230 1 1	TESLA-METCALF 500KV [6110] & MOSSLANDING-LOSBANOS 500KV [6040]	P6	N-1/N-1	<100%	110.99	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30530 CAYETANO 230 30537 NDUBLIN 230 1 1	TESLA-METCALF 500KV [6110] & MOSSLANDING-LOSBANOS 500KV [6040]	P6	N-1/N-1	<100%	104.47	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Project: Manning-Metcalf 500 kV line.
	TESLA-METCALF 500KV [6110] & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	<100%	107.07	<100%	<100%	<100%	108.99	<100%	<100%	<100%	
	MANNING - METCALF 500 kV [0] & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	<100%	106.52	<100%	<100%	<100%	113.97	<100%	<100%	<100%	
30735 METCALF 230 30755 MOSSLNSW 230 2 1	METCALF-MOSSLANDING 500KV [6050] & TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	111.92	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	110.29	Continue to monitor
30735 METCALF 230 30755 MOSSLNSW 230 1 1	METCALF-MOSSLANDING 500KV [6050] & TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	111.92	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	110.29	
30755 MOSSLNSW 230 30798 LASAGLSRCTR 230 1 1	TESLA-METCALF 500KV [6110] & MOSSLANDING-LOSBANOS 500KV [6040]	P6	N-1/N-1	<100%	104.26	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	105.49	Continue to monitor
	MOSSLANDING-LOSBANOS 500KV [6040] & TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	100.18	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	134.65	Project: Manning-Metcalf 500 kV line.
30906 GATES F 230 367101 Q1593WSTA 230 1 1	GATES-MIDWAY 500KV [5990] & MALIN-ROUND MT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	126.33	<100%	110.82	Sensitivity only
	GATES 500/230KV TB 12 & OLINDA-TRACY 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	114.93	
30735 METCALF 230 30731 LS ESTRS 230 1 1	METCALF-SJB MONOPOLE & TESLA 500/230KV TB 2	P6	N-1/N-1	<100%	<100%	103.95	105.97	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
	METCALF-SJB MONOPOLE & TESLA 500/230KV TB 6	P6	N-1/N-1	<100%	<100%	101.81	103.99	<100%	<100%	<100%	100.34	<100%	<100%	<100%	
30735 METCALF 230 30731 LS ESTRS 230 1 2	TESLA 500/230KV TB 6 & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	109.33	120.97	<100%	<100%	<100%	123.49	<100%	<100%	<100%	
	METCALF-SJB MONOPOLE & MIDWAY-VINCENT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	111.14	111.49	<100%	<100%	<100%	119.48	<100%	<100%	<100%	Refer to GBA results.

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Bulk
Thermal Overloads

California ISO

Monitored Facility	Contingency Description	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation
	METCALF-SJB MONOPOLE & TESLA 500/230KV TB 6	P6	N-1/N-1	<100%	<100%	115.64	118.29	<100%	<100%	<100%	125.22	<100%	<100%	<100%	
30735 METCALF 230 30731 LS ESTRS 230 1 3	TESLA 500/230KV TB 6 & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	109.23	120.96	<100%	<100%	<100%	123.37	<100%	<100%	<100%	
	METCALF-SJB MONOPOLE & MIDWAY-VINCENT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	111.04	111.42	<100%	<100%	<100%	119.37	<100%	<100%	<100%	
	METCALF-SJB MONOPOLE & TESLA 500/230KV TB 6	P6	N-1/N-1	<100%	<100%	115.54	118.26	<100%	<100%	<100%	125.1	<100%	<100%	<100%	
30052 MANNING 500 300501 LB_GT_11 500 1 1	MIDWAY-MANNING 500KV [0] & OLINDA-TRACY 500KV [0]	P6	N-1/N-1	<100%	<100%	101.29	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
	MIDWAY-MANNING 500KV [0] & MALIN-ROUND MT 500KV 2[6020]	P6	N-1/N-1	<100%	<100%	100.52	<100%	<100%	<100%	<100%	103.62	<100%	<100%	<100%	Continue to monitor
30052 MANNING 500 300502 LB_MW_21 500 2 1	GATES-MANNING 500KV [0] & LOSBANOS-GATES 500KV 3[6000]	P6	N-1/N-1	<100%	<100%	101.28	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	
30735 METCALF 230 30730 HICKS 230 1 1	METCALF-SJB MONOPOLE & TESLA 500/230KV TB 6	P6	N-1/N-1	<100%	<100%	<100%	101.79	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Continue to monitor
30720 SARATOGA 230 30733 VASONA 230 1 1	METCALF-MOSSLANDING 500KV [6050] & TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	105.42	<100%	<100%	<100%	Continue to monitor
30735 METCALF 230 30042 METCALF 500 14 1	METCALF 500/230KV TB 12 & METCALF 500/230KV TB 13	P6	N-1/N-1	<100%	<100%	108.88	115.22	<100%	<100%	<100%	118.7	<100%	<100%	<100%	Project: Metcalf 500/230 #14 transformer. Manning-Metcalf 500 kV line
	METCALF 500/230KV TB 13 & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	103.57	117.32	<100%	<100%	<100%	112.86	<100%	<100%	<100%	compensation under review.
30042 METCALF 500 30045 MOSSLAND 500 1 1	TESLA-METCALF 500KV [6110] & MANNING - METCALF 500 kV [0]	P6	N-1/N-1	N/A	N/A	101.45	112.93	N/A	<100%	<100%	108.6	N/A	N/A	N/A	Operating solution
30790 PANOCHE 230 30902 GATES E 230 2 1	MIDWAY-MANNING 500KV [0] & GATES-MANNING 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	104.12	109.71	129.33	<100%	<100%	<100%	Continue to monitor
	MANNING 500/230KV TB 1 & OLINDA-TRACY 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	129.12	<100%	<100%	<100%	111.84	<100%	<100%	101.81	
30803 MANNING 230 30052 MANNING 500 2 1	MANNING 500/230KV TB 1 & MALIN-ROUND MT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	116.96	<100%	<100%	<100%	118.08	<100%	<100%	<100%	
	MANNING 500/230KV TB 1 & CAPTJACK-OLINDA 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	126.24	<100%	<100%	<100%	117.01	<100%	<100%	103.13	Continue to monitor
	MANNING 500/230KV TB 2 & OLINDA-TRACY 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	129.12	<100%	<100%	<100%	111.84	<100%	<100%	101.81	
30803 MANNING 230 30052 MANNING 500 1 1	MANNING 500/230KV TB 2 & MALIN-ROUND MT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	116.96	<100%	<100%	<100%	118.08	<100%	<100%	<100%	
	MANNING 500/230KV TB 2 & CAPTJACK-OLINDA 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	126.24	<100%	<100%	<100%	117.01	<100%	<100%	103.13	
	GATES 500/230KV TB 12 & OLINDA-TRACY 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	112.87	<100%	<100%	101.27	109.85	119.74	<100%	129.49	
30902 GATES E 230 34607 GATES11M 13.8 11 1	GATES 500/230KV TB 12 & MALIN-ROUND MT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	101.41	113.43	<100%	<100%	<100%	
	GATES 500/230KV TB 12 & ROUND MT-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	103.95	<100%	<100%	101.28	111.98	117.42	<100%	126.56	
30055 GATES 500 34607 GATES11M 13.8 11 1	GATES 500/230KV TB 12 & OLINDA-TRACY 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	110.85	<100%	<100%	<100%	107.03	118.84	<100%	127.67	Continue to monitor
	GATES 500/230KV TB 12 & ROUND MT-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	102.04	<100%	<100%	<100%	109.14	136.25	<100%	124.77	
30055 GATES 500 34657 GATES12M 13.8 12 1	GATES 500/230KV TB 11 & TABLE MT-VACA 500KV [6090]	P6	N-1/N-1	<100%	<100%	<100%	108.47	<100%	<100%	101.19	116.84	119.97	<100%	136.96	
	GATES 500/230KV TB 11 & MALIN-ROUND MT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	101.17	120.08	<100%	<100%	<100%	
30906 GATES F 230 34657 GATES12M 13.8 12 1	GATES 500/230KV TB 11 & TABLE MT-VACA 500KV [6090]	P6	N-1/N-1	<100%	<100%	<100%	106.12	<100%	<100%	<100%	114.46	116.65	<100%	133.67	
30526 PITTSBURG-D 230 38952 TBC PTB1 230 1 1	MANNING - METCALF 500 kV [0] & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	<100%	110.59	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Continue to monitor
38610 DELTAPMP 230 30580 SANDHLWJCT 230 1 1	TABLE MT-VACA 500KV [6090] & VACA-DIX-COLLINSVILLE 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	122.38	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Continue to monitor
	COLLINSVILLE-TESLA 500KV [0] & TABLE MT-VACA 500KV [6090]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	115.3	Sensitivity only
30110 GLENN 230 30114 DELEVAN 230 4 1	TABLE MT-VACA 500KV [6090] & VACA-DIX-COLLINSVILLE 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	109.59	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Continue to monitor
30580 SANDHLWJCT 230 30625 TESLA D 230 1 1	COLLINSVILLE-TESLA 500KV [0] & TABLE MT-VACA 500KV [6090]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	115.5	Sensitivity only
30040 TESLA D 500 30042 METCALF 500 1 1	METCALF-MOSSLANDING 500KV [6050] & MANNING - METCALF 500 kV [0]	P6	N-1/N-1	<100%	<100%	<100%	107.87	<100%	<100%	<100%	<100%	<100%	<100%	<100%	Continue to monitor
30622 EIGHT MI 230 30624 TESLA E 230 1 1	TABLE MTN 500/230KV TB 5 & ROUND MT 500/230KV TB 1	P6	N-1/N-1	<100%	<100%	<100%	<100%	156.38	<100%	<100%	<100%	<100%	151.97	<100%	Off-peak only
364553 CHARCOTSWSTA 115 35610 MONTAGUE 115 1 1	METCALF-MOSSLANDING 500KV [6050] & TESLA-METCALF 500KV [6110]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	104.8	<100%	<100%	<100%	Continue to monitor
30515 WARNERVL 230 30516 WILSONRCTR 230 1 1	MANNING - METCALF 500 kV [0] & TESLA-LOSBANOS 500KV [6100]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	115.64	<100%	<100%	<100%	Continue to monitor
30755 MOSSLNSW 230 30760 COBURN 230 1 1	MANNING - METCALF 500 kV [0] & ROUND MT-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	103.56	<100%	<100%	<100%	Continue to monitor
30540 SOBRANTE 230 33010 SOBRANTE 115 3 1	Base Case & METCALF-SJB MONOPOLE	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	108.72	<100%	<100%	<100%	Continue to monitor
365224 Q1135 230 365223 Q1135Q1391 230 1 1	GATES-MANNING 500KV [0] & MIDWAY-MANNING 500KV [0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	110.06	<100%	<100%	<100%	Continue to monitor
30040 TESLA 500 30050 LOSBANOS 500 1 1	TRACY-LOSBANOS 500KV [6130] & MANNING - METCALF 500 kV [0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	104.35	<100%	<100%	<100%	Continue to monitor
30906 GATES F 230 30935 ARCO 230 1 1	GATES-MIDWAY 500KV [5990] & MALIN-ROUND MT 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	103.65	<100%	111.69	Round Mountain-Table Mountain N-1 RAS and PACIRAS actions in model
	GATES-MIDWAY 500KV [5990] & MALIN-ROUND MT 500KV 2[6020]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	102.47	<100%	112.03	for triggering contingencies under review.
38615 DS AMIGO 230 30790 PANOCHE 230 1 1	GATES 500/230KV TB 11 & TABLE MTN-FERNROADSS 500KV 1[0]	P6	N-1/N-1	<100%	<100%	<100%	<100%	<100%	<100%	<100%	<100%	111.32	<100%	<100%	Sensitivity only

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **Bulk System**
Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)							Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off Peak	2035 Spring Off Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
NONE detected on Bulk System															

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
None over 8%															

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
P1_1-0. DIABLOCNYNSS FAULT ONLY	P1	L-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P1_2-0. RND MTN FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-10 METCALF-MOSSLAND 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-11 MOSSLAND-LOSBANOS 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-12. LOSBANOS-GATES#1 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-13. LOSBANOS-GATES#2 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-14. LOSBANOS-MIDWAY 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-15. GATES-DIABLONCNYSS 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-16. GATES-MIDWAY 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-17. DIABLONCNYSS-MIDWAY#2 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-18. DIABLONCNYSS-MIDWAY#3 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-19. MIDWAY 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-2. TABLEMTN-VACADIXON 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-20. MIDWAY 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-21 MIDWAY 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-22 CAPTJACK-OLINDA	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-23. FR_TM_21-TABLEMTN 500KV	P1	L-1	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_2-24. OLINDA-CAPTJACK 500KV	P1	L-1	no issues	no issues	no issues	Potential WECC/NERC criteria violation	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P1_2-25. DALLASES-MOSSLAND 500KV	P1	L-1	no issues	no issues	potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	N/A	-
P1_2-26. MN_RM_12-MALIN 500KV	P1	L-1	no issues	no issues	no issues	Potential WECC/NERC criteria violation	no issues	N/A	Under review with PTO for fault clearing time and fault impedances.
P1_2-27. MN_RM_23-MALIN 500KV	P1	L-1	no issues	no issues	no issues	Potential WECC/NERC criteria violation	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P1_2-3 RNDMTN-TESLA 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-4. OLINDA-TRACY 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-5 VACADIXON-TESLA 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_2-6. TRACY-TESLA 500KV	P1	L-1	no issues	no issues	potential WECC/NERC criteria violation	no issues	no issues	potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_2-7. TRACY-LOSBANOS 500KV	P1	L-1	no issues	no issues	Potential WECC/NERC criteria violation	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_2-8 TESLA-METCALF 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_2-9. TESLA-LOSBANOS 500KV	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-0. OLINDA 500/230kV TFMR	P1	L-1	no issues	Potential WECC/NERC criteria violation	no issues	no issues	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P1_3-1. TRACY FAULT ONLY	P1	L-1	no issues	Potential WECC/NERC criteria violation	no issues	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-10. METCALF 500/230KV #11 TFMR	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-11. METCALF 500/230KV #12 TFMR	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-12. METCALF 500/230KV #13 TFMR	P1	L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-13. MOSSLAND 500/230KV #9 TFMR	P1	L-1	no issues	no issues	no issues	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-14. LOSBANOS FAULT ONLY	P1	L-1	no issues	no issues	no issues	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-15. GATES FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-16. GATES FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-17. MIDWAY 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-18. MIDWAY 500/230KV #12 TFMR	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-19. MIDWAY 500kV FAULT ONLY	P1	L-1	no issues	Potential WECC/NERC criteria violation	no issues	no issues	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P1_3-2. TRACY 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_3-3. ROUNDMTN 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-4. TABLE MTN 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-5. VACADIXON 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-6. VACADIXON 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-7. TESLA 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-8. TESLA 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_3-9. TESLA 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_4-0. ROUNDMTN-MN_RM_23 #2 500KV	P1	L-1	no issues	no issues	potential WECC/NERC criteria violation	Interruption	no issues	potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_4-1. CJ_OL_13-OLINDA 500KV	P1	L-1	no issues	no issues	no issues	no issues	no issues	potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P1_4-10. TRACY 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_4-11. METCALF 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	N/A	-
P1_4-2. MX_TR_11-MAXWELL 500KV SHUNT	P1	L-1	Potential WECC/NERC criteria violation	no issues	no issues	no issues	no issues	Interruption	Under review with PTO for fault clearing time and fault impedances.
P1_4-3. TM_TS_11-TABLEMTN 500KV SHUNT	P1	L-1	Potential WECC/NERC criteria violation	no issues	no issues	no issues	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P1_4-4. OL_MX_11-OL_MX_12 500KV SHUNT	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	Interruptions to be investigated
P1_4-6. GATES-DIABLOCNYNSS 500KV SHUNT	P1	L-1	no issues	no issues	no issues	no issues	no issues	Interruption	-
P1_4-7. MIDWAY-DIABLOCNYNSS 500KV SHUNT	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_4-8. ROUNDMTN 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P1_4-9. OLINDA 500KV FAULT ONLY	P1	L-1	no issues	no issues	no issues	no issues	no issues	potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P2_3-0. ROUNDMTN-MALIN#2 500KV	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P2_3-1. TESLA-LOSBANOS 500KV	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P2_3-10. MIDWAY-LOSBANOS 500KV	P2	L-1	no issues	no issues	N/A	N/A	no issues	no issues	-
P2_3-11. MIDWAY 500KV FAULT ONLY	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P2_3-2. TESLA-METCALF 500KV	P2	L-1	no issues	no issues	potential WECC/NERC criteria violation	no issues	no issues	no issues	-
P2_3-3. METCALF-TESLA 500KV	P2	L-1	no issues	no issues	potential WECC/NERC criteria violation	no issues	no issues	no issues	-
P2_3-4. METCALF-MOSSLAND 500KV & METCALF 500/230#11 TFMR	P2	L-1	no issues	no issues	potential WECC/NERC criteria violation	no issues	no issues	potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P2_3-5. MOSSLANDING-LOSBANOS 500KV & METCALF 500/230 #11 TFMR	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-

P2_3-6. LOSBANOS 500KV FAULT; TRACY-LOSBANOS-GATES 500KV	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P2_3-7. LOSBANOS 500KV FAULT; TESLA-LOSBANOS-MOSSLANDING 500KV	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P2_3-8.LOSBANOS-MIDWAY#2 500KV	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P2_3-9. MOSSLANDING FAULT; LOSBANOS-MIDWAY#1 500KV	P2	L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P3_2-0. RND MTN 500KV FAULT; LOSS OF DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-1. RND MTN 500KV FAULT; LOSS OF DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-11. MOSSLAND FAULT; LOSS OF DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-12. LOSBANOS 500KV FAULT; DIABLOCNYN2 GEN & LOSBANOS-GATES#	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-13. LOSBANOS 500KV FAULT; DIABLOCNYN2 GEN & LOSBANOS-GATES#	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-14. LOSBANOS 500KV FAULT; DIABLOCNYN2 GEN & LOSBANOS-MIDWA	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-15. GATES 500KV FAULT; DIABLOCNYN2 GEN & LOSBANOS-DIABLOCNY	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-16. GATES 500KV FAULT; DIABLOCNYN2 GEN & GATES-MIDWAY 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-17. DIABLOCNYN2 500KV FAULT; DIABLOCNYN2 GEN & DIABLOCNYN2-	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-18. DIABLOCNYN2 500KV FAULT; DIABLOCNYN2 GEN & DIABLOCNYN2-	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-19. MIDWAY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-2. TBLMTN 500KV FAULT; DIABLOCNYN2 GEN & TBLMTN-VACADIX 500	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-20. MIDWAY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-21. MIDWAY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-22. DIABLOCNYN2 25KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-23. FR_TM_21 500KV FAULT; DIABLOCNYN2 GEN & RNDMTN-FR_TM_2	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-24. CJ_OL_11 500KV FAULT; DIABLOCNYN2 GEN & OLINDA-CAPTJACK 5	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-25. DALLASES 500KV FAULT; DIABLOCNYN2 GEN & DALLASES-MOSSLAN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-26. MN_RM_12 500KV FAULT; RNDMTN-MALIN#1 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-27. MN_RM_23 500KV FAULT; RNDMTN-MALIN#2 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-3. RNDMTN 500KV FAULT; DIABLOCNYN2 GEN & RNDMTN-TESLA 500K	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-4. OLINDA 500KV FAULT; DIABLOCNYN2 GEN & OLINDA-MAXWELL-TRA	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-5. VACADIX 500KV FAULT; DIABLOCNYN2 GEN & VACADIX-TESLA 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-6. TRACY 500KV FAULT; DIABLOCNYN2 GEN & TRACY-TESLA 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-7. TRACY 500KV FAULT; DIABLOCNYN2 GEN & TRACY-LOSBANOS 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-8. TESLA 500KV FAULT; DIABLOCNYN2 GEN & TESLA-METCALF 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_2-9. TESLA 500KV FAULT; DIABLOCNYN2 GEN & TESLA-LOSBANOS 500KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-1. TRACY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-10. METCALF 500KV FAULT; DIABLOCNYN2 GEN & METCALF 500/230K	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-11. METCALF 500KV FAULT; DIABLOCNYN2 GEN & METCALF 500/230K	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-12. METCALF 500KV FAULT; DIABLOCNYN2 GEN & METCALF 500/230K	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-13. MOSSLAND 500KV FAULT; DIABLOCNYN2 GEN & MOSSLANDING 5	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-14. LOSBANOS 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-15. GATES 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-16. GATES 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-17. MIDWAY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-18. MIDWAY 500KV FAULT; DIABLOCNYN2 GEN & MIDWAY 500/230KV	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-19. MIDWAY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-2. TRACY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-20. NO FAULT; LOSS OF DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-21. NO FAULT; LOSS OF DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-3. ROUNDMTN 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-4. TABLEMTN 500KV FAULT: DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-5. VACADIXON 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-6. VACADIXON 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-7. TESLA 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-8.TESLA 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_3-9. TESLA 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_4-0. RNDMTN 500KV FAULT: DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	Potential WECC/NERC criteria violation	N/A	N/A	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P3_4-1. OLINDA 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	Potential WECC/NERC criteria violation	N/A	N/A	no issues	no issues	Under review with PTO for fault clearing time and fault impedances.
P3_4-2. TRACY 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P3_4-3. METCALF 500KV FAULT; DIABLOCNYN2 GEN	P3	L-1/G-1	no issues	no issues	N/A	N/A	no issues	no issues	DCPP modeled offline in 2035 case
P6_1_1-1 RNDMTN-MALIN 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-10. TBLMTN-TESLA 500KV & TBLMTN-FR_TM_21 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-100. METCALF-TESLA & MOSSLANDING-LOSBANOS 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-11. TBLMTN-FR_TM_21 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-12. TESLA-RNDMTN & TESLA-VACADIXON 500KV	P6	L-1/L-1	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-13. TESLA-RNDMTN & TESLA-TRACY 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-14. TESLA-RNDMTN & METCALF-TESLA 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-15. TESLA-RNDMTN & LOSBANOS-TESLA 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-16. TESLA-VACADIX & TESLA-TAYLOR 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-17. TESLA-VACADIX & TESLA-METCALF 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-18. TESLA-VACADIX & TELSA-LOSBANOS 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-19. TESLA-TRACY & TESLA-METCALF 500KVV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-2. RNDMTN-MALIN 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-20. TESLA-TRACY & TESLA-LOSBANOS 500kV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-21. TESLA-METCALF & TESLA-LOSBANOS 500KV	P6	L-1/L-1	no issues	no issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-22. VACADIX-RNDMTN & VACADIX-TELSA 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-23. METCALF-TESLA & METCALF-MOSSLAND 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-24. MOSSLAND-METCALF & MOSSLAND-LOSBANOS 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	Potential WECC/NERC criteria violation	Under review with PTO for fault clearing time and fault impedances.
P6_1_1-25. MOSSLAND-METCALF & MOSSLAND-DALLASES 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-26. MOSSLAND-LOSBANOS & MOSSLAND-DALLASES 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-
P6_1_1-28. LOSBANOS-TRACY & MOSSLAND-LOSBANOS 500KV	P6	L-1/L-1	no issues	no issues	no issues	no issues	no issues	no issues	-

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **Bulk System**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area:
Single Source Substation with more than 100 MW Load

Bulk System

Substation	Load Served (MW)											Potential Mitigation Solutions
	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2035 Winter Off-Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results

Study Area: Southern ISO Bulk, including the bulk systems of SCE, SDG&E, VEA/GLW, SunZia, and TWE, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project

Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)							Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2027SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	
26043 INTERMT 345 826113 TWE-IPP 345 1 1 (26043 INTERMT 345 826113 TWE-IPP 345 2 1 line has similar P6 overloads)	P1L_8303_Line INTERMT 345.0 to TWE-IPP 345.0 Circuit 2 AND P1L_8308_Line TWE-IPP_PST 500.0 to TWE-NVE_CRYS 500.0 HVAC 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	184.2	< 100	< 100	< 100	Rely on TWE-RAS
	P1L_8308_Line TWE-IPP_PST 500.0 to TWE-NVE_CRYS 500.0 HVAC 1 AND P1L_8303_Line INTERMT 345.0 to TWE-IPP 345.0 Circuit 2	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	184.7	< 100	< 100	< 100	
826113 TWE-IPP 345 826122 TWE-IPP-PST 345 #1 (TWE-IPP-PST #2 and #3 have similar P6 overloads)	P1DC_IPP1_IPPDC CONVERTER MONOPOLE #1 AND P1T_8324_Tran TWE-IPP 345.00 to TWE-IPP-PST2 345.00 Circuit 2 0.00	P6	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	122.9	< 100	< 100	< 100	Rely on IPPDC RAS and TWE RAS
	P1DC_IPP2_IPPDC CONVERTER MONOPOLE #2 AND P1T_8324_Tran TWE-IPP 345.00 to TWE-IPP-PST2 345.00 Circuit 2 0.00	P6	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	123.9	< 100	< 100	< 100	
26044 MARKETPL 500 26003 ADELANTO 500 1 1	P1L_24074_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 AND P1L_LADWP10b_Line VICTORVL 500.0 to MCCULLGH 500.0 Circuit 2	P6*	overlapping singles	< 100	< 100	104.5	< 100	< 100	< 100	105.3	< 100	< 100	< 100	System adjustments after the first contingency"
	P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 AND P1L_LADWP10b_Line VICTORVL 500.0 to MCCULLGH 500.0 Circuit 2	P6*	overlapping singles	< 100	< 100	112.2	< 100	< 100	< 100	120.6	< 100	< 100	< 100	
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1L_24074_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	136.3	< 100	< 100	< 100	108.8	< 100	< 100	< 100	Revise the Lugo-Victorville RAS along and rely on congestion management to address Eldorado-McCullough 500 kV tie overloads for P6 contingency, while incorporating transmission projects to interconnect out-of-state wind resources as they are materialized.
	P1L_NV_AZ058_Line MEAD 500.0 to MARKETPL 500.0 Circuit 1 AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
15021 PALOVRDE 500 29250 PV_CLRVR_11 500 1 1	P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	107.0	< 100	< 100	< 100	< 100	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6*	overlapping singles	< 100	102.6	< 100	< 100	NotConv	< 100	< 100	< 100	NotConv	< 100	
29251 PV_CLRVR_12 500 24900 COLRIVER 500 1 1	P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	106.4	< 100	< 100	< 100	< 100	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6*	overlapping singles	< 100	102.0	< 100	< 100	NotConv	< 100	< 100	< 100	NotConv	< 100	
29253 DVRS_RB_12 500 24374 REDBLUFF 500 1 1 (29255 DVRS_RB_22 500 24374 REDBLUFF 500 2 1)	P1G_24001_Gen Alamitos Repower AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P3*	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	147.6	< 100	The P6 overloads and power flow divergence concerns could be mitigated through the use of existing RAS and operational mitigations, including post-contingency generation curtailment as system adjustment in the SCE Eastern and DCRT systems.
	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	105.1	< 100	< 100	< 100	101.1	< 100	< 100	< 100	157.5	< 100	
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	102.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	115.4	< 100	< 100	100.7	NotConv	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6*	overlapping singles	113.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	113.4	< 100	< 100	< 100	115.1	< 100	< 100	100.5	NotConv	< 100	
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	113.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	104.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	155.3	< 100	
29254 DVRS_RB_21 500 29255 DVRS_RB_22 500 2 1	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.7	< 100	
	P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	100.2	< 100	< 100	< 100	NotConv	< 100	
24801 DEVERS 500 24151 VALLEYSC 500 1 1	P1L_24153_Line DEVERS 500.0 to VALLEYSC 500.0 Circuit 2 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.3	< 100	
	P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1 AND P1L_24153_Line DEVERS 500.0 to VALLEYSC 500.0 Circuit 2	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.7	< 100	
24801 DEVERS 500 29252 DVRS_RB_11 500 1 1 (24801 DEVERS 500 29254 DVRS_RB_21 500 2 1)	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144.3	< 100	
	P1G_24001_Gen Alamitos Repower AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P3*	G-1/N-1	100.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	149.1	< 100	
	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6	(blank)	106.2	< 100	< 100	< 100	102.2	< 100	< 100	< 100	159.1	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	116.6	< 100	< 100	101.8	NotConv	< 100	
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	114.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	

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Study Area: Southern ISO Bulk, including the bulk systems of SCE, SDG&E, VEA/GLW, SunZia, and TWE, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project

Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)							Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2027SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	
	P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6*	overlapping singles	105.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	156.9	< 100	
24590 MW_VINCNT_12 500 24156 VINCENT 500 1 1 (or 24592 MW_VINCNT_22 500 24156 VINCENT 500 2 1)	P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P1	Single Contingency	150.0								158.6		
	P1G_24010_Gen Mountainview Block 2 AND P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P3*	G-1/N-1	154.3								161.1		
	P1G_24012_Palo Verde Unit No.2 AND P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P3*	G-1/N-1	163.5								172.1		
	P1DC_PDCI1_PDCI CONVERTER MONOPOLE #1 AND P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	186.0			156.2							
	P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	178.0			173.5					180.8		
30060 MIDWAY 500 24593 MW_VINCNT_21 500 2 1 (30060 MIDWAY 500 24591 MW_VINCNT_11 500 1 1)	P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P1	Single Contingency	151.1								159.4		1. The P1 and P3 overloads with the heavy Path 26 flow from north to south up to the 4000 MW limit (B1/S2) could be eliminated by operational mitigation actions reducing power flow via Path 26. The P1 overload would lead to congestion issue that needs to be assessed in economic study. 2. The P6 overloads with the heavy Path 26 flow scenarios from north to south up to the 4000 MW limit and (B1/B4/S2) could be eliminated by operational mitigation actions reducing power flow import via Path 26 after the 1st contingency.
	P1G_24010_Gen Mountainview Block 2 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P3*	G-1/N-1	155.4								161.8		
	P1G_24012_Palo Verde Unit No.2 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P3*	G-1/N-1	164.6								172.9		
	P1DC_PDCI1_PDCI CONVERTER MONOPOLE #1 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	187.2			158.7							
	P1DC_SUNZIA2_SUNZIA CONVERTER MONOPOLE #1 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	160.9								169.5		
	P1G_PALV2_APS Palo Verde Unit No.2 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	164.6								172.9		
	P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1 AND P1DC_PDCI2_PDCI CONVERTER MONOPOLE #2	P6*	overlapping singles	187.5										
	P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	178.8			175.9					181.0		
	P1L_24120_Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	173.9								185.6		
30060 MIDWAY 500 24595 MW_WRLWND_31 500 3 1	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2/P6	Always Credible Common Corridor	114.5	< 100	< 100	111.8	< 100	< 100	< 100	< 100	118.3	< 100	
	N2_4P26_N2S_RAS1_MIDWAY-Vincent 500kV N-2 WITH Path26 N2S RAS	N2/P6	Always Credible Common Corridor	< 100	NA	NA	< 100	< 100	< 100	< 100	NA	< 100	< 100	
	P1L_24208_Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 AND P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1	P6*	overlapping singles	< 100	101.1	< 100	< 100	< 100	< 100	< 100	101.0	< 100	< 100	1. The P0 overload with the heavy Path 26 flow from south to north up to the 3000 MW limit (B2/S1) could be eliminated by operational mitigation actions, including reducing power flow via Path 26 and/or dispatching energy storage in charging mode in the Tehachapi area. The P0 overload would lead to congestion issue that needs to be assessed in economic study; 2. The credible N-2 overloads for the operating scenarios with heavy Path 26 flow from north to south up to the 4000 MW limit (B1/B4/S2) could be eliminated by the PG&E Path 26 RAS curtailing generation and the SCE Path 26 RAS dropping loads; 3. The P6 overloads for the operating scenarios with heavy Path 26 flow from north to south up to the 4000 MW limit (B1/B4/S2) could be eliminated by operational mitigation actions reducing power flow import via Path 26 after the 1st contingency.
24595 MW_WRLWND_31 500 24594 MW_WRLWND_32 500 3 1	Base Case	P0	Normal Operation	< 100	118.8	< 100	< 100	< 100	< 100	< 100	118.3	< 100	< 100	
	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2/P6	Always Credible Common Corridor	106.9	< 100	< 100	104.0	< 100	< 100	< 100	< 100	109.8	< 100	
	N2_4P26_N2S_RAS1_MIDWAY-Vincent 500kV N-2 WITH Path26 N2S RAS	N2/P6	Always Credible Common Corridor	< 100	NA	NA	< 100	< 100	< 100	< 100	NA	< 100	< 100	
24594 MW_WRLWND_32 500 29402 WIRLWIND 500 3 1	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2/P6	Always Credible Common Corridor	115.2	< 100	< 100	112.0	< 100	< 100	< 100	< 100	119.1	< 100	
	N2_4P26_N2S_RAS1_MIDWAY-Vincent 500kV N-2 WITH Path26 N2S RAS	N2/P6	Always Credible Common Corridor	< 100	NA	NA	< 100	< 100	< 100	< 100	NA	< 100	< 100	
	N2_6P26_S2N_OP_MIDWAY-Vincent 500kV N-2 WITH Path26 S2N OP	N2/P6	Always Credible Common Corridor	109.0	< 100	< 100	100.1	< 100	< 100	< 100	< 100	115.9	< 100	
29402 WIRLWIND 500 29401 WINDHUB 500 1 1	P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	107.9	< 100	< 100	< 100	< 100	< 100	The P1 and P3 overloads could be eliminated by Tehachapi CRAS and operational mitigation actions reducing generation in the Windhub area
	P1G_24003_Diablo Canyon PP No.2 AND P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1	P3*	G-1/N-1	< 100	< 100	< 100	< 100	108.4	< 100	< 100	< 100	< 100	< 100	
29400 ANTELOPE 500 29401 WINDHUB 500 1 1	P1L_24209_Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	108.2	< 100	< 100	< 100	< 100	< 100	
29400 ANTELOPE 500 24156 VINCENT 500 1 1	P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_24206_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	< 100	101.3	< 100	< 100	112.4	< 100	< 100	< 100	< 100	< 100	
	P1L_24120_Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_24206_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	102.9	< 100	< 100	< 100	122.8	< 100	< 100	< 100	112.7	< 100	
	P1L_24206_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 2 AND P1L_24120_Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3	P6*	overlapping singles	102.9	< 100	< 100	< 100	122.9	< 100	< 100	< 100	112.7	< 100	
	P1L_24209_Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 AND P1L_24206_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 2	P6*	overlapping singles	< 100	< 100	< 100	< 100	106.3	< 100	< 100	< 100	< 100	< 100	

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Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)							Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2027SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	
29400 ANTELOPE 500 24156 VINCENT 500 2 1	P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_24205_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	< 100	101.3	< 100	< 100	112.4	< 100	< 100	< 100	< 100	< 100	The P6 overloads could be eliminated by operational mitigation actions, by reducing power flow import or export via Path 26 or curtaining generation as needed after the 1st contingency of P6 contingency
	P1L_24120_Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_24205_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	102.8	< 100	< 100	< 100	122.8	< 100	< 100	< 100	112.6	< 100	
	P1L_24205_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 1 AND P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3	P6*	overlapping singles	< 100	100.9	< 100	< 100	< 100	< 100	< 100	100.1	< 100	< 100	
	P1L_24205_Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 1 AND P1L_24120_Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3	P6*	overlapping singles	102.8	< 100	< 100	< 100	122.9	< 100	< 100	< 100	112.7	< 100	
29400 ANTELOPE 500 29402 WIRLWIND 500 1 1	P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	103.4	< 100	< 100	< 100	< 100	< 100	
	P1L_24120_Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1	P6*	overlapping singles	106.3	< 100	< 100	< 100	113.3	< 100	< 100	< 100	120.3	< 100	
24156 VINCENT 500 29402 WIRLWIND 500 3 1	P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 AND P1L_24208_Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1	P6*	overlapping singles	< 100	< 100	< 100	< 100	101.8	< 100	< 100	< 100	106.8	< 100	
24156 VINCENT 500 24386 MESA CAL 500 1 1	P1L_24072_Line LUGO 500.0 to VINCENT 500.0 Circuit 2 AND P1L_24071_Line LUGO 500.0 to VINCENT 500.0 Circuit 1	P6*	overlapping singles	110.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	118.2	< 100	
24086 LUGO 500 24156 VINCENT 500 1 1	P1L_24072_Line LUGO 500.0 to VINCENT 500.0 Circuit 2 AND P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6*	overlapping singles	121.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
22844 TALEGA 230 24131 S.ONOFRE 230 1 1	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.1	< 100	
	P1L_242_Line SYLMAR220 230.0 to GOULD 230.0 Circuit 1 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.4	< 100	
	P1L_2430_Line EAGLROCK 230.0 to SYLMAR220 230.0 Circuit 1 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6*	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.4	< 100	
22357 IV PFC1 230 22358 IV PFC 230 1 1 (22357 IV PFC1 230 22358 IV PFC 230 2 1)	P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P1	Single Contingency	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.4	< 100	Mitigated by the previously approved Imperial Vally North of SONG 500 kV line project in the long term, and existing SDG&E 500 kV RAS in the near-term
	P1G_24015_Gen PEN Plant (SDG&E) AND P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P3*	G-1/N-1	109.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	P1G_24016_Gen OTAY MESA Plant (SDG&E) AND P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P3*	G-1/N-1	109.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.0	< 100	
	P1DC_PDCI1_PDCI CONVERTER MONOPOLE #1 AND P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P6*	overlapping singles	104.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	P1DC_PDCI2_PDCI CONVERTER MONOPOLE #2 AND P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P6*	overlapping singles	104.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1 AND P1L_SDGE30RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	P6*	overlapping singles	NotConv	< 100	< 100	< 100	139.8	< 100	< 100	106.1	NotConv	150.9	
	P1L_SDGE30RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1 AND P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P6*	overlapping singles	NotConv	< 100	< 100	< 100	140.1	< 100	< 100	105.3	NotConv	151.1	

Note (*): P6 and P3 results are reported without System adjustment between the two single P1 events

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High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)*							Voltage PU (Sensitivity Scenarios)*			Project & Potential Mitigation Solutions
					B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2030SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	
240020 OBERON 500 KV	Base Case	P0	Base Case	Low Voltage									1.026		Low voltage issues under normal conditions and potential voltage instability during single transmission line outages were observed in the SCE bulk system with high renewable generation in the near-term (B1/S2). In the long-term (B4), the SCE main local system study at 1-in-10 load levels identified low voltages at major 500 kV substations, despite most of gas generation and about 1,000 MW of energy storage dispatched in the western LA Basin (Zone 996). Similar but more severe voltage issues were identified in the SCE Main system study. Steady-state and dynamic reactive power support facilities at various candidate substations or nearby locations will be evaluated to determine optimal siting and Mvar sizing for both near-term and long-term needs. Locations and sizes under consideration include, but are not limited to: Eldorado (900, -300 Mvar), Lugo (1200, -300 Mvar), Vincent (900, -200 Mvar), Devers (600 Mvar), Mesa (900 Mvar), Lighthipe (300 Mvar), and Del Amo (300 Mvar). The technology options could be shunt capacitor/reactor, Static Var Systems including SVC and STARCOM, Synchronizer Condenser, or hybrid. Further evaluation is required to refine these options, confirm feasibility, and ensure compliance with applicable voltage criteria.
240205 ROMOLA 500 KV	Base Case	P0	Base Case	Low Voltage									1.035		
24086 LUGO 500 KV	Base Case	P0	Base Case	Low Voltage	1.038								1.038		
24092 MIRALOMA 500 KV	Base Case	P0	Base Case	Low Voltage									1.032		
241018 EASLEY 500 KV	Base Case	P0	Base Case	Low Voltage									1.027		
241158 TOT915_GSU_H 500 KV	Base Case	P0	Base Case	Low Voltage									1.038		
24138 SERRANO 500 KV	Base Case	P0	Base Case	Low Voltage	1.039								1.027	1.039	
24151 VALLEYSC 500 KV	Base Case	P0	Base Case	Low Voltage									1.035		
24156 VINCENT 500 KV	Base Case	P0	Base Case	Low Voltage	1.036								1.024		
24162 VINCEN&1 500 KV	Base Case	P0	Base Case	Low Voltage	1.025								1.011		
24236 RANCHVST 500 KV	Base Case	P0	Base Case	Low Voltage	1.039								1.033		
24374 REDBLUFF 500 KV	Base Case	P0	Base Case	Low Voltage									1.026		
24384 EAST TS 500 KV	Base Case	P0	Base Case	Low Voltage	1.039								1.029		
24385 WEST TS 500 KV	Base Case	P0	Base Case	Low Voltage	1.039								1.028		
24386 MESA CAL 500 KV	Base Case	P0	Base Case	Low Voltage	1.027								1.013		
24573 HAE SVCL 500 KV	Base Case	P0	Base Case	Low Voltage	1.020	1.027		1.034	1.032	1.014	1.020	1.028	1.019	1.019	
24801 DEVERS 500 KV	Base Case	P0	Base Case	Low Voltage					1.034				1.029		
24849 DELAMO 500 KV	Base Case	P0	Base Case	Low Voltage											
24900 COLRIVER 500 KV	Base Case	P0	Base Case	Low Voltage									1.037		
25660 MIRA81X2 500 KV	Base Case	P0	Base Case	Low Voltage									1.032		
29400 ANTELOPE 500 KV	Base Case	P0	Base Case	Low Voltage									1.031		
29401 WINDHUB 500 KV	Base Case	P0	Base Case	Low Voltage									1.037		
29402 WIRLWIND 500 KV	Base Case	P0	Base Case	Low Voltage					1.035						
24097 MOHAVE 500 KV	Base Case	P0	Base Case	High Voltage		1.082									A high voltage issue was observed at the Mohave 500 kV bus during the 2030 summer peak base case and real-time operations due to inadequate reactive power regulation. Steady-state and dynamic reactive power support facilities may be considered at three candidate locations, such as ±(100~300) Mvar at Mohave or Eldorado 500 kV bus, ±(100~300) Mvar at Lugo 500 kV substation. Further evaluation is required to verify the high voltage issue and determine the appropriate Mvar sizing and locations for reactive power facilities in both the near-term and long-term.

Note (*): Voltage in blank cell is within applicable voltage criteria

2025-2026 ISO Reliability Assessment - Study Results

Study Area: **Southern ISO Bulk, including the bulk systems of SCE, SDG&E, VEA/GLW, SunZia, and TWE, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project**

Voltage Deviation

Substation	Contingency	Category	Category Description	Voltage PU (Baseline Scenarios)							Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2027SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	
OCOTIL&1 500 kV	P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9.69	5.47	Mitigated by the existing SDG&E 500 kV RAS dropping generation in the Imperial Valley area
SUNCREST 500 kV	P1L_SDGE20RAS0_22930 ECO-22468 MIGUEL 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9.69	5.47	

2025-2026 ISO Reliability Assessment - Study Results

Study Area: **Southern ISO Bulk, including the bulk systems of SCE, SDG&E, VEA/GLW, SunZia, and TWE, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project**

Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			B7: 2027 Spring Off-Peak	B2: 2030 Summer Peak	B3: 2035 Summer Peak	B8: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S3: 2027 Spring OP BESS Charging	
P1-1_P1.2_Lugo 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	disruption	TBD	TBD	further investigation on disruption
P1-2_P1.2_Imperial Valley 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P1-3_P1.1_Palo Verde 500 kV_3-PH	P1	Single Contingency	stable	stable	oscillation	stable	TBD	TBD	further investigation on oscillation
P1-25_P1.2_Valley 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P1-28_P1.2_Devers 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P1-29_P1.2_Devers 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P1-30_P1.2_N.Gila 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P4-54_P4.2_Devers 500 kV_1-PH	P4	stuck breaker	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P7-144_P7.1_Mira Loma 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P7-178_P7.1_Mesa 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P7-179_P7.1_Lugo 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario
P7-180_P7.1_Mira Loma 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	TBD	TBD	criteria met in base scenario

2025-2026 ISO Reliability Assessment - Study Results

Study Area: **Southern ISO Bulk, including the bulk systems of SCE, SDG&E, VEA/GLW, SunZia, and TWE, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project**

Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2027SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	

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

2025-2026 ISO Reliability Assessment - Study Results

Study Area: **Southern ISO Bulk, including the bulk systems of SCE, SDG&E, VEA/GLW, SunZia, and TWE, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project**

Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)										Potential Mitigation Solutions
	B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak	B4R: 2040 Summer Peak	B5: 2030 Summer-Off Peak	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak	S1: 2030SP High CEC Load	S2: 2027SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Humboldt
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 Spring Off-Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
BRIDGEVILLE-GARBERVILLE 60KV	Base Case	P0	Base case	108	39	47	31	92	67	27	43	101	93	39	Garberville Area Reinforcement
	P1-2:A1:14:_HMBLT BY-HARRIS 60KV [0] MOAS OPENED on HARRIS_HARRISST	P1	N-1	100	34	40	26	86	68	26	40	93	87	33	Garberville Area Reinforcement
	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED on TRINITY_JESSTAP	P1	N-1	102	34	40	26	93	68	26	40	97	95	33	Garberville Area Reinforcement
	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]	P1	N-1	105	34	40	26	102	70	26	40	102	104	33	Garberville Area Reinforcement
	BRIDGEVILLE-COTTONWOOD 115KV [1110]&HUMBOLDT-MAPLE CREEK 60KV [7130] MOAS OPENED on HUMBOLDT_MPLE CRK	P6	N-1-1	<100	<100	<100	<100	100	<100	<100	<100	100	99	<100	Garberville Area Reinforcement
HMBLT BY-HARRIS 60KV	P1-2:A1:10:_HUMBOLDT-EUREKA 60KV [7120] MOAS OPENED on HUMBOLDT_HARRIS	P1	N-1	71	76	89	22	59	71	76	116	51	59	47	Continue to Monitor
	UMBOLDT-EUREKA 60KV [7120] MOAS OPENED on HUMBOLDT_HARRIS&HUMBOLDT1-25 25.00KV Gen Unit \	P3	G-1/N-1	<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
HUMBOLDT BAY-HUMBOLDT #1 60KV	P1-2:A1:12:_HUMBOLDT BAY-HUMBOLDT #2 60KV [7090]	P1	N-1	88	97	81	17	93	67	71	47	96	93	110	Continue to Monitor
	P7-1:A1:2:_HUMBOLDT BAY & HUMBOLDT BAY LINES	P7	DTCL	96	97	81	17	96	69	65	44	104	96	111	Continue to Monitor
HUMBOLDT BAY-RIO DELL JCT 60KV	HUMBOLDT-BRIDGEVILLE 115KV [1810]&BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	100	<100	<100	<100	100	<100	<100	<100	<100	100	<100	Continue to Monitor
HUMBOLDT-BRIDGEVILLE 115KV	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED on TRINITY_JESSTAP	P1	N-1	68	68	87	59	85	62	54	79	75	87	112	Continue to Monitor
	P2-1:A1:1:_HUMBOLDT-TRINITY 115KV [1820] (HUMBOLDT-TRINITY)	P2	Bus/Breaker	66	66	86	58	82	61	52	79	72	84	106	Continue to Monitor
HUMBOLDT-MAPLE CREEK 60KV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	48	107	51	62	63	36	76	NConv	60	63	147	Continue to Monitor
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	40	105	NConv	51	51	32	75	NConv	48	51	147	Continue to Monitor
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	48	107	51	62	63	36	76	NConv	60	63	147	Continue to Monitor
	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	51	62	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	48	107	51	65	63	36	76	NConv	60	63	147	Install redundant battery
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	40	105	NConv	52	51	32	75	NConv	48	51	147	Install redundant battery supply
	HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED on TRINITY_JESSTAP&BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	<100	100	<100	<100	<100	<100	<100	<100	<100	35	100	Continue to Monitor
	HUMBOLDT 115/60KV TB 2&HUMBOLDT 115/60KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Continue to Monitor
METCALF-MANNING SCAP 500KV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	NA	NA	NConv	100	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	NA	NA	NConv	100	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	100	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	100	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NA	NA	NConv	100	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NA	NA	NConv	100	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
RIO DELL JCT-BRIDGEVILLE 60KV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	90	19	13	23	110	64	17	NConv	110	110	20	Garberville Area Reinforcement
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	96	19	13	23	118	67	17	NConv	120	118	20	Garberville Area Reinforcement
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	90	19	13	23	110	64	17	NConv	110	110	20	Garberville Area Reinforcement
	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	86	15	9	20	108	61	13	NConv	107	108	16	Garberville Area Reinforcement
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	93	15	9	20	116	64	13	NConv	116	116	16	Garberville Area Reinforcement
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	86	15	9	20	108	61	13	NConv	107	108	16	Garberville Area Reinforcement
	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	86	14	8	20	107	61	13	NConv	106	107	16	Garberville Area Reinforcement
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	92	14	8	20	116	63	13	NConv	116	116	16	Garberville Area Reinforcement
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	86	14	8	20	107	61	13	NConv	106	107	16	Garberville Area Reinforcement
	P2-1:A1:1:_HUMBOLDT-TRINITY 115KV [1820] (HUMBOLDT-TRINITY)	P2	Bus/Breaker	101	34	40	26	92	68	26	40	95	93	33	Garberville Area Reinforcement
	P2-1:A1:2:_BRIDGEVILLE-COTTONWOOD 115KV [1110] (FRSTGLEN-LOW GAP1)	P2	Bus/Breaker	104	34	40	26	101	70	26	40	102	103	33	Garberville Area Reinforcement
	P2-2:A1:2:_LOW GAP1 115KV Section 1D	P2	Bus/Breaker	105	34	40	26	102	70	26	40	102	104	33	Garberville Area Reinforcement
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	90	19	13	23	110	64	17	NConv	110	110	20	Garberville Area Reinforcement
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	96	19	13	23	118	67	17	NConv	120	118	20	Garberville Area Reinforcement
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	86	15	9	20	108	61	13	NConv	107	108	16	Garberville Area Reinforcement
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	93	15	9	20	116	64	13	NConv	116	116	16	Garberville Area Reinforcement
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	86	14	8	20	107	61	13	NConv	106	107	16	Garberville Area Reinforcement
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	92	14	8	20	116	63	13	NConv	116	116	16	Garberville Area Reinforcement
TRINIDAD-ARCATA 60KV	P1-2:A1:7:_ARCATA-HUMBOLDT 60KV [7110]	P1	N-1	43	49	57	24	39	51	56	100	34	37	35	Garberville Area Reinforcement
TRINITY-MAPLE CREEK 60KV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	23	71	NConv	80	46	21	42	NConv	37	46	114	Continue to Monitor
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	14	68	NConv	64	34	15	41	NConv	25	34	122	Continue to Monitor
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	23	71	NConv	80	46	21	42	NConv	37	46	114	Continue to Monitor
	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	80	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	23	72	NConv	79	47	21	42	NConv	37	47	114	Continue to Monitor
	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	15	69	NConv	63	35	16	41	NConv	25	35	122	Continue to Monitor
	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	23	72	NConv	79	47	21	42	NConv	37	47	114	Continue to Monitor
	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	79	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	23	71	NConv	80	46	21	42	NConv	37	46	114	Continue to Monitor
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	14	68	NConv	64	34	15	41	NConv	25	34	122	Continue to Monitor
	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	23	72	NConv	79	47	21	42	NConv	37	47	114	Continue to Monitor
	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	15	69	NConv	63	35	16	41	NConv	25	35	122	Continue to Monitor

ï¿½ ISO Reliability Assessment - Study Results
Study Area: PG&E Humboldt
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 Spring Off-Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
ARCATA 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
ARCATA 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
ARCATA 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	NA	NA	NConv	0.50	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
ARCATA 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	NA	NA	NConv	0.48	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
ARCATA 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.50	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
ARCATA 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.50	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
ARCATA 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NA	NA	NConv	0.50	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
ARCATA 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NA	NA	NConv	0.47	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
BRDGVLLE 60 kV	P1-2:A1:15:_HUMBOLDT BAY-RIO DELL JCT 60KV [7100] MOAS OPENED on EEL RIVER JC_NEWBURG&P1-3:A1:3:_BRDGVLLE 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	>0.9	>0.9	Garberville Area Reinforcement
BRDGVLLE 60 kV	P1-2:A1:21:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED on CARLOTTA_SWNS FLT&P1-3:A1:3:_BRDGVLLE 115/60KV TB 1	P6	N-1-1	0.51	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.54	>0.9	>0.9	Garberville Area Reinforcement
BRDGVLLE 60 kV	P1-3:A1:3:_BRDGVLLE 115/60KV TB 1&P1-2:A1:15:_HUMBOLDT BAY-RIO DELL JCT 60KV [7100] MOAS OPENED on EEL RIVER JC_NEWBURG	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	>0.9	>0.9	Garberville Area Reinforcement
EUREKA 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
EUREKA 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
EUREKA 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
EUREKA 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	1.03	1.03	NConv	0.46	0.97	0.97	0.98	NConv	1.03	0.97	1.02	Continue to Monitor
EUREKA 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
EUREKA 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.49	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
EUREKA 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
EUREKA 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.46	0.97	0.97	0.98	NConv	1.03	0.97	1.02	Continue to Monitor
EUREKA A 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
EUREKA A 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
EUREKA A 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
EUREKA A 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	1.03	1.03	NConv	0.46	0.97	0.97	0.98	NConv	1.03	0.97	1.01	Continue to Monitor
EUREKA A 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
EUREKA A 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.49	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
EUREKA A 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
EUREKA A 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.46	0.97	0.97	0.98	NConv	1.03	0.97	1.01	Continue to Monitor
FAIRHAVN 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	NA	NA	NConv	0.51	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
FAIRHAVN 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	NA	NA	NConv	0.48	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
FAIRHAVN 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.51	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
FAIRHAVN 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.51	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
FAIRHAVN 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	NA	NA	NConv	0.51	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
FAIRHAVN 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	NA	NA	NConv	0.48	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
GRBRVLLE 60 kV	P1-2:A1:1:_HUMBOLDT-BRIDGEVILLE 115KV [1810]&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:13:_HUMBOLDT-MAPLE CREEK 60KV [7130] MOAS OPENED on HUMBOLDT_MPLE CRK&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:15:_HUMBOLDT BAY-RIO DELL JCT 60KV [7100] MOAS OPENED on EEL RIVER JC_NEWBURG&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:2:_HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED on TRINITY_JESSTAP&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:21:_RIO DELL JCT-BRIDGEVILLE 60KV [7850] MOAS OPENED on CARLOTTA_SWNS FLT&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:3:_BRIDGEVILLE-COTTONWOOD 115KV [1110]&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	0.56	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:4:_HUMBOLDT BAY-HUMBOLDT #1 115KV [1800]&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-3:A1:3:_BRDGVLLE 115/60KV TB 1&P1-2:A1:15:_HUMBOLDT BAY-RIO DELL JCT 60KV [7100] MOAS OPENED on EEL RIVER JC_NEWBURG	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.85	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-3:A1:4:_HMBOBAYPPB 115/13.8KV TB 1&P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.68	>0.9	>0.9	Garberville Area Reinforcement
GRBRVLLE 60kV	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P1	N-1	0.57	NA	NA	NA	1.03	0.89	NA	NA	0.73	1.03	NA	Garberville Area Reinforcement
GRBRVLLE 60kV	P1-4:A1:6:_GRBRVLLE 60.00KV ID=8H & GRBRVLLE 60.00KV ID=7H & GRBRVLLE 60.00KV ID=5H & GRBRVLLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	0.85	0.99	0.99	1.02	0.94	0.92	1.02	1.00	0.87	0.94	0.99	Garberville Area Reinforcement
GRBRVLLE 60kV	P5-5C:A1:2:_BRIDGEVILLE 115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	0.57	NA	NA	NA	1.03	0.89	NA	NA	0.73	1.03	NA	Garberville Area Reinforcement
HARRIS 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
HARRIS 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
HARRIS 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
HARRIS 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	1.03	1.03	NConv	0.46	0.96	0.96	0.98	NConv	1.03	0.96	1.01	Continue to Monitor
HARRIS 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
HARRIS 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.49	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
HARRIS 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.49	0.97	0.97	0.98	NConv	1.03	0.97	1.03	Continue to Monitor
HARRIS 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.46	0.96	0.96	0.98	NConv	1.03	0.96	1.01	Continue to Monitor
HMBLT BY 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
HMBLT BY 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.47	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
HMBLT BY 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.99	0.99	1.00	NConv	1.03	0.99	1.03	Continue to Monitor
HMBLT BY 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	1.03	1.03	NConv	0.46	0.99	0.99	0.99	NConv	1.03	0.99	1.02	Continue to Monitor
HMBLT BY 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	1.03	1.03	NConv	0.49	0.99	0.99	1.00	NConv	1.03	0.99	1.03	Continue to Monitor
HMBLT BY 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.49	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
HMBLT BY 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.49	0.99	0.99	1.00	NConv	1.03	0.99	1.03	Continue to Monitor
HMBLT BY 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	1.03	1.03	NConv	0.46	0.99	0.99	0.99	NConv	1.03	0.99	1.02	Continue to Monitor
MPLE CRK 60 kV	P1-3:A1:1:_HUMBOLDT 115/60KV TB 1&P1-3:A1:2:_HUMBOLDT 115/60KV TB 2	P6	N-1-1	>0.9	>0.9	>0.9	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
MPLE CRK 60 kV	P1-3:A1:2:_HUMBOLDT 115/60KV TB 2&P1-3:A1:1:_HUMBOLDT 115/60KV TB 1	P6	N-1-1	>0.9	>0.9	>0.9	0.57	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
MPLE CRK 60kV	P2-2:A1:1:_HUMBOLDT 115KV Section MA	P2	Bus/Breaker	1.03	1.02	NConv	0.58	0.96	0.96	0.98	NConv	1.02	0.96	0.98	Continue to Monitor
MPLE CRK 60kV	P2-3:A1:1:_HUMBOLDT - MA 115KV & HUMBOLDT-TRINITY line	P2	Bus/Breaker	1.03	1.01	NConv	0.53	0.96	0.96	0.97	NConv	1.03	0.96	0.90	Continue to Monitor
MPLE CRK 60kV	P2-3:A1:2:_HUMBOLDT - MA 115KV & HUMBOLDT BAY-HUMBOLDT #1 line	P2	Bus/Breaker	1.03	1.02	NConv	0.58	0.96	0.96	0.98	NConv	1.02	0.96	0.98	Continue to Monitor
MPLE CRK 60kV	P2-3:A1:3:_HUMBOLDT - MA 115KV & HUMB115-HUMBOLDT #1 line	P2	Bus/Breaker	NA	NA	NConv	0.58	NA	NA	NA	NConv	NA	NA	NA	Continue to Monitor
MPLE CRK 60kV	P5-5A:A1:1:_HUMBOLDT 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-redundant relay/battery	1.03	1.02	NConv	0.58	0.96	0.96	0.98	NConv	1.02	0.96	0.98	Continue to Monitor
MPLE CRK 60kV	P5-5C:A1:1:_HUMBOLDT 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-redundant relay/battery	1.03	1.01	NConv	0.53	0.96	0.96	0.97	NConv	1.03	0.96	0.90	Continue to Monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Humboldt
Voltage Deviation

California ISO

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 Spring Off-Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
FRT SWRD 60 kV	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P1	N-1	41	<8%	<8%	<8%	<8%	13	<8%	<8%	27	<8%	<8%	Garberville Area Reinforcement
	P1-4:A1:6:_GRBRVLLE 60.00KV ID=8H & GRBRVLLE 60.00KV ID=7H & GRBRVLLE 60.00KV ID=5H & GRBRVLLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	10	<8%	<8%	<8%	<8%	<8%	<8%	<8%	10	<8%	<8%	Garberville Area Reinforcement
FRUITLND 60 kV	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P1	N-1	42	<8%	<8%	<8%	<8%	13	<8%	<8%	27	<8%	<8%	Garberville Area Reinforcement
GRBRVLLE 60 kV	P1-2:A1:23:_BRIDGEVILLE-GARBERVILLE 60KV [6220] MOAS OPENED on BRDGVLLE_FRUTLDJT	P1	N-1	41	<8%	<8%	<8%	<8%	14	<8%	<8%	27	<8%	<8%	Garberville Area Reinforcement
	P1-4:A1:6:_GRBRVLLE 60.00KV ID=8H & GRBRVLLE 60.00KV ID=7H & GRBRVLLE 60.00KV ID=5H & GRBRVLLE 60.00KV ID=V SHUNT DEVICES	P1	N-1	13	<8%	<8%	<8%	<8%	<8%	<8%	<8%	13	<8%	<8%	Garberville Area Reinforcement
ORICK 60 kV	P1-2:A1:7:_ARCATA-HUMBOLDT 60KV [7110]	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	10	<8%	<8%	<8%	Garberville Area Reinforcement

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Humboldt
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
In accordance with TPL-001-5- Requirement R2.6, this area relies on the past studies from the 2020-21 Transmission Planning Process.									
http://www.caiso.com/Documents/BoardApproved2020-2021TransmissionPlan.pdf									

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Humboldt**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Humboldt**
Single Source Substation with more than 100 MW Load

California ISO

Substation	Load Served (MW)														Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Coast & North Bay
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
CLEAR LAKE-KONOCTI 60KV	P2-4:A2:5:_MENDOCINO 115KV - SECTION 1D & 2D	P2	Bus-tie breaker	89	106	150	69	80	Diverge	70	56	65	70	83	Operation Solution
	P5-5A:A2:11:_ MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	87	103	116	68	79	Diverge	68	58	63	68	82	Install Redundant Relay
	P7-1:A2:23:_EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	83	91	98	63	66	108	66	49	65	66	75	Continue to monitor
CORONA-LAKEVILLE 115KV	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	111	53	Diverge	82	47	76	13	67	76	69	Install Redundant Relay
	P7-1:A2:15:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	102	111	53	79	81	47	76	12	67	76	69	Santa Rosa 115 kV lines Reconductoring project
	P6: FULTON-SANTA ROSA #1 115KV [1620] and FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	102	111	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
CORTINA-MENDOCINO #1 115KV	P2-3:A2:29:_EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2	Non-bus-tie breaker	60	77	Diverge	39	42	Diverge	25	10	58	35	46	Continue to monitor
	P2-3:A2:27:_EGLE RCK - MA 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2	Non-bus-tie breaker	54	69	96	32	38	Diverge	23	13	50	33	42	Continue to monitor
	P2-2:A2:22:_EGLE RCK 115KV SECTION MA	P2	Bus section fault	54	69	91	32	38	Diverge	23	13	50	32	42	Continue to monitor
	P2-3:A2:28:_EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2	Non-bus-tie breaker	54	69	91	32	38	Diverge	23	12	50	32	42	Continue to monitor
	P5-5A:A2:7:_EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	49	64	84	29	32	Diverge	17	8	46	27	38	Continue to monitor
	P6: EAGLE ROCK-REDBUD 115KV [1480] (2) and UKIAH-HOPLAND-CLOVERDALE 115KV [4050]	P6	N-1-1	< 100	< 100	104	< 100	< 100	130	< 100	< 100	< 100	< 100	< 100	Continue to monitor
EAGLE ROCK-REDBUD 115KV	P6: UKIAH-HOPLAND-CLOVERDALE 115KV [4050] and CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1 LUCERNE	P6	N-1-1	100	115	121	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Operation Solution or capacity increase
EGLE RCK 115/60KV TB 1	P2-4:A2:5:_MENDOCINO 115KV - SECTION 1D & 2D	P2	Bus-tie breaker	79	91	126	71	79	Diverge	62	41	54	62	66	Continue to monitor
	P2-3:A2:24:_CLOVRDLE - 1D 115KV & UKIAH-HOPLAND-CLOVERDALE LINE	P2	Non-bus-tie breaker	75	81	85	70	73	104	66	46	54	64	63	Continue to monitor
	P2-3:A2:25:_AIDLINSWSTA 115KV - MIDDLE BREAKER BAY 1	P2	Non-bus-tie breaker	75	80	85	69	72	107	65	47	57	64	62	Continue to monitor
	P2-3:A2:26:_AIDLINSWSTA 115KV - MIDDLE BREAKER BAY 2	P2	Non-bus-tie breaker	67	72	76	59	62	107	55	46	57	58	53	Continue to monitor
	P2-3:A2:67:_GEYSERS34 115KV - RING R2 & R3	P2	Non-bus-tie breaker	57	62	68	48	52	103	46	37	48	45	43	Continue to monitor
	P5-5A:A2:11:_ MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	77	89	105	70	79	Diverge	61	41	53	61	64	Continue to monitor
	P5-5A:A2:1:_CLOVERDALE 115 KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	71	77	81	65	68	104	61	44	53	60	59	Continue to monitor
	P7-1:A2:23:_EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	73	82	93	66	70	115	60	37	54	60	61	Continue to monitor
	P7-1:A2:4:_MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	69	77	88	61	65	107	56	35	50	56	56	Continue to monitor
	P3: TULUCAY 1-25 25.00KV GEN UNIT VS and GEYSERS #3-EAGLE ROCK 115KV [1660]	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	P6: UKIAH-HOPLAND-CLOVERDALE 115KV [4050] and CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1 LUCERNE	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Continue to monitor
EGLE RCK-HOMSTKTP-CORTINA 115KV	P2-1:A2:28:_EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2	Line section open w/o fault	31	25	15	42	37	10	56	101	33	49	45	Continue to monitor
	P1-2:A6:12:_SILVERDO-FULTON-EGLE RCK 115KV [0]	P1	N-1	31	25	15	42	37	10	56	101	33	49	45	Continue to monitor
	P2-3:A6:2:_SILVERDO - 1E 115KV & SILVERDO-FULTON-EGLE RCK LINE	P2	Non-bus-tie breaker	31	25	15	42	37	10	56	101	33	49	45	Continue to monitor
	P2-3:A2:32:_FULTON - 2D 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2	Non-bus-tie breaker	31	25	15	42	37	11	56	101	33	49	45	Continue to monitor
	P7-1:A2:13:_EAGLE ROCK-FULTON-SILVERADO & FULTON-PUEBLO LINES	P7	DCTL	32	26	14	43	38	11	57	102	33	50	46	Continue to monitor
	P7-1:A6:1:_SILVERADO-FULTON JCT & FULTON-PUEBLO LINES	P7	DCTL	32	26	14	43	38	11	57	102	33	50	46	Continue to monitor
	P7-1:A2:13:_EAGLE ROCK-FULTON-SILVERADO & FULTON-PUEBLO LINES	P7	DCTL	32	26	14	42	38	11	57	101	33	49	46	Continue to monitor
	P7-1:A6:1:_SILVERADO-FULTON JCT & FULTON-PUEBLO LINES	P7	DCTL	32	26	14	42	38	11	57	101	33	49	46	Continue to monitor
	P6: UKIAH-HOPLAND-CLOVERDALE 115KV [4050] and CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1 LUCERNE	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Continue to monitor
FULTON 230/115KV TB 9	P6: CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE and FULTON 230/115KV TB 4	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
FULTON-CALISTOGA 60KV	P3: GEYSER12 13.80KV GEN UNIT 1 and LAKEVILLE #1 60KV [7360]	P3	G-1/N-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
FULTON-HOPLAND 60KV	P2-1:A2:28:_EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2	Line section open w/o fault	100	49	39	65	26	40	99	51	105	100	56	Continue to monitor
	P1-2:A6:12:_SILVERDO-FULTON-EGLE RCK 115KV [0]	P1	N-1	100	49	39	65	26	40	100	51	105	100	56	Continue to monitor
	P2-3:A6:2:_SILVERDO - 1E 115KV & SILVERDO-FULTON-EGLE RCK LINE	P2	Non-bus-tie breaker	100	49	39	65	26	40	100	51	105	100	56	Continue to monitor
	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	128	126	Diverge	91	100	275	62	243	275	113	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	125	120	Diverge	90	97	275	61	244	275	109	Install Redundant Relay
	P5-5C(DC):A6:5:_STATION DC BATTERY SUPPLY SILVERADO 115KV BATT	P5	Non-Redundant Battery/Relay	100	49	39	65	26	40	100	51	105	100	56	Continue to monitor
	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	129	126	Diverge	91	100	227	62	203	230	113	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	126	121	Diverge	90	98	227	61	204	227	109	Install Redundant Relay
	P7-1:A2:5:_GEYSERS #17-FULTON & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	109	54	43	69	29	43	110	56	112	110	58	Clear Lake 60 kV System Reinforcement
	P7-1:A2:6:_GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	112	55	45	75	30	44	114	57	117	113	61	Clear Lake 60 kV System Reinforcement
	P7-1:A6:1:_SILVERADO-FULTON JCT & FULTON-PUEBLO LINES	P7	DCTL	93	46	35	63	24	37	95	49	101	95	54	Continue to monitor
FULTON-MOLINO-COTATI 60KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	219	224	Diverge	164	173	4	32	17	7	170	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	226	232	Diverge	168	178	4	34	17	5	174	Install Redundant Relay
	P3: Q1097 0.48KV GEN UNIT 1 and FULTON-MOLINO-COTATI 60KV [6910] MOAS OPENED ON	P3	G-1/N-1	< 100	< 100	111	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Continue to monitor
FULTON-SANTA ROSA #1 115KV	P6: FULTON-SANTA ROSA #2 115KV [1630] and CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	104	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	P6: FULTON-SANTA ROSA #1 115KV [1620] and CORONA-LAKEVILLE 115KV [4311]	P6	N-1-1	104	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
GEYSERS #3-CLOVERDALE 115KV	P2-4:A2:5:_MENDOCINO 115KV - SECTION 1D & 2D	P2	Bus-tie breaker	86	95	117	63	65	Diverge	67	56	66	66	77	Continue to monitor
	P7-1:A2:23:_EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	100	108	123	75	77	121	79	63	75	78	89	Operation Solution
	P7-1:A2:4:_MENDOCINO-REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	89	97	109	67	69	108	72	58	67	70	81	Continue to monitor
GEYSERS #3-EAGLE ROCK 115KV	P7-1:A2:23:_EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	9	18	30	8	6	107	16	6	12	7	8	Continue to monitor
HARTLEY-CLEARLAKE 60KV	P2-4:A2:5:_MENDOCINO 115KV - SECTION 1D & 2D	P2	Bus-tie breaker	68	86	126	50	63	Diverge	58	39	37	57	58	Continue to monitor
	P6: MENDOCINO 115/60KV TB 3 and MENDOCNO 115/60KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	Continue to monitor
HPLND JT 115/60KV TB 2	P2-3:A2:29:_EGLE RCK - MA 115KV & EGLE RCK-HOMSTKTP-CORTINA LINE	P2	Non-bus-tie breaker	95	100	Diverge	97	95	Diverge	100	62	67	89	101	Operation Solution
	P2-4:A2:5:_MENDOCINO 115KV - SECTION 1D & 2D	P2	Bus-tie breaker	95	111	120	94	114	Diverge	82	71	60	80	89	Continue to monitor
	P2-3:A2:27:_EGLE RCK - MA 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2	Non-bus-tie breaker	101	111	104	101	101	Diverge	104	64	67	94	106	Maintenance project Hopland bank on hold - continue to monitor for now
	P2-2:A2:22:_EGLE RCK 115KV SECTION MA	P2	Bus section fault	100	111	103	101	101	Diverge	104	63	67	93	106	Maintenance project Hopland bank on hold - continue to monitor for now
	P2-3:A2:28:_EGLE RCK - MA 115KV & EAGLE ROCK-REDBUD LINE	P2	Non-bus-tie breaker	101	111	103	101	101	Diverge	104	63	67	93	106	Maintenance project Hopland bank on hold - continue to monitor for now
	P2-1:A2:28:_EAGLE ROCK-FULTON-SILVERADO 115KV [4392] (EGLE RCK-ERFT4_23CRJ)	P2	Line section open w/o fault	90	98	98	79	82	127	78	79	74	77	94	Maintenance project Hopland bank on hold - continue to monitor for now
	P2-3:A2:32:_FULTON - 2D 115KV & EGLE RCK-FULTON-SILVERDO LINE	P2	Non-bus-tie breaker	90	98	98	79	81	127	78	79	73	76	93	Maintenance project Hopland bank on hold - continue to monitor for now
	P2-3:A6:2:_SILVERDO - 1E 115KV & SILVERDO-FULTON-EGLE RCK LINE	P2	Non-bus-tie breaker	90	98	98	79	82	127	78	79	74	77	93	Maintenance project Hopland bank on hold - continue to monitor for now
	P5-5A:A2:11:_ MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	103	121	120	98	118	Diverge	88	79	66	85	101	Install Redundant Relay
	P5-5A:A2:7:_EAGLE ROCK 115KV(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Batter	99	111	101	101	100	Diverge	103	63	66	92	105	Continue to monitor
	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Batter	Diverge	163	157	Diverge	165	177	156	90	141	156	156	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	158	141	Diverge	164	173	156	88	140	156	145	Install Redundant Relay
	P5-5C(DC):A2:8:_STATION DC BATTERY SUPPLY EGLE ROCK 115-60KV BATT	P5	Non-Redundant Battery/Relay	101	112	103	102	102	102	104	64	67	94	106	Install Redundant Battery
	P5-5C(DC):A6:5:_STATION DC BATTERY SUPPLY SILVERADO 115KV BATT	P5	Non-Redundant Battery/Relay	90	98	98	79	82	127	78	79	74	77	93	Continue to monitor
	Base Case	P0	BaseCase	75	82	84	65	71	105	62	56	55	60	74	Continue to monitor
	P7-1:A2:13:_EAGLE ROCK-FULTON-SILVERADO & FULTON-PUEBLO LINES	P7	DCTL	88	96	94	77	80	124	76	78	72	75	92	Continue to monitor
	P7-1:A2:5:_GEYSERS #17-FULTON & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	94	102	101	81	85	131	82	83	76	80	95	Hopland bank project on hold, operation solution
	P7-1:A2:6:_GEYSERS #9-LAKEVILLE & EAGLE ROCK-FULTON-SILVERADO LINES	P7	DCTL	95	103	103	84	87	132	83	84	79	81	98	Hopland bank project on hold, operation solution
	P7-1:A6:1:_SILVERADO-FULTON JCT & FULTON-PUEBLO LINES	P7	DCTL	88	96	94	77	80	124	76	78	72	75	92	Hopland bank project on hold, operation solution
	P3: GEYSR17 1-25 25.00KV GEN UNIT VG and EGLE RCK 60/115KV TB 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Continue to monitor
IGNACIO 230/115KV TB 4	P1-3:A6:5:_IGNACIO 230/115KV TB 6	P1	Breaker	66	73	85	58	64	113	50	17	40	50	44	Continue to monitor
	P3: IGNACIO 1-25 25.00KV GEN UNIT VB and IGNACIO 230/115KV TB 6	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	P6: IGNACIO-LAS GALLINAS 115KV [1860] and IGNACIO 230/115KV TB 6	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Continue to monitor
IGNACIO 230/115KV TB 6	P1-3:A6:4:_IGNACIO 230/115KV TB 4	P1	N-1	66	73	85	58	64	114	51	17	40	51	44	Continue to monitor
IGNACIO-ALTO 60KV	P7-1:A6:6:_IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	105	56	70	97	52	113	80	11	56	80	29	Continue to monitor
	P7-1:A6:6:_IGNACIO-ALTO-SAUSALITO #2 & IGNACIO-ALTO-SAUSALITO #1 LINES	P7	DCTL	54	63	87	50	55	126	42	9	22	42	26	Continue to monitor
IGNACO B 60/115KV TB 1	P1-3:A6:8:_IGNACIO 115/60KV TB 3	P1	N-1	49	56	68	50	56	103	39	11	26	39	30	Continue to monitor
KONOCTI-EAGLE ROCK 60KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Batter	Diverge	48	48	Diverge	32	43	75	25	64	74	38	Project:Konocti-Eagle Rock reconductoring project
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	46	47	Diverge	31	41	72	25	62	71	36	Project:Konocti-Eagle Rock reconductoring project
LAKEVILE 230/60KV TB 3	P2-4:A2:4:_LAKEVILE 230KV - SECTION 1D & 1E	P2	Bus-tie breaker	59	79	96	46	62	110	48	2	30	48	39	Continue to monitor
	P2-4:A2:3:_LAKEVILE 230KV - SECTION 2D & 1D	P2	Bus-tie breaker	59	77	93	46	61	106	48	2	30	48	37	Continue to monitor
	P2-2:A2:14:_LAKEVILE 230KV SECTION 1D	P2	Bus section fault	59	76	93	46	60	107	48	8	30	48	37	Continue to monitor
	P3: SONMA LF 9.11KV GEN UNIT 1 and LAKEVILE 230/60KV TB 5	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	P6: CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE and LAKEVILE 230/60KV TB 5	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Continue to monitor
LAKEVILLE #2 60KV	P3: SONMA LF 9.11KV GEN UNIT 1 and LAKEVILLE-PETALUMA C 60KV [7350]	P3	G-1/N-1	< 100	< 100	101	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	P5-5A:A2:11:_ MENDOCINO 115 KV BUS 1&2 (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	88	121	132	84	115	Diverge	66	55	49	64	90	Install Redundant Relay

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Coast & North Bay
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
MENDOCINO-PHILO JCT-HOPLAND 60KV	P7-1:A2:23:_EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	53	67	84	52	61	101	39	26	39	39	49	Continue to monitor
	P6: UKIAH-HOPLAND-CLOVERDALE 115KV [4050] and CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERN1 LUCERNE	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MENDOCINO-REDBUD 115KV	P6: UKIAH-HOPLAND-CLOVERDALE 115KV [4050] and CORTINA-MENDOCINO #1 115KV [1330] MOAS OPENED ON LUCERN1 LUCERNE	P6	N-1-1	< 100	107	105	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MENDOCINO-WILLITS-FORT BRAGG 60KV	P3: KONOCTI6 60.00KV GEN UNIT 1 and MENDOCINO-PHILO JCT-HOPLAND 60KV [7520] MOAS OPENED ON PHLO JCT HPLND JT	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	Continue to monitor
NRTH TWR-SOBRANTE 115KV	P2-2:A6:16:_NRTH TWR 115KV SECTION 1E	P2	Bus section fault	51	16	29	24	12	30	49	12	117	48	20	Continue to monitor
	P2-2:A6:17:_NRTH TWR 115KV SECTION 1F	P2	Bus section fault	51	16	29	24	12	30	49	12	117	48	20	Continue to monitor
	P2-2:A6:18:_NRTH TWR 115KV SECTION 1G	P2	Bus section fault	51	16	29	24	12	30	49	12	117	48	20	Continue to monitor
	P2-4:A6:5:_NRTH TWR 115KV - SECTION 1E & 1F	P2	Bus-tie breaker	51	16	29	24	12	30	49	12	117	48	20	Continue to monitor
	P2-4:A6:6:_NRTH TWR 115KV - SECTION 1F & 1G	P2	Bus-tie breaker	51	16	29	24	12	30	49	12	117	48	20	Continue to monitor
SANTA ROSA-CORONA 115KV	P5-5A:A2:9:_FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	115	48	Diverge	75	42	79	12	72	79	73	Santa Rosa 115 kV lines Reconductoring project
	P5-5A:A2:9:_FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	119	50	Diverge	78	44	81	12	73	81	75	Santa Rosa 115 kV lines Reconductoring project
	P7-1:A2:15:_FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	106	115	48	72	75	42	79	12	72	79	73	Santa Rosa 115 kV lines Reconductoring project
	P7-1:A2:15: FULTON-SANTA ROSA #1 & FULTON-SANTA ROSA #2 LINES	P7	DCTL	109	119	50	75	77	44	81	12	73	81	75	Santa Rosa 115 kV lines Reconductoring project
	P6: FULTON-SANTA ROSA #1 115KV [1620] and FULTON-SANTA ROSA #2 115KV [1630]	P6	N-1-1	106	115	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Santa Rosa 115 kV lines Reconductoring project
TULUCAY-NAPA #2 60KV	P1-2:A6:22:_TULUCAY-NAPA #1 60KV [8180] MOAS OPENED ON TULCAY1_TULCY JT	P1	N-1	100	53	54	48	32	51	76	16	76	76	38	Napa-Tulucay 60kv Line upgrade project
TULUCAY-VACA 230KV	P2-4:A2:2:_LAKEVILE 230KV - SECTION 2E & 1E	P2	Bus-tie breaker	95	98	119	42	37	113	53	29	89	52	81	Continue to monitor
	P5-5A:A2:13:_LAKEVILLE 230 KV BUS 1&2 SECTION E(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Batter	95	98	119	42	37	113	53	29	89	52	81	Continue to monitor
	P7-1:A2:11:_GEYSERS #12-FULTON & GEYSERS #9-LAKEVILLE LINES	P7	DCTL	83	87	102	53	49	96	66	39	77	66	71	Continue to monitor
	P6: VACA-LAKEVILLE #1 230KV [5840] and GEYSR18-LAKEVILE-GEYSR20-GEYSR13 230KV [0] MOAS OPENED ON G13TT1 8 SANTAFE	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	Continue to monitor
UKIAH-HOPLAND-CLOVERDALE 115KV	P2-4:A2:5:- MENDOCNO 115KV - SECTION 1D & 2D	P2	Bus-tie breaker	75	85	105	49	51	Diverge	59	52	58	58	70	Continue to monitor
	P7-1:A2:23:_EAGLE ROCK -REDBUD & CORTINA-MENDOCINO #1 LINES	P7	DCTL	90	99	111	59	62	96	71	58	67	70	82	Continue to monitor
VACA-LAKEVILLE #1 230KV	P6: TULUCAY-VACA 230KV [5800] and GEYSR18-LAKEVILE-GEYSR20-GEYSR13 230KV [0] MOAS OPENED ON G13TT1 8 SANTAFE	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Coast & North Bay
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
GYSRVLLE 60 KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.45	0.37	0.37	0.53	0.36	0.34	0.92	0.36	0.34	0.59	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.46	0.37	0.36	0.53	0.36	0.34	0.92	0.36	0.34	0.58	Install Redundant Relay
WINDSOR 60 KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.46	0.38	0.36	0.53	0.36	0.34	0.92	0.36	0.34	0.59	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.46	0.38	0.36	0.54	0.37	0.34	0.92	0.36	0.34	0.59	Install Redundant Relay
FULTON 60 KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.47	0.38	0.36	0.53	0.36	0.33	0.93	0.35	0.33	0.60	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.47	0.38	0.33	0.53	0.36	0.33	0.93	0.35	0.33	0.60	Install Redundant Relay
FTCH MTN 60 KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.46	0.39	0.33	0.53	0.37	0.35	0.92	0.37	0.35	0.59	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.47	0.38	0.35	0.54	0.37	0.35	0.92	0.37	0.35	0.59	Install Redundant Relay
COTATI 60 KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.63	0.55	0.33	0.66	0.53	0.32	0.96	0.36	0.32	0.75	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.63	0.54	0.35	0.66	0.52	0.32	0.96	0.35	0.32	0.74	Install Redundant Relay
PETLMA A 60 KV	P5-5A:A2:8:_ FULTON BUS 115 KV 1 & 2 SECTION D(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.77	0.72	0.75	0.78	0.70	1.01	0.97	1.01	1.01	0.85	Install Redundant Relay
	P5-5A:A2:9:_ FULTON BUS 115 KV 1 & 2 SECTION E/F(FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.77	0.71	0.74	0.78	0.69	1.01	0.97	1.01	1.01	0.84	Install Redundant Relay

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E North Coast & North Bay**
Voltage Deviation

California ISO

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)									Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
BIG RIVR 60 KV	P1-4:A2:4:_BIG RIVR SVD=V	P1	N-1	1.1	1.5	1.6	1.8	0.0	4.4	1.9	NA	8.5	NA	NA	4.6	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Coast & North Bay
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
In accordance with TPL-001-5- Requirement R2.6, this area relies on the past studies from the 2024-25 Transmission Planning Process for transient stability studies:									
https://stakeholdercenter.caiso.com/InitiativeDocuments/BoardApproved-AppendixC-2024-2025-TransmissionPlan.pdf									

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E North Coast & North Bay**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)													Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E North Coast & North Bay**
Single Source Substation with more than 100 MW Load

California ISO

Substation	Load Served (MW)														Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Valley
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)					Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
CASCADE-BENTON-DESCHUTES 60KV	COLUSAPPCTG1 18.00kV & COLUSAPPCTG2 18.00kV & COLUSAPPSTG1 18.00kV Gen Units and CASCADE-COTTONWOOD 115KV [1240]	P3	G-1-N-1	< 100	< 100	< 100	99.6	< 100	< 100	< 100	< 100	Generation Redispatch
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	113	NConv	28	114	NConv	28	38	Install Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	113	NConv	28	113	NConv	28	55	Install Redundant Relay
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	41	161	NConv	41	26	Install Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	41	160	NConv	41	19	Install Redundant Relay
	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	138	< 100	250	< 100	115	< 100	< 100	< 100	Existing operation solution to redispatch generation
CASCADE-COTTONWOOD 115KV	COTWD_E 230/60KV TB 3 and COTWD_E2 230/60KV TB 2	P6	N-1-1	< 100	< 100	174	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	126	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Existing operation solution to redispatch generation
CENTERVILLE-TABLE MTN-OROVILLE 60KV	HRIDGEGT 34.5KV Gen Unit 2 and CENTERVILLE-TABLE MTN 60KV [6320] MOAS OPENED ON CNTRVLLE_AMERESCOTAP	P3	G-1-N-1	< 100	< 100	< 100	99.53	< 100	99.51	99.53	< 100	Generation Redispatch
COLGATE-PALERMO 60KV	PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 and PALERMO-COLGATE 230KV [5360]	P6	N-1-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
COTTONWOOD-BENTON #1 60KV	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	112	NConv	21	55	NConv	21	118	Install Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	112	NConv	21	54	NConv	21	127	Install Redundant Relay
	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	< 100	< 100	153	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
COTWD_F2-PIT 1-BRNY_FST 230KV	P2-4:A3:4:_ROUND MT 230kV - Section 1E & 1D	P2	Bus-tie breaker	47	74	101	48	101	21	15	61	Continue to monitor
	P5-5(DC):A3:1:_Round Mtn 500-230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	78	NConv	NConv	58	NConv	Install Redundant Battery
	P5-5:A3:9:_ROUND MOUNTAIN 230KV BUS 1 & 2 SEC. E/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	74	74	101	78	101	62	58	61	Install Redundant Relay
CRAG VIEW-CASCADE 115KV	P5-5(DC):A3:1:_Round Mtn 500-230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	26	NConv	NConv	28	47	Install Redundant Battery
	P5-5(DC):A3:3:_Cottonwood 230kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	78	0	NConv	20	47	Install Redundant Battery
	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	78	0	NConv	19	41	Install Redundant Relay
HUMBOLDT-TRINITY 115KV	COLUSAPPCTG1 18.00kV & COLUSAPPCTG2 18.00kV & COLUSAPPSTG1 18.00kV Gen Units and BRIDGEVILLE-COTTONWOOD 115KV [1110]	P3	G-1-N-1	< 100	< 100	< 100	< 100	< 100	99.66	< 100	< 100	Senstivity Study
KESWICK-CASCADE 60KV	P2-4:A3:8:_COTWDPGE 115kV - Section 2D & 1D	P2	Bus-tie breaker	NConv	NConv	NConv	90	NConv	NConv	88	NConv	Cottonwood 115 kV Bus Sectionalizing Breaker Project
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	83	29	91	32	NConv	90	78	Install Redundant Relay
	HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP and BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Diverge	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	Redispatch Humboldt Gen
KESWICK-TRINITY 60KV	P2-4:A3:8:_COTWDPGE 115kV - Section 2D & 1D	P2	Bus-tie breaker	NConv	NConv	NConv	108	NConv	NConv	107	NConv	Cottonwood 115 kV Bus Sectionalizing Breaker Project
	P5-5(DC):A3:24:_COTTONWOOD 115KV BATT (FAILURE OF STATION DC BATTERY SUPPLY)	P5	Non-Redundant Battery/Relay	NConv	110	NConv	78	NConv	NConv	NConv	34	Install Redundant Battery
	P5-5:A3:11:_COTTONWOOD 115KV BUS 1/BUS 2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	114	42	110	39	NConv	109	92	Install Redundant Relay
	HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP and BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Diverge	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	Redispatch Humboldt Gen
PARADISE-TABLE MTN 115KV	P2-2:A3:44:_TBLE MTN 115kV Section 1D	P2	Bus section fault	76	89	102	9	10	22	35	53	Continue to monitor
	P2-3:A3:45:_TBLE MTN - 1D 115kV & TABLE MTN-BUTTE #1 line	P2	Non-bus-tie breaker	89	89	102	34	9	19	24	53	Continue to monitor
	TABLE MTN-BUTTE #1 115KV [3910] and TABLE MTN-BUTTE #2 115KV [3920]	P6	N-1-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
PEACHTON-PEASE 60KV	P2-3:A3:26:_TABLE MTN D - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	1	2	113	14	35	22	14	18	Continue to monitor
	P2-4:A3:23:_TABLE MTN D Section 1D & TABLE MTN E Section 1E 230kV	P2	Bus-tie breaker	2	2	NConv	15	35	23	15	18	Continue to monitor
	P2-4:A3:5:_TABLE MTN D 230kV - Section 1D & 2D	P2	Bus-tie breaker	3	2	113	18	35	9	5	18	Continue to monitor
SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV	P2-1:A3:70:_BUTTE-SYCAMORE CREEK 115kV [1190] (CHICOTP2-BUTTE)	P2	Open line section w/o fault	75	89	103	24	16	17	59	47	Continue to monitor
	P2-2:A3:40:_BUTTE 115kV Section MD	P2	Bus section fault	75	89	104	5	15	27	34	47	Continue to monitor
	P2-2:A3:44:_TBLE MTN 115kV Section 1D	P2	Bus section fault	75	88	101	23	9	11	24	53	Continue to monitor
	P2-3:A3:41:_BUTTE - MD 115kV & TABLE MTN-BUTTE #1 line	P2	Non-bus-tie breaker	90	114	132	33	16	25	30	65	Bus upgrade or capacity increase
	P2-3:A3:45:_TBLE MTN - 1D 115kV & TABLE MTN-BUTTE #1 line	P2	Non-bus-tie breaker	88	88	101	35	9	14	18	53	Continue to monitor
	P2-3:A3:47:_BUTTE - MD 115kV & TABLE MTN-BUTTE #1 line	P2	Non-bus-tie breaker	110	NConv	NConv	49	95	72	49	66	Review Table Mountain RAS scope and modelling
	P2-4:A3:10:_BUTTE 115kV - Section MD & ME	P2	Bus-tie breaker	76	92	108	24	15	35	24	48	Continue to monitor
TABLE MTN E 230/115KV TB 3	P2-2:A3:27:_TABLE MTN D 230kV Section 1D	P2	Bus section fault	99	118	137	18	57	24	33	71	Review Table Mountain RAS scope and modelling
	P2-3:A3:26:_TABLE MTN D - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	100	118	137	23	57	3	19	71	Review Table Mountain RAS scope and modelling
	P2-3:A3:27:_TABLE MTN D - 1D 230kV & _line	P2	Non-bus-tie breaker	129	NConv	NConv	129	132	129	129	77	Review Table Mountain RAS scope and modelling
TABLE MTN E-HYATT3-THERMLTO 230KV	P2-1:A3:29:_TABLE MTN E-THM JCT 230kV [1] No Fault	P2	Open line section w/o fault	96	96	97	97	113	119	127	96	Operation Solution
TABLE MTN-BUTTE #1 115KV	SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314] and TABLE MTN-BUTTE #2 115KV [3920]	P6	N-1-1	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	Continue to monitor
TABLE MTN-BUTTE #2 115KV	SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314] and TABLE MTN-BUTTE #1 115KV [3910]	P6	N-1-1	111	< 100	136	< 100	< 100	< 100	< 100	< 100	Review Table Mountain RAS scope and modelling
TABLE MTN-PEACHTON 60KV	P2-2:A3:27:_TABLE MTN D 230kV Section 1D	P2	Bus section fault	75	15	132	49	40	25	31	30	Continue to monitor
	P2-3:A3:26:_TABLE MTN D - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	17	15	132	24	40	33	24	30	Continue to monitor
	P2-4:A3:23:_TABLE MTN D Section 1D & TABLE MTN E Section 1E 230kV	P2	Bus-tie breaker	18	16	NConv	25	40	33	25	31	Continue to monitor
	P2-4:A3:5:_TABLE MTN D 230kV - Section 1D & 2D	P2	Bus-tie breaker	27	9	124	25	34	12	7	24	Continue to monitor
	TABLE MTN-PALERMO 230KV [5690] MOAS OPENED ON TABLE MTN D_PALERMO and TABLE MTN-RIO OSO 230KV [5700]	P6	N-1-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
TRINITY-MAPLE CREEK 60KV	HUMBOLDT-TRINITY 115KV [1820] MOAS OPENED ON TRINITY_JESSTAP and BRIDGEVILLE-COTTONWOOD 115KV [1110]	P6	N-1-1	Diverge	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	Redispatch Humboldt Gen
WESTWOOD-WESTWOODLMUD #1 60KV	CARIBOU 230/230kV TB 11 and COLLINSPINE2 13.80kV Gen Unit 1	P6	N-1-1	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	Review Caribou RAS scope expansion

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Valley
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)					Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
CARIBOU 115 KV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	NConv	0.41	0.41	0.41	0.41	0.41	0.41	0.41	Review Caribou RAS scope expansion and modelling
	P2-1:A3:21:_CARIBOU-TABLE MTN 230kV [4440] (CARIBOU-BELDENTP)	P2	Open line section w/o fault	NConv	0.51	0.52	0.52	0.52	0.51	0.51	0.53	Review Caribou RAS scope expansion and modelling
	P2-1:A3:23:_CARIBOU-TABLE MTN 230kV [4440] (BELDENTP-TABLE MTN D)	P2	Open line section w/o fault	NConv	0.52	0.60	0.53	0.53	0.52	0.52	0.52	Review Caribou RAS scope expansion and modelling
	P2-2:A3:20:_CARIBOU 230kV Section 1D	P2	Bus section fault	NConv	0.51	0.51	0.51	0.51	0.51	0.51	0.51	Review Caribou RAS scope expansion and modelling
	P2-2:A3:27:_TABLE MTN D 230kV Section 1D	P2	Bus section fault	NConv	0.52	0.52	0.52	0.52	0.52	0.52	0.52	Review Caribou RAS scope expansion and modelling
	P2-3:A3:21:_CARIBOU - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	NConv	0.51	0.51	0.51	0.52	0.51	0.51	0.53	Review Caribou RAS scope expansion and modelling
	P2-3:A3:26:_TABLE MTN D - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	NConv	0.51	0.51	0.51	0.51	0.51	0.51	0.53	Review Caribou RAS scope expansion and modelling
	P2-4:A3:23:_TABLE MTN D Section 1D & TABLE MTN E Section 1E 230kV	P2	Bus-tie breaker	NConv	0.52	NConv	NConv	0.55	0.51	0.51	0.53	Review Caribou RAS scope expansion and modelling
	P2-4:A3:5:_TABLE MTN D 230kV - Section 1D & 2D	P2	Bus-tie breaker	NConv	0.52	0.41	NConv	0.54	0.52	0.52	0.52	Review Caribou RAS scope expansion and modelling
	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	0.39	NConv	NConv	NConv	0.51	0.54	Install Redundant Battery
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.51	0.40	NConv	0.54	NConv	NConv	0.52	Install Redundant Relay
CARIBOU 230 KV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	NConv	0.40	0.40	0.40	0.54	0.53	0.53	0.53	Review Caribou RAS scope expansion and modelling
	P2-1:A3:21:_CARIBOU-TABLE MTN 230kV [4440] (CARIBOU-BELDENTP)	P2	Open line section w/o fault	NConv	0.51	0.51	0.51	0.51	0.51	0.51	0.53	Review Caribou RAS scope expansion and modelling
	P2-1:A3:23:_CARIBOU-TABLE MTN 230kV [4440] (BELDENTP-TABLE MTN D)	P2	Open line section w/o fault	NConv	0.52	0.60	0.51	0.51	0.52	0.52	0.54	Review Caribou RAS scope expansion and modelling
	P2-2:A3:27:_TABLE MTN D 230kV Section 1D	P2	Bus section fault	NConv	0.52	0.52	0.52	0.52	0.52	0.52	0.52	Review Caribou RAS scope expansion and modelling
	P2-3:A3:26:_TABLE MTN D - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	NConv	0.51	0.51	0.51	0.52	0.51	0.51	0.53	Review Caribou RAS scope expansion and modelling
	P2-4:A3:23:_TABLE MTN D Section 1D & TABLE MTN E Section 1E 230kV	P2	Bus-tie breaker	NConv	0.52	NConv	NConv	0.55	0.52	0.52	0.54	Review Caribou RAS scope expansion and modelling
	P2-4:A3:5:_TABLE MTN D 230kV - Section 1D & 2D	P2	Bus-tie breaker	NConv	0.52	0.41	NConv	0.55	0.51	0.51	0.54	Review Caribou RAS scope expansion and modelling
	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	0.39	NConv	NConv	0.52	0.52	0.54	Install Redundant Battery
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.51	0.40	NConv	0.54	NConv	NConv	0.52	Install Redundant Relay
CARIBOU 60 KV	P1-2:A3:24:_CARIBOU-TABLE MTN 230KV [4440]	P1	N-1	NConv	0.52	0.39	0.27	0.53	0.40	0.39	0.46	Review Caribou RAS scope expansion and modelling
	P1-3:A3:4:_CARIBOU 230/230KV TB 11	P1	N-1	NConv	0.51	0.52	0.51	1.03	0.28	0.28	0.28	Review Caribou RAS scope expansion and modelling
	P2-1:A3:21:_CARIBOU-TABLE MTN 230kV [4440] (CARIBOU-BELDENTP)	P2	Open line section w/o fault	NConv	0.52	0.52	0.52	0.52	0.52	0.52	0.54	Review Caribou RAS scope expansion and modelling
	P2-1:A3:23:_CARIBOU-TABLE MTN 230kV [4440] (BELDENTP-TABLE MTN D)	P2	Open line section w/o fault	NConv	0.53	0.51	0.51	0.53	0.53	0.53	0.53	Review Caribou RAS scope expansion and modelling
	P2-2:A3:20:_CARIBOU 230kV Section 1D	P2	Bus section fault	NConv	0.52	0.52	0.52	0.52	0.52	0.52	0.51	Review Caribou RAS scope expansion and modelling
	P2-2:A3:27:_TABLE MTN D 230kV Section 1D	P2	Bus section fault	NConv	0.53	0.53	0.53	0.51	0.53	0.53	0.54	Review Caribou RAS scope expansion and modelling
	P2-3:A3:21:_CARIBOU - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	NConv	0.52	0.52	0.52	0.51	0.52	0.52	0.54	Review Caribou RAS scope expansion and modelling
	P2-3:A3:26:_TABLE MTN D - 1D 230kV & CARIBOU-TABLE MTN line	P2	Non-bus-tie breaker	NConv	0.52	0.52	0.52	0.52	0.52	0.52	0.54	Review Caribou RAS scope expansion and modelling
	P2-4:A3:23:_TABLE MTN D Section 1D & TABLE MTN E Section 1E 230kV	P2	Bus-tie breaker	NConv	0.53	NConv	NConv	0.54	0.51	0.51	0.54	Review Caribou RAS scope expansion and modelling
	P2-4:A3:5:_TABLE MTN D 230kV - Section 1D & 2D	P2	Bus-tie breaker	NConv	0.53	0.40	NConv	0.53	0.51	0.51	0.51	Review Caribou RAS scope expansion and modelling
	P5-5(DC):A3:2:_Table Mtn 500-230-115-60kV Batt (Failure of Station DC Battery Supply)	P5	Non-Redundant Battery/Relay	NConv	NConv	0.38	NConv	NConv	NConv	0.51	0.54	Install Redundant Battery
	P5-5:A3:12:_CARIBOU PH #2 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.52	0.40	NConv	0.53	NConv	NConv	0.54	Install Redundant Relay
	P5-5:A3:2:_CARIBOU 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.52	0.40	NConv	0.53	NConv	NConv	0.54	Install Redundant Relay
	P5-5:A3:7:_TABLE MTN 230KV BUS SECTION D/E (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	0.52	0.39	NConv	0.53	NConv	NConv	0.54	Install Redundant Relay
CASCADE 115 kV	OLSENHYDRO 4.16kV Gen Unit 1 and CASCADE-COTTONWOOD 115KV [1240]	P3	G-1-N-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	CASCADE-COTTONWOOD 115KV [1240] and CSCDE T SVD=V	P6	N-1-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
COLEMAN 60 kV	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	> 0.9	> 0.9	0.60	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
COTTONWD 60 kV	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	> 0.9	> 0.9	0.62	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
COTWD_E 230 KV	P5-5:A3:10:_COTTONWOOD 230KV BUS SECTION E/G/WAPA/F (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	NConv	0.90	NConv	NConv	0.54	Install Redundant Relay
DESCHUTS 60 kV	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	> 0.9	> 0.9	0.76	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
OREGNTRL 60 kV	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
PALERMO 230 kV	TABLE MTN-PALERMO 230kV [5690] MOAS OPENED on TABLE MTN D_PALERMO and PALERMO-COLGATE 230kV [5360]	P6	N-1-1	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
RED BLFF 60 kV	SOUTH G 4.16kV Gen Unit 1 and COTTONWOOD-RED BLUFF 60KV [6660] MOAS OPENED ON RED B JT_RED BLFF	P3	G-1-N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
	COTWD_E2 230/60KV TB 2 and COTWD_E 230/60KV TB 3	P6	N-1-1	0.87	> 0.9	0.55	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Install Reactive Device
SYCAMORE 115 kV	TABLE MTN-BUTTE #1 115KV [3910] and SYCAMORE CREEK-NOTRE DAME-TABLE MTN 115KV [4314]	P6	N-1-1	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TRINITY 115 kV	HUMBOLDT-TRINITY 115kV [1820] MOAS OPENED on TRINITY_JESSTAP and BRIDGEVILLE-COTTONWOOD 115kV [1110]	P6	N-1-1	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TRINITY 60 kV	HUMBOLDT-TRINITY 115kV [1820] MOAS OPENED on TRINITY_JESSTAP and BRIDGEVILLE-COTTONWOOD 115kV [1110]	P6	N-1-1	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Generation Redispatch

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Valley
Voltage Deviation

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)					Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
WESTWOOD 60 KV	P1-2:A3:90:_WESTWOOD-WESTWOODLMUD #1 60KV [0]	P1	N-1	13	16	20	13	14	13	13	15	Review Caribou RAS scope and modelling

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E North Valley**
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
In accordance with TPL-001-5- Requirement R2.6, this area relies on the past studies from the 2024-25 Transmission Planning Process for transient stability studies:									
https://stakeholdercenter.caiso.com/InitiativeDocuments/BoardApproved-AppendixC-2024-2025-TransmissionPlan.pdf									

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Valley
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)													Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E North Valley
Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)														Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Central Coast & Los Padres**
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 Spring Off-Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
SALINAS - SPENCE 60KV	P1-2:A19:37:_SALINAS1-FIRESTNE 60KV [0]	P1	N-1	117	120	NA	NA	85	60	60	NA	106	86	109	Project: Salinas Area Reinforcement
SALINAS1-SALINAS2 60KV	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
ATASCADERO-CAYUCOS 70KV	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	24	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	22	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	24	NConv	NConv	130	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	22	NConv	NConv	130	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
ATASCADERO-SAN LUIS OBISPO 70KV	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	41	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	42	NConv	NConv	126	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
CABRILLO-SANTA YNEZ SW STA 115KV	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	153	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	153	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
CALLENDER SW STA-MESA 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	97	81	81	87	107	90	46	148	154	145	110	review existing RAS
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	87	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	86	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	MORROBAY 230/115KV TB 6&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	93	96	123	<100	<100	<100	<100	110	<100	<100	<100	review existing RAS
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	92	74	75	87	98	83	44	139	146	135	104	review existing RAS
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	83	69	108	89	98	79	40	138	140	131	99	review existing RAS
CHUALAR-FIRESTNE-SPENCE 115KV	P1-2:A19:38:_SALINAS-SPENCE 60KV [7910]	P1	N-1	138	137	NA	NA	98	66	63	NA	131	98	132	Project: Salinas Area Reinforcement
	P1-2:A19:38:_SALINAS-SPENCE 60KV [7910]	P1	N-1	147	146	NA	NA	104	71	67	NA	140	104	140	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	147	146	<100	<100	104	<100	<100	<100	140	104	140	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&CABALLEROBES 0.66KV GEN UNIT 1	P3	G-1/ N-1	147	146	<100	<100	104	<100	<100	<100	140	104	140	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS	P3	G-1/ N-1	146	<100	<100	<100	104	<100	<100	<100	140	104	<100	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	146	<100	<100	<100	103	<100	<100	<100	140	104	<100	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	<100	146	<100	<100	<100	<100	<100	<100	<100	<100	141	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&GRANITEROCK 4.16KV GEN UNIT RE	P3	G-1/ N-1	138	137	<100	<100	98	<100	<100	<100	131	98	132	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	138	137	<100	<100	98	<100	<100	<100	131	98	132	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&CABALLEROBES 0.66KV GEN UNIT 1	P3	G-1/ N-1	138	137	<100	<100	98	<100	<100	<100	131	98	132	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	138	<100	<100	<100	97	<100	<100	<100	131	98	<100	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	<100	137	<100	<100	<100	<100	<100	<100	<100	<100	132	Project: Salinas Area Reinforcement
COALINGA #1-SAN MIGUEL 70KV	TEMPLETON-GATES 230KV [5934]&MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	107	<100	<100	<100	74	<100	<100	<100	63	77	<100	Project: Estrella Substation Project
	P7-1:A20:12:_MORRO BAY-CALFLATS SS AND TEMPLETON-GATES 230 KV LINES	P7	DCTL	102	23	29	41	51	27	3	14	55	59	5	Project: Estrella Substation Project
COBURN - OIL FIELDS #2 60KV	COBURN-OIL FIELDS #1 60KV [6410]&SALINASRIVER 13.80KV GEN UNIT 1	P3	G-1/ N-1	<100	<100	<100	<100	102	<100	<100	<100	<100	102	<100	Project: Morgan Hill-Watsonville Area Reinforcement
	COBURN-OIL FIELDS #1 60KV [6410]&SALINASRIVER 13.80KV GEN UNIT 1	P3	G-1/ N-1	<100	<100	<100	<100	102	<100	<100	<100	<100	102	<100	Project: Morgan Hill-Watsonville Area Reinforcement
COBURN 230/60KV TB 2	COBURN 230/60KV TB 1&MOSS LANDING-GREEN VALLEY #2 115KV [2860]	P6	N-1-1	<100	<100	100	<100	<100	<100	<100	96	<100	<100	<100	Continue to Monitor
CRAZY HORSE CANYON-SALINAS-SOLEDAD #1 115KV	MOSS LANDING-SALINAS #2 115KV [2890]&SALINAS-MOSSLNSW-DOLAN RD 115KV [0]	P6	N-1-1	158	<100	<100	<100	104	<100	<100	<100	109	102	<100	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	P7-1:A19:4:_MOSS LANDING - SALINAS #1 AND #2 115 KV LINES	P7	DCTL	171	48	61	14	100	91	34	52	111	111	34	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	P7-1:A19:4:_MOSS LANDING - SALINAS #1 AND #2 115 KV LINES	P7	DCTL	158	43	54	16	104	86	32	48	109	105	32	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	P7-1:A19:6:_MOSS LANDING - CRAZY HORSE #1 AND #2 115 KV LINES	P7	DCTL	113	25	33	11	69	54	16	25	73	80	16	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	MOSS LANDING-SALINAS #2 115KV [2890]&SALINAS-MOSSLNSW-DOLAN RD 115KV [0]	P6	N-1-1	158	<100	<100	<100	104	<100	<100	<100	109	102	<100	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	P7-1:A19:4:_MOSS LANDING - SALINAS #1 AND #2 115 KV LINES	P7	DCTL	171	48	61	14	100	91	34	52	111	111	34	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	P7-1:A19:4:_MOSS LANDING - SALINAS #1 AND #2 115 KV LINES	P7	DCTL	158	43	54	16	104	86	32	48	109	105	32	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
	P7-1:A19:6:_MOSS LANDING - CRAZY HORSE #1 AND #2 115 KV LINES	P7	DCTL	113	25	33	11	69	54	16	25	73	80	16	Project: Crazy Horse Canyon – Salinas – Soledad #1 and #2 115 kV Line Reconductoring
DEL MONTE-FORT ORD #1 60KV	P1-2:A19:40:_DEL MONTE-FORT ORD #2 60KV [8422]	P1	N-1	90	96	121	40	70	72	75	115	69	70	70	Continue to Monitor
	DEL MONTE-FORT ORD #2 60KV [8422]&GREENVAL1-25 25.00KV GEN UNIT VB	P3	G-1/ N-1	<100	<100	121	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	DEL MONTE-FORT ORD #2 60KV [8422]&MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS	P3	G-1/ N-1	<100	<100	121	<100	<100	<100	<100	116	<100	<100	<100	Continue to Monitor
	P1-2:A19:39:_DEL MONTE-FORT ORD #1 60KV [8400]	P1	N-1	90	96	121	40	70	72	75	115	69	70	70	Continue to Monitor
	DEL MONTE-FORT ORD #1 60KV [8400]&GREENVAL1-25 25.00KV GEN UNIT VB	P3	G-1/ N-1	<100	<100	121	<100	<100	<100	<100	116	<100	<100	<100	Continue to Monitor
	DEL MONTE-FORT ORD #1 60KV [8400]&HOLLISTE1-25 25.00KV GEN UNIT V8	P3	G-1/ N-1	<100	<100	121	<100	<100	<100	<100	116	<100	<100	<100	Continue to Monitor
DIVIDE-CABRILLO #1 115KV	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	159	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	159	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	155	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	155	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
GREEN VALLEY-CAMP EVERS 115KV	P1-2:A19:10:_GREEN VALLEY-PAUL SWEET 115KV [1730] MOAS OPENED ON GREENVALLEY_ROB ROY	P1	N-1	75	92	111	16	61	68	70	116	35	68	45	Continue to Monitor
	P1-2:A19:14:_GREEN VALLEY-PAUL SWEET 115KV [1730] MOAS OPENED ON PAUL SWT_ROB ROY	P1	N-1	67	83	98	16	55	60	62	101	33	62	43	Continue to Monitor
	P2-1:A19:3:_GREEN VALLEY-PAUL SWEET 115KV [1730] (GREENVALLEY-ROB ROY)	P2-1	Line Section w/o Fault	75	92	111	16	61	68	70	116	35	68	45	Continue to Monitor
	P2-1:A19:4:_GREEN VALLEY-PAUL SWEET 115KV [1730] (PAUL SWT-ROB ROY)	P2-1	Line Section w/o Fault	67	83	98	16	55	60	62	101	33	62	43	Continue to Monitor
	P2-3:A19:8:_GREENVALLEY 115KV - MIDDLE BREAKER BAY 3	P2-3	Non-Bus-Tie-Breaker Fault	74	91	111	16	60	67	70	116	35	67	45	Continue to Monitor
	GREEN VALLEY-PAUL SWEET 115KV [1730] MOAS OPENED ON GREENVALLEY_ROB ROY&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	<100	98	119	<100	<100	<100	<100	122	<100	<100	<100	Continue to Monitor
	P5-5C:A19:6:_ROB ROY 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	67	83	97	16	55	60	62	101	34	62	44	Continue to Monitor
GREEN VALLEY-PAUL SWEET 115KV	P1-2:A19:9:_GREEN VALLEY-CAMP EVERS 115KV [1710]	P1	N-1	67	84	98	15	56	61	62	102	33	63	44	Continue to Monitor
	P2-3:A19:7:_GREENVALLEY 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie-Breaker Fault	79	95	113	17	65	71	71	117	38	72	48	Continue to Monitor
	P2-3:A19:7:_GREENVALLEY 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie-Breaker Fault	72	87	101	16	59	64	64	104	36	66	46	Continue to Monitor
	GREEN VALLEY-CAMP EVERS 115KV [1710]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	<100	99	116	<100	<100	<100	<100	120	<100	<100	<100	Continue to Monitor
	GREEN VALLEY-CAMP EVERS 115KV [1710]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	<100	91	104	<100	<100	<100	<100	107	<100	<100	<100	Continue to Monitor
	P1-2:A19:9:_GREEN VALLEY-CAMP EVERS 115KV [1710]	P1	N-1	74	92	109	16	62	68	69	115	36	69	46	Continue to Monitor
GREEN VALLEY-WATSONVILLE 60KV	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	148	47	169	138	140	123	168	169	168	Redundant relay installation recommended previously
	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	145	46	173	136	138	120	169	173	170	Redundant relay installation recommended previously
	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	145	46	173	136	138	120	169	173	170	Redundant relay installation recommended previously
	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	144	46	173	136	138	120	168	173	169	Redundant relay installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	66	75	37	NConv	NConv	50	75	NConv	NConv	57	Project: Morgan Hill-Watsonville Area Reinforcement
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	70	79	37	NConv	NConv	52	78	NConv	NConv	60	Project: Morgan Hill-Watsonville Area Reinforcement
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	70	79	37	NConv	NConv	52	78	NConv	NConv	60	Project: Morgan Hill-Watsonville Area Reinforcement
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	70	79	37	NConv	NConv	52	78	NConv	NConv	60	Project: Morgan Hill-Watsonville Area Reinforcement
GREENVALLEY 115/60KV TB 1	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	193	65	226	237	241	209	229	227	227	Redundant relay installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	85	81	51	NConv	NConv	88	119	NConv	NConv	78	Project: Morgan Hill-Watsonville Area Reinforcement
GREENVALLEY-MRGN HIL #1 115KV	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	NConv	NConv	NConv	NA	NA	NConv	NConv	NA	NA	NConv	Redundant battery supply installation recommended previously
MESA_PGE-SNTA MRA 115KV	MORROBAY 230/115KV TB 6&OCEANO-CALLENDER SW STA 115KV [2394]	P6	N-1-1	<100	90	113	<100	<100	<100	<100	126	<100	<100	<100	Continue to Monitor
MESA-DIVIDE #1 115KV	MESA_PGE-SNTA MRA 115KV [0]&MESA-SISQUOC 115KV [2460]	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
MESA-DIVIDE #2 115KV	MESA_PGE-SNTA MRA 115KV [0]&MESA-SISQUOC 115KV [2460]	P6	N-1-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
MONTA VISTA-BURNS 60KV	P1-2:A19:29:_BURNS-LONE STAR #1 60KV [6230]	P1	N-1	48	58	74	22	31	44	50	107	36	31	43	Continue to Monitor
	P2-1:A19:31:_BURNS-LONE STAR #1 60KV [6230] (BURNS-BURNS J1)	P2-1	Line Section w/o Fault	NA	NA	74	22	NA	NA	NA	107	NA	NA	NA	Continue to Monitor
	P2-1:A19:33:_BURNS-LONE STAR #1 60KV [6230] (BURNS J1-L.STAR J)	P2-1	Line Section w/o Fault	NA	NA	74	22	NA	NA	NA	107	NA	NA	NA	Continue to Monitor
MORRO BAY-SAN LUIS OBISPO #1 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	62	52	53	21	56	64	43	113	72	70	54	Continue to Monitor
	DIABLO-MESA 230KV [4620]&MORRO BAY-MESA 230KV [5290]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	101	<100	<100	<100	Continue to Monitor
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	65	57	56	18	63	70	51	119	78	76	60	Continue to Monitor
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	63	55	74	52	62	69	50	121	76	75	59	Continue to Monitor
MORRO BAY-SAN LUIS OBISPO #2 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	66	57	59	20	60	69	48	121	74	74	56	Continue to Monitor
	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	31	31	NConv	24	25	NConv	57	NConv	47	NConv	49	review existing RAS
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	32	31	NConv	26	26	NConv	57	NConv	49	NConv	21	Redundant battery supply installation recommended previously
	MORRO BAY-MESA 230KV [5290]&DIABLO-MESA 230KV [4620]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	110	<100	<100	<100	Continue to Monitor
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	69	62	62	17	67	75	56	127	80	80	62	Continue to Monitor
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	67	60	80	53	66	74	55	130	78	79	60	Continue to Monitor
MORROBAY 230/115KV TB 6	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	105	91	94	29	96	86	62	151	114	115	89	review existing RAS
	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	53	53	NConv	39	42	NConv	74	NConv	75	NConv	35	review existing RAS
	P5-5A:A20:1:_MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	97	102	NConv	45	89	96	74	70	83	43	83	Redundant relay installation recommended previously
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	53	53	NConv	42	43	NConv	74	NConv	38	NConv	36	Redundant battery supply installation recommended previously
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	111	100	101	25	108	95	73	160	126	128	99	review existing RAS
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	108	98	129	84	107	93	72	165	123	126	97	review existing RAS
MOSS LANDING-DEL MONTE #1 115KV	P1-2:A19:23:_MOSS LANDING-DEL MONTE #2 115KV [2840]	P1	N-1	67	74	100	25	53	57	60	97	46	53	45	Continue to Monitor
	P2-1:A19:22:_MOSS LANDING-DEL MONTE #2 115KV [2840] (CSTRVLJ2-DEL MNTE)	P2-1	Line Section w/o Fault	67	74	100	25	53	57	60	97	46	53	45	Continue to Monitor
	P2-3:A19:24:_MOSSLNSW 115KV - MIDDLE BREAKER BAY 2	P2-3	Non-Bus-Tie-Breaker Fault	67	74	100	25	53	57	60	97	46	53	45	Continue to Monitor
	MOSS LANDING-DEL MONTE #2 115KV [2840]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
MOSS LANDING-DEL MONTE #2 115KV	P1-2:A19:24:_MOSS LANDING-DEL MONTE #1 115KV [2830]	P1	N-1	67	74	100	25	53	57	60	97	46	53	45	Continue to Monitor
	P2-1:A19:19:_MOSS LANDING-DEL MONTE #1 115KV [2830] (MOSSLNSW-CSTRVLJ1)	P2-1	Line Section w/o Fault	77	84	113	29	60	63	65	107	54	60	53	Continue to Monitor
	P2-1:A19:24:_MOSS LANDING-DEL MONTE #1 115KV [2830] (CSTRVLJ1-DEL MNTE)	P2-1	Line Section w/o Fault	67	74	100	25	53	57	60	96	46	53	45	Continue to Monitor
	P2-3:A19:26:_MOSSLNSW 115KV - MIDDLE BREAKER BAY 1	P2-3	Non-Bus-Tie-Breaker Fault	68	74	100	25	53	57	60	97	47	53	46	Continue to Monitor
	MOSS LANDING-DEL MONTE #1 115KV [2830]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	<100	<100	101	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	P5-5C:A19:12:_CASTROVILLE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	67	74	100	25	53	57	60	97	46	53	45	Redundant battery supply installation recommended previously
	P1-2:A19:12:_MOSS LANDING-GREEN VALLEY #2 115KV [2860]	P1	N-1	73	91	100	41	54	73	92	130	43	58	67	Continue to Monitor
	P2-3:A19:22:_MOSSLNSW 115KV - MIDDLE BREAKER BAY 6	P2-3	Non-Bus-Tie-Breaker Fault	73	89	98	39	54	73	90	127	43	58	66	Continue to Monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Central Coast & Los Padres
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios) 2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 Spring Off-Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	Loading % (Sensitivity Scenarios) 2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	Project & Potential Mitigation Solutions
MOSS LANDING-GREEN VALLEY #1 115KV	P2-3:A19:9:_GREENVALLEY 115KV - MIDDLE BREAKER BAY 4	P2-3	Non-Bus-Tie-Breaker Fault	64	86	96	40	47	66	88	124	37	51	64	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #2 115KV [2860]&HOLLISTER_D1 21.00KV GEN UNIT 1	P3	G-1/ N-1	<100	89	89	<100	<100	<100	<100	108	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #2 115KV [2860]&COBURN 1-25 25.00KV GEN UNIT VW	P3	G-1/ N-1	<100	<100	89	<100	<100	<100	<100	108	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #2 115KV [2860]&DALLASESC1 34.5/500KV TB 1	P6	N-1-1	<100	89	89	<100	<100	<100	<100	108	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #2 115KV [2860]&GREENVALLEY-MRGN HIL #1 115KV [0]	P6	N-1-1	<100	<100	95	<100	<100	<100	<100	122	<100	<100	<100	Continue to Monitor
MOSS LANDING-GREEN VALLEY #2 115KV	P1-2:A19:11:_MOSS LANDING-GREEN VALLEY #1 115KV [2850]	P1	N-1	81	102	112	46	60	75	95	133	49	65	75	Generation redispatch in mid-term, continue to mointor for long-term
	P2-3:A19:21:_MOSSLNSW 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie-Breaker Fault	82	102	113	46	61	75	95	133	49	65	76	Generation redispatch in mid-term, continue to mointor for long-term
	P2-3:A19:7:_GREENVALLEY 115KV - MIDDLE BREAKER BAY 5	P2-3	Non-Bus-Tie-Breaker Fault	82	102	113	46	60	75	95	134	49	65	75	Generation redispatch in mid-term, continue to mointor for long-term
	MOSS LANDING-GREEN VALLEY #1 115KV [2850]&HOLLISTER_D1 21.00KV GEN UNIT 1	P3	G-1/ N-1	<100	99	100	<100	<100	<100	<100	111	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #1 115KV [2850]&COBURN 1-25 25.00KV GEN UNIT VW	P3	G-1/ N-1	<100	<100	100	<100	<100	<100	<100	111	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #1 115KV [2850]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	<100	99	99	<100	<100	<100	97	113	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #1 115KV [2850]&ELKHORNES-MOSSLNSW #1 115KV [0]	P6	N-1-1	<100	100	100	<100	<100	<100	<100	110	<100	<100	<100	Continue to Monitor
	MOSS LANDING-GREEN VALLEY #1 115KV [2850]&GREENVALLEY-MRGN HIL #1 115KV [0]	P6	N-1-1	<100	93	107	<100	<100	<100	<100	125	<100	<100	<100	Continue to Monitor
MOSSLNSW 230/115KV TB 4	MOSSLNSW 230/115KV TB 2&MOSSLNSW 230/115KV TB 1	P6	N-1-1	91	<100	106	<100	<100	<100	<100	102	<100	<100	<100	Continue to Monitor
OCEANO-CALLENDER SW STA 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	96	81	81	82	109	92	45	149	156	147	112	review existing RAS
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	31	82	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	82	NConv	NConv	5	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	MORROBAY 230/115KV TB 6&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	95	98	125	<100	<100	<100	<100	112	<100	<100	<100	review existing RAS
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	91	73	75	82	101	84	43	140	148	137	107	review existing RAS
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	82	68	108	92	101	81	39	140	143	133	102	review existing RAS
SALINAS - FIRESTONE # 1 60KV	P1-2:A19:38:_SALINAS-SPENCE 60KV [7910]	P1	N-1	103	103	NA	NA	76	50	49	NA	93	76	94	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	103	104	<100	<100	<100	<100	<100	<100	93	<100	94	Project: Salinas Area Reinforcement
SALINAS - SPENCE 60KV	SALINAS1-FIRESTNE 60KV [0]&KCTYPKER 13.80KV GEN UNIT 1	P3	G-1/ N-1	117	120	<100	<100	<100	<100	<100	<100	106	<100	109	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	117	120	<100	<100	<100	<100	<100	<100	106	<100	109	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS	P3	G-1/ N-1	117	<100	<100	<100	<100	<100	<100	<100	107	<100	<100	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	<100	120	<100	<100	<100	<100	<100	<100	<100	<100	109	Project: Salinas Area Reinforcement
SALINAS-FIRESTONE #1 115KV	P1-2:A19:38:_SALINAS-SPENCE 60KV [7910]	P1	N-1	152	150	NA	NA	109	73	70	NA	144	109	145	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	152	151	<100	<100	109	<100	<100	<100	144	109	145	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS	P3	G-1/ N-1	151	<100	<100	<100	109	<100	<100	<100	145	109	<100	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	151	<100	<100	<100	108	<100	<100	<100	144	109	<100	Project: Salinas Area Reinforcement
	SALINAS-SPENCE 60KV [7910]&MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	<100	151	<100	<100	<100	<100	<100	<100	<100	<100	145	Project: Salinas Area Reinforcement
SALINAS-SPENCE 115KV	P1-2:A19:37:_SALINAS1-FIRESTNE 60KV [0]	P1	N-1	155	154	NA	NA	110	74	70	NA	148	110	149	Project: Salinas Area Reinforcement
	P1-2:A19:37:_SALINAS1-FIRESTNE 60KV [0]	P1	N-1	155	154	NA	NA	110	74	70	NA	148	111	149	Project: Salinas Area Reinforcement
	P1-2:A19:45:_SALINAS-SPENCE 60KV [7910] (2)	P1	N-1	149	149	NA	NA	105	71	66	NA	142	105	143	Project: Salinas Area Reinforcement
	P1-2:A19:45:_SALINAS-SPENCE 60KV [7910] (2)	P1	N-1	149	149	NA	NA	105	71	67	NA	142	106	143	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&KCTYPKER 13.80KV GEN UNIT 1	P3	G-1/ N-1	156	155	<100	<100	110	<100	<100	<100	148	110	149	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	155	155	<100	<100	110	<100	<100	<100	148	111	149	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&CABALLEROBES 0.66KV GEN UNIT 1	P3	G-1/ N-1	155	155	<100	<100	110	<100	<100	<100	148	111	149	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS	P3	G-1/ N-1	155	<100	<100	<100	110	<100	<100	<100	148	110	<100	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	155	<100	<100	<100	110	<100	<100	<100	148	111	<100	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	<100	155	<100	<100	<100	<100	<100	<100	<100	<100	149	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&KNGCTYCGNSTG 13.80KV & KNGCTYCGNCTG 13.80KV GEN UNITS	P3	G-1/ N-1	156	155	<100	<100	110	<100	<100	<100	148	110	149	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&CAMPEVERS_D1 21.60KV GEN UNIT RE	P3	G-1/ N-1	155	155	<100	<100	110	<100	<100	<100	148	111	149	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB2CTG3 18.00KV & MLPB2CTG4 18.00KV & MLPB2STG2 18.00KV GEN UNITS	P3	G-1/ N-1	155	<100	<100	<100	110	<100	<100	<100	148	110	<100	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB1CTG1 18.00KV & MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	155	<100	<100	<100	110	<100	<100	<100	148	111	<100	Project: Salinas Area Reinforcement
	SALINAS1-FIRESTNE 60KV [0]&MLPB1CTG2 18.00KV & MLPB1STG1 18.00KV GEN UNITS	P3	G-1/ N-1	<100	155	<100	<100	<100	<100	<100	<100	<100	<100	149	Project: Salinas Area Reinforcement
SAN LUIS OBISPO-OCEANO 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	101	91	86	51	110	102	71	169	133	138	99	review existing RAS
	P5-5A:A20:1:_MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	79	87	NConv	29	81	98	68	65	70	38	73	Redundant relay installation recommended previously
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	51	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	51	NConv	NConv	54	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	98	87	83	51	105	97	69	163	127	131	96	review existing RAS
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	93	84	115	79	104	95	66	166	124	128	92	review existing RAS
SAN LUIS OBISPO-SANTA MARIA 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	130	115	109	73	141	122	80	201	178	179	132	review existing RAS
	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	NConv	NConv	NConv	45	NConv	NConv	106	NConv	NConv	NConv	NConv	review existing RAS
	P5-5A:A20:1:_MESA 230 KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	99	108	NConv	38	100	116	76	NConv	92	NConv	96	Redundant relay installation recommended previously
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	73	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	72	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	44	NConv	NConv	107	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P7-1:A20:15:_MORRO BAY-MESA AND MORRO BAY-DIABLO 230 KV LINES	P7	DCTL	125	109	105	73	134	116	78	193	170	169	127	review existing RAS
	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	118	105	146	105	132	112	75	196	165	166	123	review existing RAS
SANTA MARIA-SISQUOC 115KV	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	NConv	NConv	NConv	17	NConv	NConv	43	NConv	NConv	NConv	NConv	review existing RAS
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	20	NConv	NConv	67	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
SISQUOC-PALMER 115KV	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	NConv	NConv	NConv	5	NConv	NConv	16	NConv	NConv	NConv	NConv	review existing RAS
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	5	NConv	NConv	16	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P7-1:A20:6:_MESA-DIVIDE #1 AND #2 115 KV LINES	P7	DCTL	31	22	33	6	44	75	10	52	65	116	40	Sensitivity only
SISQUOC-SANTA YNEZ SW STA 115KV	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	NConv	NConv	NConv	1	NConv	NConv	11	NConv	NConv	NConv	NConv	review existing RAS
	P2-4:A20:5:_MESA_PGE 115KV - SECTION 2D & 1D	P2-4	Bus-Tie-Breaker Fault	NConv	NConv	NConv	1	NConv	NConv	13	NConv	NConv	NConv	NConv	review existing RAS
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1	NConv	NConv	12	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A20:7:_MESA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1	NConv	NConv	14	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	MOSS LANDING-MOSS LANDING PP#2 230KV &MOSS LANDING-MOSS LANDING PP #1 230KV [1282]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	127	<100	Sensitivity only
	MOSS LANDING-MOSS LANDING PP#2 230KV &MOSS LANDING-MOSS LANDING PP #1 230KV [1282]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	127	<100	Sensitivity only
	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	111	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	MESA-SISQUOC 115KV [2460]&MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	<100	<100	103	<100	<100	<100	<100	<100	<100	<100	<100	Continue to Monitor
	MORRO BAY-MESA 230KV [5290]&DIABLO-MESA 230KV [4620]	P6	N-1-1	<100	<100	110	<100	<100	<100	<100	115	87	66	<100	Continue to Monitor
	MORRO BAY-MESA 230KV [5290]&DIABLO-MESA 230KV [4620]	P6	N-1-1	<100	<100	109	86	<100	<100	<100	114	86	68	<100	Continue to Monitor
	P7-1:A20:6:_MESA-DIVIDE #1 AND #2 115 KV LINES	P7	DCTL	20	13	23	1	38	76	5	43	62	121	33	Sensitivity only
	P7-1:A20:6:_MESA-DIVIDE #1 AND #2 115 KV LINES	P7	DCTL	25	18	28	1	39	70	7	47	59	110	36	Sensitivity only
TEMBLOR-SAN LUIS OBISPO 115KV	P2-4:A20:4:_MORROBAY 230KV - SECTION 1E & 2E	P2-4	Bus-Tie-Breaker Fault	85	98	86	8	122	92	86	115	99	134	85	review existing RAS
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	37	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	39	NConv	NConv	1	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	MORRO BAY-MESA 230KV [5290]&MORROBAY 230/115KV TB 6	P6	N-1-1	<100	<100	108	<100	90	<100	<100	112	<100	97	<100	review existing RAS
Templeton 230/70 kV bank	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	73	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
TEMPLETON-ATASCADERO 70KV	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	32	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5A:A20:6:_MORRO BAY 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	32	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant relay installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	32	NConv	NConv	154	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	32	NConv	NConv	154	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
WATSONVILLE-SALINAS 60KV	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	192	57	235	187	189	158	229	236	230	Redundant relay installation recommended previously
	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	171	53	221	176	182	146	232	221	231	Redundant relay installation recommended previously
	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	169	51	222	177	184	147	234	222	232	Redundant relay installation recommended previously
	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	169	50	222	179	184	146	235	223	233	Redundant relay installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P5-5C:A19:1:_MOSS LANDING 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	106	114	57	NConv	NConv	86	114	NConv	NConv	82	Operating measure to N.O. 60 kV
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	126	144	56	NConv	NConv	95	131	NConv	NConv	86	Operating measure to N.O. 60 kV
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	140	161	64	NConv	NConv	106	145	NConv	NConv	97	Operating measure to N.O. 60 kV
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	140	161	64	NConv	NConv	106	145	NConv	NConv	97	Operating measure to N.O. 60 kV

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Central Coast & Los Padres
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 Spring Off-Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
ATASCDRO 70kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.00	NConv	NConv	0.76	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
CAYUCOS 70kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.00	NConv	NConv	0.65	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
CMP EVRS 115kV	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	0.97	0.77	1.04	NConv	NConv	1.03	0.93	NConv	NConv	1.04	Review Morgan Hill-Watsonville Area Reinforcement project
	P1-2:A19:11:_MOSS LANDING-GREEN VALLEY #1 115KV [2850] & P1-2:A19:12:_MOSS LANDING-GREEN VALLEY #2 115KV [2860	P6	N-1-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
DEL MNTE 115kV	P1-3:A19:1:_MOSSLAND 500/230KV TB 9 & P1-2:A19:1:_METCALF-MOSS LANDING #1 230KV [5100]	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
DIVIDE 70kV	P1-3:A20:4:_MESA PGE 230/115KV TB 2 & P1-3:A20:5:_MESA PGE 230/115KV TB 3	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	Existing UVLS
DIVVIDE 115kV	P1-3:A20:4:_MESA PGE 230/115KV TB 2 & P1-3:A20:5:_MESA PGE 230/115KV TB 3	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	Existing UVLS
GREENVALLEY 115kV	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	0.96	0.80	1.03	NConv	NConv	1.02	0.92	NConv	NConv	1.01	Review Morgan Hill-Watsonville Area Reinforcement project
	P1-2:A19:11:_MOSS LANDING-GREEN VALLEY #1 115KV [2850] & P1-2:A19:12:_MOSS LANDING-GREEN VALLEY #2 115KV [2860	P6	N-1-1	>0.9	>0.9	0.81	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
GREENVALLEY 60kV	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	0.95	0.80	1.05	NConv	NConv	1.01	0.91	NConv	NConv	1.02	Review Morgan Hill-Watsonville Area Reinforcement project
LAURELES 60kV	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	0.36	0.99	0.28	0.28	0.28	0.39	0.27	0.28	0.25	Redundant relay installation recommended previously
	P1-3:A19:1:_MOSSLAND 500/230KV TB 9 & P1-2:A19:1:_METCALF-MOSS LANDING #1 230KV [5100]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
MESA PGE 230kV	P7-1:A20:16:_MORRO BAY-MESA AND DIABLO-MESA 230 KV LINES	P7	DCTL	0.89	1.03	0.89	1.03	1.01	1.03	1.03	0.88	1.02	1.03	1.02	Existing UVLS
	P1-2:A20:16:_DIABLO-MESA 230KV [4620] & P1-2:A20:8:_MORRO BAY-MESA 230KV [5290]	P6	N-1-1	0.89	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Existing UVLS
MORRO BY 115kV	P1-2:A20:26:_CALLENDER SW STA-MESA 115KV [1210] & P1-3:A20:3:_MORROBAY 230/115KV TB 6	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
OCEANO 115kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.02	NConv	NConv	0.53	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P1-2:A20:26:_CALLENDER SW STA-MESA 115KV [1210] & P1-3:A20:3:_MORROBAY 230/115KV TB 6	P6	N-1-1	>0.9	>0.9	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
PAUL SWT 115kV	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	0.97	0.78	1.03	NConv	NConv	1.03	0.94	NConv	NConv	1.03	Review Morgan Hill-Watsonville Area Reinforcement project
	P1-2:A19:11:_MOSS LANDING-GREEN VALLEY #1 115KV [2850] & P1-2:A19:12:_MOSS LANDING-GREEN VALLEY #2 115KV [2860	P6	N-1-1	>0.9	>0.9	0.79	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
PERRY 70kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.00	NConv	NConv	0.64	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
PSA RBLS 70kV	P1-2:A20:3:_TEMPLETON-GATES 230KV [5934] & P1-2:A20:4:_MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Estrella Substation Project
ROB ROY 115kV	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	0.96	0.78	1.03	NConv	NConv	1.03	0.93	NConv	NConv	1.03	Review Morgan Hill-Watsonville Area Reinforcement project
	P1-2:A19:11:_MOSS LANDING-GREEN VALLEY #1 115KV [2850] & P1-2:A19:12:_MOSS LANDING-GREEN VALLEY #2 115KV [2860	P6	N-1-1	>0.9	>0.9	0.80	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SALINAS 115kV	P1-3:A19:1:_MOSSLAND 500/230KV TB 9 & P1-2:A19:1:_METCALF-MOSS LANDING #1 230KV [5100]	P6	N-1-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SANBENITO 115kV	P1-3:A19:1:_MOSSLAND 500/230KV TB 9 & P1-2:A19:1:_METCALF-MOSS LANDING #1 230KV [5100]	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SISQUOC 115kV	P1-2:A20:22:_MESA-SISQUOC 115KV [2460] & P1-2:A20:23:_MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	>0.9	>0.9	0.50	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SN LS OB 115kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.01	NConv	NConv	0.55	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P1-2:A20:26:_CALLENDER SW STA-MESA 115KV [1210] & P1-3:A20:3:_MORROBAY 230/115KV TB 6	P6	N-1-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SN LS OB 70kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.01	NConv	NConv	0.61	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
SNTA MRA 115kV	P7-1:A20:7:_MESA-SANTA MARIA AND SANTA MARIA-SISQUOC 115 KV LINES	P7	DCTL	0.95	0.95	0.90	1.03	0.96	0.96	0.99	0.96	0.98	0.96	0.98	Continue to Monitor
	P1-2:A20:22:_MESA-SISQUOC 115KV [2460] & P1-2:A20:23:_MESA_PGE-SNTA MRA 115KV [0]	P6	N-1-1	>0.9	>0.9	0.48	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SOLEDAD 115kV	P1-3:A19:1:_MOSSLAND 500/230KV TB 9 & P1-2:A19:1:_METCALF-MOSS LANDING #1 230KV [5100]	P6	N-1-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
SPENCE 60kV	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	NConv	NConv	0.27	0.29	0.29	NConv	0.25	0.27	0.24	Redundant relay installation recommended previously
	P1-3:A19:18:_SALINAS 115/60KV TB 2 & P1-3:A19:19:_SALINAS 115/60KV TB 3	P6	N-1-1	>0.9	>0.9	>0.9	>0.9	0.27	0.29	0.29	>0.9	0.25	0.28	0.24	Project: Salinas Area Reinforcement
TEMPLETN 230kV	P5-5C:A20:3:_MORRO BAY SW 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NConv	NConv	NConv	1.02	NConv	NConv	0.90	NConv	NConv	NConv	NConv	Redundant battery supply installation recommended previously
	P1-2:A20:3:_TEMPLETON-GATES 230KV [5934] & P1-2:A20:4:_MORRO BAY-TEMPLETON 230KV [5933]	P6	N-1-1	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to Monitor
WTSNVLLE 60kV	P5-5A:A19:1:_SALINAS 115KV BAAH BUS #1 OR #2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Relay	NConv	NConv	0.84	1.05	0.83	0.82	0.83	0.86	0.84	0.83	0.83	Redundant relay installation recommended previously
	P7-1:A19:1:_MOSS LANDING - GREEN VALLEY #1 AND #2 115 KV LINES	P7	DCTL	NConv	0.93	0.80	1.03	NConv	NConv	0.99	0.89	NConv	NConv	0.99	Review Morgan Hill-Watsonville Area Reinforcement project

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Central Coast & Los Padres
Voltage Deviation

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
No single contingency resulted in Voltage deviation of more than 8%														

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Central Coast & Los Padres
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	

In accordance with TPL-001-5- Requirement R2.6, this area relies on the past studies from the 2024-25 Transmission Planning Process for transient stability studies:
https://stakeholdercenter.caiso.com/InitiativeDocuments/BoardApproved-AppendixC-2024-2025-TransmissionPlan.pdf

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Central Coast & Los Padres**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Central Coast & Los Padres**
Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)														Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **PG&E Central Valley**
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
BANTA-TRACY 115KV	TESLA-SCHULTE SW STA #1 115KV and TESLA-SCHULTE SW STA #2 115KV	P6	N-1-1	< 100	< 100	< 100	106	106	< 100	< 100	106	< 100	Generation redispatch
BELL-HIGGINS 115KV	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	NConv	< 100	< 100	155	155	< 100	NConv	155	< 100	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2E & 1E	P2	Breaker	NA	73	88	155	NA	58	NConv	NA	62	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	37	NA	NA	155	NA	Project:Goldhill Transformer addition project
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	181	63	75	47	12	39	53	66	50	Project:Goldhill Transformer addition project
BELLOTA-LOCKFORD 230KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	108	NConv	NA	NA	26	NA	NA	75	Install redundant battery supply
BELLOTA-RIVERBANK 115KV	TESLA 115KV - SECTION 2D & 1D	P2	Breaker	48	NA	NA	NA	115	NA	NA	83	NA	Generation redispatch
BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCH 115KV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	71	25	42	45	49	86	104	38	48	Sensitivity only
	TESLA 115KV - SECTION 2D & 1D	P2	Breaker	53	NA	NA	NA	179	NA	NA	132	NA	Generation redispatch
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	106	40	67	55	56	99	140	45	61	Project: Bellota-Riverbank-Melones Sw Sta 115 kV Line 115 kV Line Reconductor
	TESLA 115KV - SECTION 2D & 1D	P2	Breaker	74	NA	NA	NA	247	NA	NA	183	NA	Generation redispatch
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	127	27	39	78	36	54	162	67	36	Project: Bellota-Riverbank-Melones Sw Sta 115 kV Line 115 kV Line Reconductor
	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	43	31	24	104	52	12	17	96	46	Generation redispatch
	TESLA 115KV - SECTION 2D & 1D	P2	Breaker	52	NA	NA	NA	123	NA	NA	203	NA	Generation redispatch
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	44	11	28	141	141	28	NConv	132	57	Install redundant battery supply
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	60	20	NConv	129	129	49	NConv	120	44	Continue to monitor
	MANTECA 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	63	58	48	89	89	107	76	85	94	Install redundant battery supply
	BELLOTA 115/230KV TB 1 and BELLOTA 230/115KV TB 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	Sensitivity only
BELL-PLACER 115KV	GOLDHILL 230KV - SECTION 2E & 1E	P2	Breaker	NA	62	77	175	NA	71	NConv	NA	59	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	37	NA	NA	175	NA	Project:Goldhill Transformer addition project
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	174	46	56	43	7	48	46	66	42	Project:Goldhill Transformer addition project
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	175	175	38	NConv	175	NConv	Install redundant battery supply
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	84	102	149	49	49	4	53	49	58	Install redundant battery supply
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	84	102	149	49	49	4	53	49	58	Install redundant battery supply
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	NConv	< 100	< 100	175	175	< 100	NConv	175	< 100	Project:Goldhill Transformer addition project
BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	VACA-DIX 230KV - SECTION 1E & 2E	P2	Breaker	63	60	62	72	48	100	35	30	35	Generation redispatch
	VACA-DIXON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	63	60	62	72	72	100	35	30	36	Continue to monitor
	STATION DC BATTERY SUPPLY VACA-DIXON 230KV BATT	P5	Non-Redundant Battery/Relay	63	60	62	72	72	100	35	30	36	Continue to monitor
	Vaca-Peabody 230 KV and Vaca-Lambie SW STA 230 KV lines	P7	DCTL	63	60	62	72	6	100	35	30	35	Continue to monitor
	GWFTRCY3 18.00KV & GWFTRCY1 13.80KV & GWFTRCY2 13.80KV GEN UNITS and BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
BRENTWOOD-KELSO 230KV	TESLA E SECTION 2E & TESLA D SECTION 2D 230KV	P2	Breaker	32	49	52	81	101	6	69	103	80	Generation redispatch
BRIGHTN-W.SCRMNO 115KV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	86	113	107	45	45	4	53	44	69	Install redundant battery supply
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	131	144	NConv	45	45	4	56	44	83	Install redundant battery supply
BRIGHTON-DAVIS 115KV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	95	116	118	49	49	3	53	48	63	Install redundant battery supply
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	144	142	NConv	49	49	3	57	48	76	Install redundant battery supply
	WOODLAND-DAVIS 115KV and W.SCRMNO-DAVIS 115KV	P6	N-1-1	119	133	147	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
BRIGHTON-DAVIS 115KV MOAS OPENED ON HOWARDJCT3_BRKRJCT	W.SCRMNO - DE 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	91	105	111	55	28	15	46	54	53	Operating solution
	W.SCRMNO - DE 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	91	105	111	55	28	14	46	54	53	Operating solution
	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	113	138	140	59	59	3	65	59	76	Install redundant battery supply
	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	92	107	109	50	50	5	50	49	57	Install redundant battery supply
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	172	168	NConv	59	59	2	69	59	91	Install redundant battery supply
	W.SCRMNO-DAVIS 115KV and WOODLAND-DAVIS 115KV	P6	N-1-1	140	157	174	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
BRIGHTON-LOCKFORD 230KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	155	NConv	NA	NA	6	NA	NA	89	Install redundant battery supply
BRKR SLG-HOWARDJCT3-UCD_TP2 115KV	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	92	107	109	50	50	6	50	49	57	Install redundant battery supply
	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	113	138	140	59	59	3	65	58	76	Install redundant battery supply
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	172	168	NConv	59	59	3	69	59	91	Install redundant battery supply
	W.SCRMNO-DAVIS 115KV and WOODLAND-DAVIS 115KV	P6	N-1-1	141	157	174	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
COLGATE-PALERMO 60KV	COLGTE1 230KV SECTION 1E	P2	Breaker	73	76	106	18	11	19	52	18	63	Continue to monitor
	COLGATE 230KV - SECTION 1F & 1E	P2	Breaker	73	81	110	18	8	16	52	18	63	Continue to monitor
	NARROWSPH2 13.80KV GEN UNIT 1 and COLGTE1 230/60KV TB 3	P3	G-1/N-1	< 100	106	127	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
	COLGTE1 230/60KV TB 3 and PALERMO-NICOLAUS 115KV MOAS OPENED ON PALERMO_E.MRY J2	P6	N-1-1	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
CORTINA 230/230KV TB 1	WADHAM 13.80KV GEN UNIT 1 and CORTINA 230/115KV TB 4	P3	G-1/N-1	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Cortina 230/115/60 kV Transformer Bank No. 1 Replacement Project
DELTA SWITCHING YARD-TESLA 230KV	BDLSWSTA 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	43	59	47	90	100	25	87	104	94	Sensitivity only
	TESLA E 230KV SECTION 2E	P2	Breaker	38	54	45	83	105	14	73	102	81	Generation redispatch
	TESLA E - 2E 230KV & STAGG-TESLA LINE	P2	Breaker	38	54	45	83	105	14	73	102	81	Generation redispatch
	BDLSWSTA 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	62	80	70	106	121	39	96	111	103	Generation redispatch
	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	37	53	45	83	106	14	73	103	81	Generation redispatch
	VACA-DIX 230KV - SECTION 2F & 2E	P2	Breaker	41	52	45	75	109	19	89	103	89	Generation redispatch
	LAMBIE 13.80KV GEN UNIT 1 and KELSO-RALPH-TESLA D 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	Generation redispatch
	STATION DC BATTERY SUPPLY BIRDS LANDING 230KV BATT	P5	Non-Redundant Battery/Relay	48	63	NConv	94	94	26	89	105	96	Continue to monitor
	VACA-DIXON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	17	35	25	54	54	44	85	101	92	Sensitivity only
	STATION DC BATTERY SUPPLY VACA-DIXON 230KV BATT	P5	Non-Redundant Battery/Relay	17	35	25	54	54	44	85	101	92	Sensitivity only
	BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV and BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	P6	N-1-1	< 100	< 100	< 100	106	106	< 100	< 100	111	103	Generation redispatch
	BRENTWOOD-KELSO 230KV and TESLA-NEWARK #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106	< 100	Sensitivity only
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	20	33	21	67	100	22	65	97	73	Generation redispatch
	Vaca-Peabody 230 KV and Vaca-Lambie SW STA 230 KV lines	P7	DCTL	3	16	0	38	101	51	62	81	69	Generation redispatch
	Lambie SW STA-Birds Landing SW STA 230 KV and Peabody-Birds Landing SW STA 230 KV lines	P7	DCTL	2	16	3	42	104	45	65	86	72	Generation redispatch
	Birds-CC PP 230 KV and Birds-CC Sub 230 KV lines	P7	DCTL	43	59	47	90	103	25	87	104	93	Generation redispatch
DRUM-HIGGINS 115KV	PLACER-GOLD HILL #1 115KV [3340] (GOLDHILL-HORSHE1)	P2	Breaker	89	87	102	60	56	41	70	60	66	Continue to monitor
	GOLDHILL 230KV - SECTION 2E & 1E	P2	Breaker	NA	96	114	167	NA	58	NConv	NA	78	Continue to monitor
	GOLDHILL 115KV - SECTION 1G & 1F	P2	Breaker	NA	NA	105	59	NA	NA	70	NA	67	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	45	NA	NA	167	NA	Project:Goldhill Transformer addition project
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	219	88	98	59	20	39	70	77	67	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2D & 2E	P2	Breaker	NA	100	137	36	NA	9	45	NA	65	Continue to monitor
	GOLDHILL 230KV - SECTION 2E & 1E	P2	Breaker	NA	86	105	60	NA	38	NConv	NA	71	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	9	NA	NA	208	NA	Project:Goldhill Transformer addition project
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	254	72	92	41	32	10	57	69	53	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2D & 2E	P2	Breaker	NA	88	117	41	NA	11	48	NA	62	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2E & 1E	P2	Breaker	NA	78	98	166	NA	44	NConv	NA	67	Project:Goldhill Transformer addition project
	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	22	NA	NA	166	NA	Project:Goldhill Transformer addition project
	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	208	68	84	45	10	23	57	66	54	Project:Goldhill Transformer addition project
	WISE 12.47KV GEN UNIT 1 and PLACER-GOLD HILL #1 115KV	P3	G-1/N-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHI.PARK 11.50KV GEN UNIT 1 and PLACER-GOLD HILL #1 115KV	P3	G-1/N-1	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	167	167	32	NConv	167	NConv	Install redundant battery supply
	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	92	88	NConv	59	61	64	72	62	78	Continue to monitor

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Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	122	145	210	62	62	8	80	62	85	Install redundant battery supply
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	122	114	NConv	84	84	85	104	84	96	Install redundant battery supply
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	122	145	210	62	62	8	80	62	85	Install redundant battery supply
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	208	208	96	NConv	208	NConv	Install redundant battery supply
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	119	149	242	46	46	54	71	46	76	Install redundant battery supply
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	119	149	241	46	46	54	71	46	76	Install redundant battery supply
	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	124	113	NConv	79	79	79	109	79	99	Install redundant battery supply
	POE-RIO OSO 230KV and MIDDLE FORK-GOLD HILL 230KV	P6	N-1-1	< 100	< 100	NConv	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	NConv	< 100	< 100	208	208	< 100	NConv	208	< 100	Project:Goldhill Transformer addition project
DRUMPH1 115/115KV TB 1	RIO OSO-DRUMPH1-BRUNSWCK 115KV and DRUM-HIGGINS 115KV MOAS OPENED ON CHCGO PK_HIGGINS	P6	N-1-1	< 100	< 100	< 100	133	133	145	< 100	133	< 100	Generation redispatch
DRUM-SUMMIT #2 115KV	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	38	38	30	NConv	38	NConv	Install redundant battery supply
	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	NA	NA	119	NA	NA	15	NA	NA	NA	Continue to monitor
E.MRYSVE-MRYSVLLE #1 60KV	NARROWSPH2 13.80KV GEN UNIT 1 and COLGATE-SMARTVILLE #1 60KV MOAS OPENED ON COLGATE_NRRWS1TP	P3	G-1/N-1	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PALERMO-NICOLAUS 115KV MOAS OPENED ON E.MRY J2_E.NICOLS and RIO OSO-NICOLAUS 115KV	P6	N-1-1	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PEASE-RIO OSO 115KV MOAS OPENED ON PEASE_E.MRY J1	P1	N-1	NA	NA	101	NA	NA	54	NA	NA	NA	Continue to monitor
	PEASE-RIO OSO 115KV [3270] (PEASE-E.MRY J1)	P2	Breaker	NA	NA	101	NA	NA	54	NA	NA	NA	Continue to monitor
	PEASE-RIO OSO 115KV [3270] (OLIVH J1-E.MRY J1)	P2	Breaker	NA	NA	101	NA	NA	54	NA	NA	NA	Continue to monitor
E.MRYSVE-PEASE 60KV	PEASE 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	NA	NA	101	NA	NA	55	NA	NA	NA	Continue to monitor
	GRNLEAF2 13.80KV GEN UNIT 1 and NICOLAUS-MARYSVILLE 60KV MOAS OPENED ON MRYSVLLE_PLUMAS	P3	G-1/N-1	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	< 100	Generation redispatch
	NARROWSPH2 13.80KV GEN UNIT 1 and PALERMO-NICOLAUS 115KV MOAS OPENED ON PALERMO_E.MRY J2	P3	G-1/N-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PALERMO-NICOLAUS 115KV MOAS OPENED ON PALERMO_E.MRY J2 and PEASE-RIO OSO 115KV MOAS OPENED ON PEASE_E.MRY J1	P6	N-1-1	< 100	< 100	138	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2	Breaker	159	178	NA	NA	30	4	NA	75	NA	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV SECTION 1G	P2	Breaker	NA	177	1	75	NA	4	86	NA	86	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV - SECTION 1F & 1G	P2	Breaker	NA	177	1	NA	NA	4	NA	NA	NA	Project:Goldhill-Eldorado reinforcement project
EL DORADO-MISSOURI FLAT #2 115KV	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	178	NA	NA	NA	4	NA	NA	NA	Project:Goldhill-Eldorado reinforcement project
	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2	Breaker	159	178	NA	NA	30	6	NA	75	NA	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV SECTION 1G	P2	Breaker	NA	177	2	75	NA	6	86	NA	87	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	178	NA	NA	NA	6	NA	NA	NA	Project:Goldhill-Eldorado reinforcement project
	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2	Breaker	121	137	NA	NA	12	7	NA	53	NA	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV SECTION 1G	P2	Breaker	NA	136	10	53	NA	7	64	NA	64	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV - SECTION 1F & 1G	P2	Breaker	NA	137	11	NA	NA	7	NA	NA	NA	Project:Goldhill-Eldorado reinforcement project
ELDORAD-MIZOU_T1 115KV	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	137	NA	NA	NA	7	NA	NA	NA	Project:Goldhill-Eldorado reinforcement project
	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2	Breaker	143	162	NA	NA	16	8	NA	63	NA	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV SECTION 1G	P2	Breaker	NA	161	22	63	NA	8	77	NA	78	Project:Goldhill-Eldorado reinforcement project
	GOLDHILL 115KV - SECTION 2G & 1G	P2	Breaker	NA	162	NA	NA	NA	8	NA	NA	NA	Project:Goldhill-Eldorado reinforcement project
	BELLOTA 230KV - SECTION 1D & 2D	P2	Breaker	46	50	68	27	59	108	87	27	107	Generation redispatch
GOLDHILL-LAKE 230KV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	45	47	65	27	27	111	86	27	104	Continue to monitor
	RANCHO SECO-BELLOTA #2 230KV and RANCHO SECO-BELLOTA #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	114	< 100	< 100	111	Continue to monitor
	Base Case	P0	Base Case	104	53	63	49	49	1	74	49	34	Project: Mosher transmission project.
	LOCKEFORD #1 60KV	P1	N-1	88	95	105	42	42	6	63	42	64	Continue to monitor
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	0	114	105	0	45	7	0	0	80	Project: Mosher transmission project overload protection scheme.
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	0	145	133	0	58	11	0	0	102	Project: Mosher transmission project overload protection scheme.
HAMMER-COUNTRY CLUB 60KV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	0	191	175	0	76	15	0	0	134	Project: Mosher transmission project overload protection scheme.
	LOCKEFORD 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	88	95	104	42	42	5	63	42	64	Continue to monitor
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0	114	105	0	0	7	0	0	80	Install redundant battery supply
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0	117	111	0	0	0	0	0	52	Install redundant battery supply
	LOCKFORD 230/60KV TB 2 and LOCKFORD 230/60KV TB 3	P6	N-1-1	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	< 100	NConv	109	< 100	< 100	< 100	< 100	< 100	112	Continue to monitor
KASSON-LOUISE 60KV	KASSON 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	117	129	149	36	36	11	71	36	85	Install redundant battery supply
	Base Case	P0	Base Case	1	76	85	36	36	147	88	28	1	Continue to monitor
	KOLABESS3 0.71KV GEN UNIT 3	P1	N-1	NA	60	67	NA	30	117	NA	NA	1	Continue to monitor
	KOLABESS2 0.71KV GEN UNIT 2	P1	N-1	NA	55	61	NA	30	109	NA	NA	1	Continue to monitor
	TESLA D 500/230KV TB 6	P1	N-1	NA	NA	72	NA	NA	122	NA	NA	NA	Continue to monitor
	KOLA 230/34.5KV TB 3	P1	N-1	1	60	67	30	30	117	69	25	1	Continue to monitor
	KOLAC32 34.5/0.715KV TB EQ	P1	N-1	1	60	67	30	30	117	69	25	1	Continue to monitor
	TESLA E 230KV SECTION 2E	P2	Breaker	1	69	76	24	29	127	79	13	1	Generation redispatch
	TESLA C 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	1	67	68	31	38	127	77	22	1	Generation redispatch
KOLA-TESLA C #1 230KV	TESLA C 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	1	67	64	20	29	123	79	6	1	Generation redispatch
	TESLA E - 2E 230KV & STAGG-TESLA LINE	P2	Breaker	1	69	76	24	29	127	79	13	1	Generation redispatch
	TESLA E SECTION 2E & TESLA D SECTION 2D 230KV	P2	Breaker	1	70	81	22	29	127	81	10	1	Generation redispatch
	KOLABESS2 0.71KV GEN UNIT 2 and DELTA SWITCHING YARD-TESLA 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	Continue to monitor
	KELSO-RALPH-TESLA D 230KV and DELTA SWITCHING YARD-TESLA 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	131	< 100	< 100	< 100	Continue to monitor
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	1	67	75	30	54	128	77	23	1	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	1	67	75	28	54	128	77	22	1	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	1	69	76	24	46	127	78	15	1	Continue to monitor
LINCOLN-PLEASANT GROVE 115KV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	< 100	100	128	< 100	< 100	< 100	< 100	< 100	< 100	Reconductor Rio Oso–SPI Jct–Lincoln 115kV line Project under review
	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	111	114	143	< 100	< 100	< 100	< 100	< 100	< 100	Reconductor Rio Oso–SPI Jct–Lincoln 115kV line Project under review
	HAMMER-COUNTRY CLUB 60KV MOAS OPENED ON MORADAJT_MSHR 60V	P1	N-1	0	100	108	0	0	6	0	0	67	Continue to monitor
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	0	330	309	0	117	18	0	0	212	Project: Mosher transmission project overload protection scheme.
	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	NA	330	309	NA	117	18	NA	NA	212	Project: Mosher transmission project overload protection scheme.
LOCKEFORD #1 60KV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	0	330	309	0	117	18	0	0	212	Project: Mosher transmission project overload protection scheme.
	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0	330	309	0	0	18	0	0	212	Install redundant battery supply
	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0	304	298	0	0	6	0	0	138	Install redundant battery supply
	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	< 100	NConv	310	< 100	< 100	< 100	< 100	< 100	298	Continue to monitor
LOCKEFORD-BELLOTA 230KV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	108	NConv	NA	NA	26	NA	NA	75	Install redundant battery supply
LOCKEFRD-VICTOR-LODI 60KV	LOCKEFORD-INDUSTRIAL 60KV	P1	N-1	104	NA	NA	88	NA	NA	98	91	NA	Project:Lockeford-Lodi Area 230 kV Development
MADISON-VACA 115KV (2)	1926-WD 115.00KV GEN UNIT FW and AMERIGAS-VACA-DIX-PUTH CRK 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	Generation redispatch
	STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P1	N-1	88	17	28	75	75	82	149	53	35	Sensitivity only
	MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH 115KV	P1	N-1	88	17	28	75	75	82	149	53	35	Sensitivity only
	RIPON-RIVERBANKJSS 115KV MOAS OPENED ON VALLEYHOMEJ1_VALLEYHOME	P1	N-1	70	15	17	69	69	82	139	60	30	Sensitivity only
	RIVERBANKJSS-RIPON 115KV MOAS OPENED ON VALLEYHOMEJ1_VALLEYHOME	P1	N-1	70	15	17	69	69	82	139	60	30	Sensitivity only
	STANISLAUSPH 13.80KV GEN UNIT 1	P1	N-1	68	15	21	64	64	57	100	11	24	Sensitivity only

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
MANTECA-RIPON 115KV	RIVERBANK JCT SW STA-RIPON 115KV [3841] (MELONESJCT2-RIVERBANKJSS)	P2	Breaker	88	17	28	75	42	82	149	53	35	Sensitivity only
	RIVERBANK JCT SW STA-RIPON 115KV [3841] (RIVERBANKJSS-VALLEYHOMEJ1)	P2	Breaker	88	17	28	75	42	82	149	52	36	Sensitivity only
	STANISLAUSPH - 1D 115KV & STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS LINE	P2	Breaker	88	17	27	80	42	82	149	68	35	Sensitivity only
	MELONESSWSTA - 1D 115KV & MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH LINE	P2	Breaker	88	17	28	80	42	82	149	72	35	Sensitivity only
	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	98	20	16	15	15	66	146	62	16	Sensitivity only
	RIPON 115KV - RING R4 & R5	P2	Breaker	10	54	36	33	25	101	68	35	6	Generation redispatch
	GWFTRCY3 18.00KV & GWFTRCY1 13.80KV & GWFTRCY2 13.80KV GEN UNITS and STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	154	< 100	< 100	Sensitivity only
	MI-WUK 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	17	24	67	NA	61	100	NA	27	Sensitivity only
	MELONES SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	17	27	81	NA	82	150	NA	34	Sensitivity only
	RIVERBANK SW STA 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	17	28	75	NA	82	149	NA	35	Sensitivity only
	MELONES SW STA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	88	17	27	81	81	82	150	70	34	Sensitivity only
	MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH 115KV and VIERRA-TESLA 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	155	< 100	< 100	Sensitivity only
MELONESSWSTA-MANTECA 115KV	GWFTRCY3 18.00KV & GWFTRCY1 13.80KV & GWFTRCY2 13.80KV GEN UNITS and STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P3	G-1/N-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Generation redispatch
	Q1109BESS 34.50KV GEN UNIT 1 and STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	103	< 100	< 100	< 100	Continue to monitor
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	75	28	30	41	40	56	NConv	46	12	Install redundant battery supply
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	88	34	NConv	30	30	63	NConv	36	14	Continue to monitor
	RIVERBANKJSS-RIPON 115KV MOAS OPENED ON VALLEYHOMEJ1_VALLEYHOME and STANISLAUS-MANTECA #2 115KV	P6	N-1-1	< 100	< 100	< 100	122	122	< 100	113	108	< 100	Generation redispatch
	BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCH 115KV and STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	P6	N-1-1	< 100	< 100	< 100	100	100	135	109	112	< 100	Generation redispatch
	STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV and BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCH 115KV	P6	N-1-1	< 100	< 100	< 100	123	123	< 100	< 100	118	< 100	Generation redispatch
MELONESSWSTA-RIVERBANKJSS-STANISLAUSPH 115KV	MANTECA-RIPON 115KV	P1	N-1	92	23	22	73	73	66	158	50	65	Sensitivity only
	STANISLAUSPH 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	137	< 100	< 100	Sensitivity only
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	74	14	20	91	91	56	NConv	86	3	Sensitivity only
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	91	21	NConv	77	77	63	NConv	73	3	Continue to monitor
	MANTECA-MELONESSWSTA 115KV MOAS OPENED ON STANISLAUSPH_FROGTOWNJCT1 and BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCH 115KV	P6	N-1-1	< 100	< 100	< 100	121	121	< 100	< 100	116	< 100	Generation redispatch
	STANISLAUSPH 115/13.8KV TB 1 and MANTECA-RIPON 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	162	< 100	< 100	Sensitivity only
NICOLAUS-MARYSVILLE 60KV	E.MRYSVE-MRYSVLLE #1 60KV	P1	N-1	NA	NA	117	NA	NA	35	NA	NA	NA	Continue to monitor
	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	79	85	145	44	18	3	47	44	62	continue to monitor
	NARROWSPH2 13.80KV GEN UNIT 1 and E.MRYSVE-MRYSVLLE #1 60KV	P3	G-1/N-1	< 100	< 100	132	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RALSTON 13.80KV GEN UNIT 1 and PALERMO-NICOLAUS 115KV MOAS OPENED ON E.MRY J2_E.NICOLS	P3	G-1/N-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	76	91	NConv	44	43	20	82	43	83	Continue to monitor
	PEASE 115/60KV TB 2 and PEASE 115/60KV TB 5	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	111	< 100	110	Sensitivity only
	PALERMO-NICOLAUS 115KV MOAS OPENED ON E.MRY J2_E.NICOLS and RIO OSO-NICOLAUS 115KV	P6	N-1-1	< 100	< 100	145	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
PEASE-MARYSVILLE-HARTER 60KV	PEASE 115/60KV TB 2 and PEASE 115/60KV TB 5	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	109	Sensitivity only
PLACER 115/60KV TB 1	Base Case	P0	Base Case	79	87	105	38	38	12	49	38	53	Continue to monitor
	HALSEY PH 6.60KV GEN UNIT 1	P1	N-1	82	89	105	40	40	6	49	40	53	Continue to monitor
	HALSEY 60/6.6KV TB 1	P1	N-1	81	89	105	40	40	6	49	40	53	Continue to monitor
PLACER-GOLD HILL #1 115KV	PLACER-GOLD HILL #2 115KV and DRUM-HIGGINS 115KV MOAS OPENED ON CHCGO PK_HIGGINS	P6	N-1-1	< 100	102	124	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
PLACER-GOLD HILL #2 115KV	DRUM-HIGGINS 115KV MOAS OPENED ON CHCGO PK_HIGGINS and PLACER-GOLD HILL #1 115KV	P6	N-1-1	102	113	140	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
RANCHO SECO-BELLOTA #1 230KV	RANCHO SECO-BELLOTA #2 230KV and GOLDHILL-LAKE 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113	Sensitivity only
RANCHO SECO-BELLOTA #2 230KV	RANCHO SECO-BELLOTA #1 230KV and GOLDHILL-LAKE 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113	Sensitivity only
	GOLDHILL-LAKE 230KV and RANCHO SECO-BELLOTA #1 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113	Sensitivity only
RIO OSO-ATLANTIC 230KV	RALSTON 13.80KV GEN UNIT 1 and RIO OSO-GOLD HILL 230KV	P3	G-1/N-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RIO OSO-LINCLN-SPILINCOLN 115KV and RIO OSO-GOLD HILL 230KV	P6	N-1-1	< 100	< 100	117	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
RIO OSO-BRIGHTON 230KV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	80	98	105	33	33	31	59	33	69	Continue to monitor
RIO OSO-BRNSWALT-DRUMPH1 115KV	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	49	NA	NA	43	NA	Project:Goldhill Transformer addition project
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	43	43	98	NConv	43	NConv	Install redundant battery supply
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	NConv	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
RIO OSO-DRUMPH1-BRUNSWCK 115KV	GOLDHILL 230KV - SECTION 2D & 1D	P2	Breaker	NConv	NA	NA	NA	43	NA	NA	48	NA	Project:Goldhill Transformer addition project
	GOLD HILL 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	48	48	95	NConv	48	NConv	Install redundant battery supply
	GOLDHILL 230/115KV TB 1 and GOLDHILL 230/115KV TB 2	P6	N-1-1	NConv	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RIO OSO-BRNSWALT-DRUMPH1 115KV and BELL-PLACER 115KV MOAS OPENED ON PLACER_BELL PGE	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	216	< 100	< 100	< 100	Continue to monitor
RIO OSO-GOLD HILL 230KV	RIO OSO-ATLANTIC 230KV and RIO OSO-LINCLN-SPILINCOLN 115KV	P6	N-1-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RIO OSO-ATLANTIC 230KV and RIO OSO-LINCLN-SPILINCOLN 115KV	P6	N-1-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
RIO OSO-LINCLN-SPILINCOLN 115KV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	119	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	Reconductor Rio Oso–SPI Jct–Lincoln 115kV line Project under review
RIO OSO-WEST SACRAMENTO 115KV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	107	65	61	58	58	6	66	58	42	Project: Rio Oso - W. Sacramento Reconductoring
	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	107	65	61	58	58	6	66	58	42	Project: Rio Oso - W. Sacramento Reconductoring
	WOODLAND-DAVIS 115KV and BRIGHTN-W.SCRMNO 115KV	P6	N-1-1	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Rio Oso - W. Sacramento Reconductoring
RIO OSO-WOODLAND #2 115KV	RIO OSO-BRIGHTON 230KV and RIO OSO-WOODLAND #1 115KV	P6	N-1-1	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
RIPON-RIVERBANKJSS 115KV	MANTECA-RIPON 115KV	P1	N-1	88	10	22	68	68	66	151	48	28	Sensitivity only
	RIPON 115KV - RING R3 & R2	P2	Breaker	3	50	37	17	25	102	68	12	6	Generation redispatch
	RIPON-MANTECA 115KV [1062] (RIPONJCT2-MANTECA)	P2	Breaker	88	10	22	68	35	66	151	48	28	Sensitivity only
	RIPONJCT2-RIPON 115KV [0] NO FAULT	P2	Breaker	88	10	22	68	35	66	151	48	28	Sensitivity only
	MANTECA 115KV - RING R4 & R5	P2	Breaker	88	10	22	68	35	66	151	48	28	Sensitivity only
	MANTECA 115KV - RING R6 & R5	P2	Breaker	88	10	22	68	35	66	151	48	28	Sensitivity only
	RIPON 115KV - RING R3 & R2	P2	Breaker	21	27	17	33	21	70	113	21	9	Sensitivity only
	RIPON-MANTECA 115KV [1062] (RIPONJCT2-MANTECA)	P2	Breaker	71	8	28	60	68	145	141	41	51	Generation redispatch
	RIPONJCT2-RIPON 115KV [0] NO FAULT	P2	Breaker	71	8	28	60	68	145	141	41	51	Generation redispatch
	MANTECA 115KV - RING R4 & R5	P2	Breaker	71	9	28	60	69	145	141	41	51	Generation redispatch
	MANTECA 115KV - RING R6 & R5	P2	Breaker	71	9	28	60	69	145	141	41	51	Generation redispatch
	RIPON 115KV - RING R3 & R2	P2	Breaker	4	76	55	26	38	154	103	18	9	Generation redispatch
	STANISLAUSPH 13.80KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	155	< 100	< 100	Sensitivity only
	RIPON 115.00KV GEN UNIT 1 and MANTECA-RIPON 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	149	< 100	< 100	< 100	Continue to monitor
	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	83	26	31	26	26	59	NConv	34	13	Sensitivity only
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	96	31	NConv	17	17	65	NConv	25	18	Continue to monitor
	BELLOTA-RIVERBANK-MELONESSWSTA-TULLOCH 115KV and MANTECA-MELONESSWSTA 115KV MOAS OPENED ON STANISLAUSPH_FROGTOWNJCT1	P6	N-1-1	< 100	< 100	< 100	100	100	134	115	110	< 100	Generation redispatch
	MANTECA-RIPON 115KV and STANISLAUSPH 115/13.8KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	155	< 100	< 100	Sensitivity only
SMARTVILLE-MARYSVILLE 60KV	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	82	95	100	57	54	48	63	57	70	Continue to monitor
	PEASE 115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	86	101	40	48	48	46	67	48	68	Install redundant battery supply
	RIO OSO 230 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	98	121	NConv	63	62	67	94	62	95	Install redundant battery supply
	POE-RIO OSO 230KV and COLGATE-RIO OSO 230KV	P6	N-1-1	< 100	< 100	NConv	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	84	97	73	89	134	101	70	89	65	Generation redispatch

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **PG&E Central Valley**
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
SPAULDING-SUMMIT 60KV	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	84	97	73	89	134	101	70	89	65	Generation redispatch
	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	86	99	76	91	136	103	72	91	67	Generation redispatch
	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	86	99	76	91	136	103	72	91	67	Generation redispatch
SPAULDNG-DRUMPH1-BOWMANPH 60KV	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	72	71	45	73	101	86	58	73	55	Generation redispatch
	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	72	71	45	73	101	86	58	73	55	Generation redispatch
STAGG-HAMMER 60KV	LOCKFORD 230/60KV TB 2 and LOCKFORD 230/60KV TB 3	P6	N-1-1	< 100	110	149	< 100	< 100	< 100	< 100	< 100	< 100	Project: Mosher transmission project overload protection scheme.
STANISLAUS-MANTECA #2 115KV	TESLA 115KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	55	47	48	11	11	84	NConv	19	23	Sensitivity only
	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	63	54	NConv	7	6	92	NConv	13	27	Continue to monitor
STANISLAUSPH-MELONESSWSTA-RIVERBANKJSS 115KV	RIPON-MANTECA 115KV [1062] (RIPONJCT2-MANTECA)	P2	Breaker	92	23	22	73	80	66	158	50	65	Sensitivity only
	RIPONJCT2-RIPON 115KV [0] NO FAULT	P2	Breaker	92	23	22	73	80	66	158	50	65	Sensitivity only
	BELLOTA-RIVERBANK-MELONES SW STA 115KV [1070] (RIVERBANKJT3-TULLOCH	P2	Breaker	64	70	30	100	95	44	97	86	76	Generation redispatch
	MANTECA 115KV - RING R4 & R5	P2	Breaker	92	23	22	73	81	66	158	50	65	Sensitivity only
	MANTECA 115KV - RING R6 & R5	P2	Breaker	92	23	22	73	81	66	158	50	65	Sensitivity only
	RIPON 115KV - RING R3 & R2	P2	Breaker	22	62	17	35	48	70	118	22	21	Sensitivity only
STOCKTON A-LOCKEFORD-BELLOTA #2 115KV	BELLOTA 115KV SECTION 1D	P2	Breaker	87	89	104	44	39	8	58	49	55	Continue to monitor
	BELLOTA - 1D 115KV & BELLOTA-LOCKFORD-CAMANCHEPH LINE	P2	Breaker	96	99	114	52	48	10	67	52	64	Continue to monitor
	BELLOTA - 1D 115KV & BELLOTA-RIVERBANK LINE	P2	Breaker	87	89	104	44	39	8	58	49	55	Continue to monitor
	BELLOTA 115KV SECTION 1D	P2	Breaker	85	85	103	42	33	10	52	48	48	Continue to monitor
	BELLOTA - 1D 115KV & BELLOTA-LOCKFORD-CAMANCHEPH LINE	P2	Breaker	97	98	116	53	45	7	65	53	60	Continue to monitor
	BELLOTA - 1D 115KV & BELLOTA-RIVERBANK LINE	P2	Breaker	85	85	103	42	33	10	52	48	48	Continue to monitor
Summit PST	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	78	89	61	85	129	96	65	85	58	Generation redispatch
	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	78	89	61	85	129	96	64	85	58	Generation redispatch
Summit-Tamarack 60 kV line	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	81	92	67	86	131	98	67	86	61	Generation redispatch
	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	81	92	66	86	131	98	67	86	61	Generation redispatch
TESLA-LAWRENCE LAB 115KV	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	24	41	13	123	148	21	44	121	90	Generation redispatch
	TESLA D 230KV - SECTION 1D & 2D	P2	Breaker	24	45	16	178	217	56	94	176	123	Generation redispatch
	TESLA D 230/115KV TB 1 and TESLA D 230/115KV TB 3	P6	N-1-1	< 100	< 100	< 100	124	124	< 100	< 100	124	< 100	Generation redispatch
TESLA-NEWARK #1 230KV	TESLA-RAVENSWOOD 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
TESLA-NEWARK #2 230KV	TESLA E 230KV SECTION 2E	P2	Breaker	69	91	109	61	86	43	59	64	76	Continue to monitor
	TESLA E - 2E 230KV & STAGG-TESLA LINE	P2	Breaker	69	91	109	61	86	43	59	64	76	Continue to monitor
	TESLA E SECTION 2E & TESLA D SECTION 2D 230KV	P2	Breaker	66	89	104	58	82	38	56	61	74	Continue to monitor
	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	69	91	109	61	86	43	59	63	76	Continue to monitor
	TESLA E 230KV SECTION 2E	P2	Breaker	82	108	94	72	102	37	70	75	90	Project:Tesla 115kV bus reconfiguration
	TESLA E - 2E 230KV & STAGG-TESLA LINE	P2	Breaker	82	108	94	72	102	37	70	75	90	Project:Tesla 115kV bus reconfiguration
	TESLA E SECTION 2E & TESLA D SECTION 2D 230KV	P2	Breaker	78	105	90	68	97	33	66	72	88	Project:Tesla 115kV bus reconfiguration
	TESLA E 230KV - SECTION 2E & 1E	P2	Breaker	82	108	94	72	102	37	70	75	91	Project:Tesla 115kV bus reconfiguration
	TESLA-NEWARK #1 230KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	69	91	108	61	64	43	59	64	76	Continue to monitor
TESLA-SCHULTE SW STA #1 115KV	VIERRA-TRACY-KASSON 115KV (2) and TESLA-SCHULTE SW STA #2 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	104	< 100	< 100	103	< 100	Generation redispatch
TESLA-SCHULTE SW STA #2 115KV	VIERRA-TRACY-KASSON 115KV (2) and TESLA-SCHULTE SW STA #1 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	104	< 100	< 100	104	< 100	Generation redispatch
VACA-BAHIA 230KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	89	101	NConv	91	91	43	NConv	97	103	Install redundant battery supply
	BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV and BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	P6	N-1-1	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Birds-CC PP 230 KV and Birds-CC Sub 230 KV lines	P7	DCTL	78	95	105	72	53	53	85	66	96	Continue to monitor
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	78	92	111	67	48	52	78	65	88	Continue to monitor
VACA-LAMBIE SW STA 230KV	BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV and BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	118	< 100	< 100	< 100	Continue to monitor
	Birds-CC PP 230 KV and Birds-CC Sub 230 KV lines	P7	DCTL	82	80	83	89	8	118	47	40	48	Continue to monitor
VACA-PARKWAY 230KV	TESLA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	88	96	NConv	90	90	45	NConv	96	98	Continue to monitor
	BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV and BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	P6	N-1-1	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Birds-CC PP 230 KV and Birds-CC Sub 230 KV lines	P7	DCTL	77	90	106	71	53	55	85	65	92	Continue to monitor
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	77	87	112	66	48	54	77	64	83	Continue to monitor
VACA-SUISUN-JAMESON 115KV	VACA-VACAVILLE-JAMESON-NORTH TOWER 115KV MOAS OPENED ON HALE J1_HALE and VACA-SUISUN 115KV MOAS OPENED ON VACA-DIX_WEC (2)	P6	N-1-1	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
VACA-VACAVILLE-JAMESON-NORTH TOWER 115KV	Oleum-North Tower-Christie 115 KV and Martinez-Sobrante 115 KV lines	P7	DCTL	102	110	NA	NA	9	15	NA	77	NA	Project:North Tower 115 kV Looping Project
	Oleum-North Tower-Christie 115 KV and Oleum-Martinez 115 KV lines	P7	DCTL	102	158	NA	NA	50	85	NA	77	NA	Project:North Tower 115 kV Looping Project
W.SCRMNO-DAVIS 115KV	WOODLAND-DAVIS 115KV and BRIGHTON-DAVIS 115KV MOAS OPENED ON HOWARDJCT3_BRKRJCT	P6	N-1-1	< 100	113	108	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
WEBER E-STCKTN A-SUMIDEN 60KV	STCKNBIOMASS 13.80KV GEN UNIT 1 and STOCKTON A-WEBER #2 60KV	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
WEIMAR #1 60KV	Base Case	P0	Base Case	15	24	167	7	7	12	21	7	30	Continue to monitor
	OXBOW TAP 60KV MOAS OPENED ON ENVRO_HY_FORST HL	P1	N-1	49	52	159	23	23	16	40	22	44	Continue to monitor
	OXBOW F 9.11KV GEN UNIT 1	P1	N-1	49	52	160	23	23	16	40	23	44	Continue to monitor
	OXBOW 60/9.11KV TB 1	P1	N-1	49	52	160	23	23	16	40	23	44	Continue to monitor
	DRUMPH1 115/115KV TB 1	P1	N-1	18	16	157	6	6	11	18	6	23	Continue to monitor
	BRNSWALT 115KV - RING R5 & R6	P2	Breaker	24	21	154	6	18	11	25	6	26	Continue to monitor
	BRNSWALT 115KV - RING R7 & R6	P2	Breaker	24	21	154	6	18	11	25	6	26	Continue to monitor
	OXBOW F 9.11KV GEN UNIT 1 and DRUMPH1 115/115KV TB 1	P3	G-1/N-1	< 100	< 100	168	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	9	13	139	6	6	11	18	6	24	Continue to monitor
	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	9	13	141	6	6	11	18	6	24	Continue to monitor
	PLACER-GOLD HILL #2 115KV and PLACER-GOLD HILL #1 115KV	P6	N-1-1	< 100	< 100	141	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
WOODLAND-DAVIS 115KV	BRIGHTN 115KV SECTION ME	P2	Breaker	86	106	96	53	40	18	55	52	69	Project:Vacadixon area reinforcement
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	86	106	96	53	40	18	55	52	69	Project:Vacadixon area reinforcement
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	86	106	96	53	40	18	55	52	69	Project:Vacadixon area reinforcement
	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	86	107	96	53	40	18	55	52	69	Project:Vacadixon area reinforcement
	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	86	106	96	53	40	18	55	52	69	Project:Vacadixon area reinforcement
	BRIGHTN 115KV SECTION ME	P2	Breaker	87	112	100	52	44	17	58	52	75	Project:Vacadixon area reinforcement
	BRIGHTN - ME 115KV & BRIGHTN-W.SCRMNO LINE	P2	Breaker	88	99	100	52	44	17	58	52	65	Continue to monitor
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	87	112	100	52	44	17	58	52	75	Project:Vacadixon area reinforcement
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	87	112	100	52	44	17	58	52	75	Project:Vacadixon area reinforcement
	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	87	112	100	52	44	17	58	52	75	Project:Vacadixon area reinforcement
	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	87	112	100	52	44	17	58	52	75	Project:Vacadixon area reinforcement
	STATION DC BATTERY SUPPLY BRIGHTON 115KV BATT	P5	Non-Redundant Battery/Relay	88	99	101	52	52	17	58	52	65	Continue to monitor
	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	81	103	93	44	44	5	47	44	63	Project: Woodland-Davis Re-rate
	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	81	103	93	44	44	5	47	44	63	Project: Woodland-Davis Re-rate
	LOCKFORD-BRIGHTON 230KV and RIO OSO-BRIGHTON 230KV	P6	N-1-1	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project:Vacadixon area reinforcement

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Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
MERIDIAN 60 kV	Base Case	P0	Base Case	0.98	0.95	1.04	1.02	1.02	1.03	1.00	1.02	0.97	Continue to monitor
LOCKFORD 230 kV	BELLOTA 230KV - SECTION 1E & 2E	P2	Breaker	0.93	0.97	0.89	1.03	1.00	1.00	1.00	0.96	0.99	Continue to monitor
DEEPWATR 115 kV	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	0.94	0.88	0.91	1.02	1.04	1.05	0.99	1.02	0.95	Continue to monitor
W.SCRMNO 115 kV	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2	Breaker	0.95	0.89	0.92	1.02	1.04	1.05	1.00	1.02	0.96	Under review
DEEPWATR 115 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	0.94	0.88	0.91	1.02	1.04	1.05	0.99	1.02	0.95	Under review
W.SCRMNO 115 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2	Breaker	0.95	0.89	0.92	1.02	1.04	1.05	1.00	1.02	0.96	Under review
W.SCRMNO 115 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	0.95	0.89	0.92	1.02	1.04	1.05	1.00	1.02	0.96	Under review
DEEPWATR 115 kV	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2	Breaker	0.94	0.88	0.91	1.02	1.04	1.05	0.99	1.02	0.95	Under review
DEEPWATR 115 kV	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	0.94	0.88	0.91	1.02	1.04	1.05	0.99	1.02	0.95	Under review
W.SCRMNO 115 kV	BRIGHTN 115KV - SECTION ME & MD	P2	Breaker	0.95	0.89	0.92	1.02	1.04	1.05	1.00	1.02	0.96	Under review
DEEPWATR 115 kV	BRIGHTN 115KV SECTION ME	P2	Bus	0.94	0.88	0.91	1.02	1.04	1.05	0.99	1.02	0.95	Under review
W.SCRMNO 115 kV	BRIGHTN 115KV SECTION ME	P2	Bus	0.95	0.89	0.92	1.02	1.04	1.05	1.00	1.02	0.96	Under review
E.NICOLS 115 kV	E.NICOLS 115KV - RING R1 & R5	P2	Breaker	1.00	0.99	0.79	1.06	0.79	1.05	1.02	1.06	1.02	Continue to monitor
HORSESHE 115 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.56	0.96	0.93	1.02	1.06	1.06	1.00	0.99	0.98	Project:Goldhill Transformer addition project
PLACER 115 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.58	0.97	0.94	1.03	1.06	1.06	1.00	0.99	0.99	Project:Goldhill Transformer addition project
HIGGINS 115 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.64	0.98	0.96	1.03	1.06	1.06	1.01	1.01	1.00	Project:Goldhill Transformer addition project
BELL PGE 115 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.59	0.97	0.95	1.03	1.06	1.06	1.00	0.99	0.99	Project:Goldhill Transformer addition project
HALSEY 60 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.60	1.01	0.99	1.02	1.03	1.03	1.01	1.02	1.01	Project:Goldhill Transformer addition project
PLACER 60 kV	GOLDHILL 115KV - SECTION 1F & 2F	P2	Breaker	0.60	1.02	0.99	1.02	1.03	1.03	1.02	1.02	1.02	Project:Goldhill Transformer addition project
GOLDHILL 230 kV	GOLDHILL 230KV - SECTION 2D & 2E	P2	Breaker	NA	0.96	0.88	1.03	NA	1.05	1.01	NA	1.00	Continue to monitor
E.MRYSVE 115 kV	PALERMO-NICOLAUS 115KV (E.MRYSVE-E.MRY J2)	P2	Line Section w/o Fault	NA	NA	0.88	NA	NA	1.13	NA	NA	NA	Continue to monitor
SHWSS 60 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	NA	0.42	0.33	NA	0.94	1.00	NA	NA	0.71	Project: Mosher transmission project overload protection scheme.
HAMMER 60 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	NA	0.46	0.38	NA	0.98	1.03	NA	NA	0.76	Project: Mosher transmission project overload protection scheme.
CNTRY CB 60 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	NA	0.46	0.37	NA	0.97	1.03	NA	NA	0.76	Project: Mosher transmission project overload protection scheme.
MSHR 60V 60 kV	STAGG-D SECTION 1D & STAGG-E SECTION 1E 230KV	P2	Breaker	NA	0.54	0.50	NA	0.99	1.03	NA	NA	0.79	Project: Mosher transmission project overload protection scheme.
LOCKFORD 230 kV	BELLOTA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.96	0.87	1.00	0.96	1.00	0.99	0.96	0.98	Continue to monitor
DEEPWATR 115 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.87	0.88	1.02	1.02	1.05	0.99	1.02	0.94	Install redundant relay/battery supply
W.SCRMNO 115 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.88	0.89	1.02	1.02	1.05	1.00	1.02	0.95	Install redundant relay/battery supply
DAVIS 115 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.89	0.89	1.02	1.02	1.05	1.00	1.02	0.96	Install redundant relay/battery supply
BRIGHTN 115 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.87	0.89	1.03	1.03	1.06	1.00	1.03	0.95	Install redundant relay/battery supply
GRAND IS 115 kV	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.87	0.88	1.03	1.03	1.06	0.99	1.03	0.94	Install redundant relay/battery supply
BELL PGE 115 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.89	0.82	0.57	1.00	1.00	1.08	0.95	1.00	0.93	Install redundant relay/battery supply
PLACER 115 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.89	0.81	0.56	1.00	1.00	1.08	0.94	1.00	0.93	Install redundant relay/battery supply
HIGGINS 115 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.85	0.63	1.01	1.01	1.08	0.96	1.01	0.95	Install redundant relay/battery supply
PLACER 60 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.86	0.56	1.02	1.02	1.03	1.01	1.02	0.99	Install redundant relay/battery supply
HALSEY 60 kV	GOLD HILL 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.87	0.55	1.02	1.02	1.03	1.00	1.02	0.99	Install redundant relay/battery supply
HALSEY 60 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.86	0.55	1.02	1.02	1.03	1.00	1.02	0.99	Install redundant relay/battery supply
PLACER 60 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.86	0.56	1.02	1.02	1.03	1.01	1.02	0.99	Install redundant relay/battery supply
HIGGINS 115 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.85	0.63	1.01	1.01	1.08	0.96	1.01	0.95	Install redundant relay/battery supply
PLACER 115 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	0.81	0.55	1.00	1.00	1.08	0.94	1.00	0.93	Install redundant relay/battery supply
BELL PGE 115 kV	GOLD HILL 230-115-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.89	0.82	0.57	1.00	1.00	1.08	0.95	1.00	0.93	Install redundant relay/battery supply
W.SCRMNO 115 kV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.96	0.90	0.90	1.03	1.03	1.07	0.99	1.03	0.96	Continue to monitor
WOODLD 115 kV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.87	0.84	1.02	1.02	1.07	0.98	1.02	0.94	Install redundant relay/battery supply
DAVIS 115 kV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.88	0.86	1.02	1.02	1.07	0.98	1.02	0.95	Install redundant relay/battery supply
DEEPWATR 115 kV	RIO OSO 115 KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.89	0.89	1.03	1.03	1.07	0.99	1.03	0.96	Install redundant relay/battery supply
WOODLD 115 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.58	0.51	Diverge	1.01	1.01	1.07	0.92	1.01	0.79	Install redundant relay/battery supply
BRIGHTON 230 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.76	0.68	Diverge	1.03	1.03	1.01	0.95	1.03	0.86	Install redundant relay/battery supply
BRIGHTN 115 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.73	0.65	Diverge	1.03	1.03	1.07	0.95	1.03	0.85	Install redundant relay/battery supply
GRAND IS 115 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.72	0.64	Diverge	1.03	1.03	1.07	0.94	1.03	0.84	Install redundant relay/battery supply
DEEPWATR 115 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.63	0.54	Diverge	1.03	1.03	1.07	0.93	1.03	0.80	Install redundant relay/battery supply
W.SCRMNO 115 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.64	0.55	Diverge	1.03	1.03	1.06	0.93	1.03	0.81	Install redundant relay/battery supply
DAVIS 115 kV	RIO OSO 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.60	0.52	Diverge	1.02	1.02	1.06	0.92	1.02	0.79	Install redundant relay/battery supply
HAMMER 60 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	0.55	0.46	NA	NA	1.05	NA	NA	0.87	Install redundant relay/battery supply
CNTRY CB 60 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	0.56	0.46	NA	NA	1.05	NA	NA	0.87	Install redundant relay/battery supply
MSHR 60V 60 kV	STAGG 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	0.62	0.56	NA	NA	1.05	NA	NA	0.89	Install redundant relay/battery supply
HAMMER 60 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.46	0.38	NA	NA	1.03	NA	NA	0.76	Install redundant relay/battery supply
CNTRY CB 60 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.46	0.37	NA	NA	1.03	NA	NA	0.76	Install redundant relay/battery supply
SHWSS 60 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.42	0.33	NA	NA	1.00	NA	NA	0.71	Install redundant relay/battery supply
MSHR 60V 60 kV	STAGG 230KV BUS (FAILURE OF NON-REDUNDANT RELAY)	P5	Non-Redundant Battery/Relay	NA	0.54	0.50	NA	NA	1.03	NA	NA	0.79	Install redundant relay/battery supply
BRIGHTN 115 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	0.93	0.87	0.89	1.03	1.03	1.06	1.00	1.03	0.95	Install redundant relay/battery supply
W.SCRMNO 115 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	0.93	0.88	0.89	1.02	1.02	1.05	1.00	1.02	0.95	Install redundant relay/battery supply
DEEPWATR 115 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	0.92	0.87	0.88	1.02	1.02	1.05	0.99	1.02	0.94	Install redundant relay/battery supply

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Study Area: PG&E Central Valley

Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
DAVIS 115 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	0.94	0.89	0.89	1.02	1.02	1.05	1.00	1.02	0.96	Install redundant relay/battery supply
GRAND IS 115 kV	STATION DC BATTERY SUPPLY BRIGHTON 230KV BATT	P5	Non-Redundant Battery/Relay	0.92	0.87	0.88	1.03	1.03	1.06	0.99	1.03	0.94	Install redundant relay/battery supply
DAVIS 115 kV	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	0.95	0.92	0.90	1.02	1.02	1.07	0.99	1.02	0.97	Continue to monitor
WOODLD 115 kV	STATION DC BATTERY SUPPLY ZAMORA 115KV BATT	P5	Non-Redundant Battery/Relay	0.94	0.91	0.88	1.02	1.02	1.07	0.98	1.02	0.96	Continue to monitor
LOCKFORD 230.0 kV	BELLOTA-LOCKFORD 230KV and LOCKEFORD-BELLOTA 230KV	P6	N-1-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
DEEPWATR 115.0 kV	BRIGHTN-W.SCRMNO 115KV and WOODLAND-DAVIS 115KV	P6	N-1-1	0.87	0.82	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
W.SCRMNO 115.0 kV	BRIGHTN-W.SCRMNO 115KV and WOODLAND-DAVIS 115KV	P6	N-1-1	0.88	0.83	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
LODI 60.0 kV	LOCKFORD 230/60KV TB 2 and LOCKFORD 230/60KV TB 3	P6	N-1-1	> 0.9	0.82	0.58	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.92	Project: Mosher transmission project overload protection scheme.
LOCKEFRD 60.0 kV	LOCKFORD 230/60KV TB 2 and LOCKFORD 230/60KV TB 3	P6	N-1-1	> 0.9	0.82	0.59	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.93	Project: Mosher transmission project overload protection scheme.
GRAND IS 115.0 kV	LOCKFORD-BRIGHTON 230KV and RIO OSO-BRIGHTON 230KV	P6	N-1-1	> 0.9	0.87	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
BRIGHTON 230.0 kV	LOCKFORD-BRIGHTON 230KV and RIO OSO-BRIGHTON 230KV	P6	N-1-1	> 0.9	0.87	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
BRIGHTN 115.0 kV	LOCKFORD-BRIGHTON 230KV and RIO OSO-BRIGHTON 230KV	P6	N-1-1	> 0.9	0.87	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
E.NICOLS 115.0 kV	PALERMO-NICOLAUS 115KV MOAS OPENED ON E.MRY J2_E.NICOLS and RIO OSO-NICOLAUS 115KV	P6	N-1-1	> 0.9	> 0.9	0.79	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
E.MRYSVE 115.0 kV	PALERMO-NICOLAUS 115KV MOAS OPENED ON PALERMO_E.MRY J2 and RIO OSO-NICOLAUS 115KV	P6	N-1-1	> 0.9	0.82	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
PLACER 60.0 kV	PLACER-GOLD HILL #1 115KV and PLACER-GOLD HILL #2 115KV	P6	N-1-1	> 0.9	0.86	0.56	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
HALSEY 60.0 kV	PLACER-GOLD HILL #1 115KV and PLACER-GOLD HILL #2 115KV	P6	N-1-1	> 0.9	0.86	0.55	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
BELL PGE 115.0 kV	PLACER-GOLD HILL #1 115KV and PLACER-GOLD HILL #2 115KV	P6	N-1-1	0.89	0.82	0.57	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
HIGGINS 115.0 kV	PLACER-GOLD HILL #1 115KV and PLACER-GOLD HILL #2 115KV	P6	N-1-1	> 0.9	0.85	0.63	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
PLACER 115.0 kV	PLACER-GOLD HILL #1 115KV and PLACER-GOLD HILL #2 115KV	P6	N-1-1	0.89	0.81	0.55	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support
ATLANTC 230.0 kV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
PLSNT GR 115.0 kV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ATLANTIC 115.0 kV	RIO OSO-ATLANTIC 230KV and ATLANTIC-GOLD HILL 230KV	P6	N-1-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LINCLN 115.0 kV	RIO OSO-ATLANTIC 230KV and RIO OSO-LINCLN-SPILINCOLN 115KV	P6	N-1-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
WOODLD 115.0 kV	RIO OSO-WOODLAND #1 115KV and RIO OSO-WOODLAND #2 115KV	P6	N-1-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CNTRY CB 60.0 kV	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	> 0.9	> 0.9	0.32	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.50	Continue to monitor
HAMMER 60.0 kV	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	> 0.9	> 0.9	0.33	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.50	Continue to monitor
SHWSS 60.0 kV	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	> 0.9	> 0.9	0.29	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.45	Continue to monitor
MSHR 60V 60.0 kV	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	> 0.9	> 0.9	0.47	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.60	Continue to monitor
STAGG-D 230.0 kV	STAGG-TESLA 230KV and EIGHT MILE ROAD-STAGG 230KV	P6	N-1-1	> 0.9	> 0.9	0.28	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.45	Continue to monitor
DAVIS 115.0 kV	W.SCRMNO-DAVIS 115KV and WOODLAND-DAVIS 115KV	P6	N-1-1	0.87	0.83	0.79	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Operating solution or voltage support

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **PG&E Central Valley**
Voltage Deviation

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
No single contingency resulted in voltage deviation of more than 8%													

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **PG&E Central Valley**
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
In accordance with TPL-001-5- Requirement R2.6, this area relies on the past studies from the 2024-25 Transmission Planning Process for transient stability studies:									
https://stakeholdercenter.caiso.com/InitiativeDocuments/BoardApproved-AppendixC-2024-2025-TransmissionPlan.pdf									

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **PG&E Central Valley**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	

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

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **PG&E Central Valley**
Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)										Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
AMES 115KV BUS TIE	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MTN VIEW-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MTN VIEW-MONTA VISTA 115KV and NEWARK-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	108	< 100	< 100	136	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	5	6	101	Diverge	4	4	122	4	86	4	5	5	Install redundant battery supply
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	5	6	89	108	4	4	109	4	76	4	5	5	Install redundant relay
AMES BS1-WHISMAN #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and LOS ESTEROS-METCALF 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-RAVENSWOOD 230KV and TESLA-NEWARK #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	60	57	Diverge	Diverge	41	36	94	59	94	68	61	82	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	59	51	80	Diverge	45	34	94	63	91	72	67	86	Continue to monitor
	MTN VIEW-MONTA VISTA 115KV	P1	N-1	63	52	85	114	47	35	104	64	101	74	67	87	Continue to monitor
	MT VIEW 115KV SECTION 1C	P2	Bus	63	52	85	114	47	35	104	64	101	74	67	87	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	72	63	104	134	55	43	114	71	110	84	74	101	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	61	56	78	103	46	39	87	68	104	75	70	89	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	64	55	78	111	46	33	96	59	90	74	63	88	Continue to monitor
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	64	63	98	119	48	45	111	60	102	75	63	97	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	60	53	64	101	46	35	93	65	98	70	68	84	Continue to monitor
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	27	20	102	Diverge	10	4	82	5	72	31	7	42	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	79	62	101	Diverge	50	39	109	70	100	83	72	93	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	116	71	Diverge	148	149	Diverge	157	Diverge	Install redundant battery supply
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	73	66	92	110	47	42	88	64	101	79	67	93	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	81	74	100	Diverge	51	46	109	71	102	84	74	107	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	104	Diverge	Diverge	115	69	Diverge	148	150	Diverge	156	Diverge	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	82	80	88	Diverge	48	51	Diverge	68	103	88	70	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
AMES BS2-MT VIEW #1 115KV	TESLA-METCALF 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen and WHISMAN-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	112	< 100	< 100	113	< 100	121	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	111	70	Diverge	146	131	Diverge	154	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	104	Diverge	Diverge	110	68	Diverge	145	132	Diverge	153	Diverge	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	68	65	63	Diverge	43	45	Diverge	57	91	78	58	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
AMES DISTRIBUTION-AMES 115KV	TESLA-NEWARK #1 230KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK-RAVENSWOOD 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	123	< 100	123	< 100	< 100	< 100	Continue to monitor
	NEWARK-RAVENSWOOD 230KV	P1	N-1	15	19	38	91	12	20	102	34	100	12	32	12	Continue to monitor
	RVNSWD E 115KV - SECTION 2E & 1E	P2	Breaker	1	4	74	126	6	12	120	13	115	6	6	7	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	35	43	100	142	28	38	124	59	146	36	57	40	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	30	19	Diverge	48	78	Diverge	50	Diverge	Install redundant battery supply
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	6	10	237	Diverge	7	13	224	16	205	3	14	3	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	Diverge	25	Diverge	Diverge	29	18	Diverge	48	94	Diverge	50	Diverge	Install redundant relay
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	41	51	120	Diverge	32	44	124	60	143	38	59	43	Install redundant relay
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	2	7	210	258	7	11	202	11	182	6	11	7	Install redundant relay
AMES DISTRIBUTION-PALO ALTO 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK-RAVENSWOOD 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK-RAVENSWOOD 230KV and JEFFERSN-EGBERTSWSTA 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	122	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	NA	NA	72	Diverge	NA	NA	114	NA	107	NA	NA	NA	Continue to monitor
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	146	Diverge	NA	NA	181	NA	133	NA	NA	NA	Install redundant battery supply
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	NA	86	Diverge	NA	NA	114	NA	106	NA	NA	NA	Install redundant relay
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	NA	NA	129	157	NA	NA	161	NA	116	NA	NA	NA	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	100	Diverge	NA	NA	Diverge	NA	29	NA	NA	NA	Project: Newark 230 kV DC Supply and Control Circuit
A-X #1 115KV	A-Y #1 (UNDERGROUND IDLE) 115KV and A-P #1 115KV	P6	N-1-1	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	POTRERO 115KV SECTION 1D	P2	Bus	76	78	88	103	71	76	92	74	64	72	74	70	Continue to monitor
	POTRERO 115KV SECTION 2E	P2	Bus	73	76	88	115	51	47	76	55	42	70	54	69	Continue to monitor
	POTRERO - 1D 115KV & A-Y #1 (UNDERGROUND IDLE) LINE	P2	Breaker	76	78	88	103	71	76	92	74	64	72	74	70	Continue to monitor
	POTRERO - 2E 115KV & POTRERO-TBC_POT1 #1 LINE	P2	Breaker	73	76	88	115	51	47	76	55	42	70	54	69	Continue to monitor
	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0	69	Diverge	88	0	71	Diverge	0	41	0	0	56	Install redundant battery supply
	HUNTERS POINT (SF P) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	75	78	89	102	71	77	101	74	54	67	73	65	Install redundant battery supply
A-Y #1 (UNDERGROUND IDLE) 115KV	X-Y #1 115KV and H-Y #1 115KV	P6	N-1-1	< 100	< 100	112	127	< 100	< 100	135	< 100	< 100	< 100	< 100	< 100	Continue to monitor
BAHIA-MORAGA 230KV	COLLINSVILLE-TESLA 500KV and TABLE MT-TESLA 500KV	P6	N-1-1	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPE 230KV - SECTION 1E & 2E	P2	Breaker	80	86	90	Diverge	35	40	77	63	65	78	57	85	Continue to monitor
	Birds-CC PP 230 KV and Birds-CC Sub 230 KV lines	P7	DCTL	< 100	80	88	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	58	77	Diverge	Diverge	31	29	75	48	37	59	51	77	Install redundant battery supply
	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	85	90	102	Diverge	41	47	86	69	69	84	64	93	Install redundant battery supply
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	87	92	105	Diverge	42	48	88	71	69	85	65	94	Install redundant relay
BAIR 115/60KV TB 1	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	226	243	56	44	210	243	39	220	23	214	219	230	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	210	230	38	Diverge	213	241	17	216	20	208	217	197	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
BAIR-BELMONT 115KV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	139	146	42	40	121	128	36	133	23	129	133	135	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	132	140	31	Diverge	118	124	23	128	9	124	129	124	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
BAIR-CLY LNDG 60KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and BAIR-REDWOOD-CLY LNDG 60KV	P3	G-1/N-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	244	250	31	13	180	199	15	241	13	231	241	237	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	234	241	11	Diverge	181	197	10	237	17	226	238	217	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
BAIR-REDWOOD-CLY LNDG 60KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and BAIR-CLY LNDG 60KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	62	64	107	Diverge	29	31	Diverge	42	23	53	42	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	301	308	70	61	203	218	31	274	28	279	273	289	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	288	298	53	Diverge	204	217	8	271	14	277	272	266	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
BAIR-RVNSWD D-LONESTAR 115KV	SAN MATEO-BELMONT 115KV and RAVENSWOOD-BAIR #1 115KV	P6	N-1-1	< 100	< 100	105	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and CONTRA COSTA PP-CONTRA COSTA SUB 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	106	< 100	116	< 100	< 100	< 100	Continue to monitor
	COLLINSVILLE-TESLA 500KV and BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV	P6	N-1-1	< 100	< 100	116	114	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Vaca-Peabody 230 KV and Vaca-Lambie SW STA 230 KV lines	P7	DCTL	65	54	54	35	42	77	90	72	100	37	30	39	Continue to monitor
BIRDS LANDING SW STA-CONTRA COSTA SUB 230KV	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and BIRDS LANDING SW STA-CONTRA COSTA PP 230KV	P3	G-1/N-1	< 100	< 100	< 100	112	< 100	< 100	113	< 100	108	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPD SECTION 2D & C.COSTAPPE SECTION 2E 230KV	P2	Breaker	81	84	109	87	48	52	93	90	80	83	60	85	Continue to monitor
	C.COSTAPPE 230KV SECTION 2E	P2	Bus	< 100	95	96	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPE - 2E 230KV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	< 100	95	96	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	BIRDS LANDING SW STA-CONTRA COSTA PP 230KV and COLLINSVILLE-TESLA 500KV	P6	N-1-1	< 100	103	114	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
BRITTON-MONTA VISTA 115KV	LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	73	92	Diverge	NA	73	108	NA	62	NA	NA	78	Continue to monitor
	WHISMAN-MONTA VISTA 115KV	P1	N-1	62	73	85	92	61	68	104	51	59	61	53	80	Continue to monitor
	MTN VIEW-MONTA VISTA 115KV	P1	N-1	62	74	86	92	61	69	104	52	59	61	53	80	Continue to monitor
	LAWRENCE-MONTA VISTA 115KV	P1	N-1	62	76	88	94	61	73	107	51	61	61	52	82	Continue to monitor
	LOS ESTEROS-METCALF 230KV	P1	N-1	64	75	85	92	62	71	105	53	60	63	54	81	Continue to monitor
	NEWARK F 115KV SECTION 2Z	P2	Bus	99	99	115	129	81	91	121	68	70	93	69	102	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	71	82	96	105	67	76	114	58	63	69	60	89	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	65	77	85	93	64	73	107	56	62	63	58	83	Continue to monitor
	Whisman-Monta Vista & Mountain View-Monta Vista 115 KV Line	P7	DCTL	74	85	102	114	72	78	128	62	72	74	65	95	Continue to monitor
	Whisman-Mountain View & Mountain View-Ames 115 KV Lines	P7	DCTL	NA	73	88	97	NA	65	110	NA	66	NA	NA	85	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	65	81	92	99	62	75	108	54	60	62	55	85	Continue to monitor
	LAWRENCE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	65	83	98	105	64	86	126	53	74	64	55	93	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	82	90	113	Diverge	73	82	128	65	70	77	67	96	Install redundant battery supply
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	77	106	112	124	84	111	148	74	83	70	74	97	Install redundant relay

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	83	96	112	Diverge	74	87	127	66	71	78	68	103	Install redundant relay
	NEWARK-APPLIED MATERIALS 115KV (NEWARK F-LCKHD J2)	P2	Line Section w/o Fault	76	105	112	122	84	111	145	74	83	70	74	96	Potential capacity increase. Contribution from large load under review.
	NEWARK F 115KV SECTION 2F	P2	Bus	76	104	111	120	84	111	144	74	83	69	74	96	Potential capacity increase. Contribution from large load under review.
	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	76	104	111	120	84	111	144	74	83	69	74	96	Potential capacity increase. Contribution from large load under review.
	NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Breaker	NA	104	111	121	NA	111	144	NA	83	NA	NA	96	Potential capacity increase. Contribution from large load under review.
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	76	106	112	123	84	111	147	74	84	70	74	97	Potential capacity increase. Contribution from large load under review.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	92	110	170	Diverge	77	100	Diverge	66	76	87	67	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
CASTRO VALLEY-NEWARK 230KV	Metcalf - San Jose B HVDC Gen and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	72	83	99	Diverge	19	54	59	28	72	61	21	66	Continue to monitor
	TESLA-NEWARK #2 230KV and PITTSBURG-TASSAJARA 230KV	P6	N-1-1	< 100	< 100	107	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	66	71	89	100	16	42	48	26	61	58	21	58	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	69	77	101	Diverge	17	46	52	26	63	61	21	60	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	70	77	102	Diverge	17	46	52	27	63	61	21	61	Continue to monitor
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	63	68	91	105	16	45	55	28	69	54	21	54	Continue to monitor
	C.COSTAPPO 230KV - SECTION 1D & 2D	P2	Breaker	80	82	81	110	16	44	50	34	77	68	25	62	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	74	80	103	Diverge	22	47	59	33	68	66	28	67	Continue to monitor
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	77	80	75	105	19	55	49	32	78	61	22	64	Continue to monitor
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	81	81	65	110	18	52	49	34	78	67	25	61	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	79	80	77	110	18	53	49	34	79	66	24	62	Continue to monitor
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	Diverge	101	Diverge	Diverge	42	58	Diverge	66	101	Diverge	62	Diverge	Install redundant relay
CHARCOTSWSTA-MONTAGUE #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SWIFT-METCALF 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LS ESTRS-RINGWOODSWST #1 115KV and SWIFT-METCALF 115KV	P6	N-1-1	< 100	< 100	130	152	< 100	< 100	145	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Los Esteros - Montague 115 KV and Montague - Trimble 115 KV	P7	DCTL	NA	0	105	114	NA	0	105	NA	71	NA	NA	0	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	NA	17	105	115	NA	14	110	NA	64	NA	NA	9	Continue to monitor
CHRISTIE-FRANKLIN #2 60KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and OLEUM-CHRISTIE 115KV	P6	N-1-1	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	75	86	107	119	42	48	85	74	41	49	74	56	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	66	76	95	107	42	48	85	66	36	43	66	49	Continue to monitor
	CHRISTIE 115KV - RING R2 & R1	P2	Breaker	66	76	95	109	42	48	85	66	36	43	66	49	Continue to monitor
	CHRISTIE 115KV - RING R2 & R3	P2	Breaker	66	76	95	109	42	48	85	66	36	43	66	49	Continue to monitor
	CHRISTIE 115KV - RING R4 & R3	P2	Breaker	66	80	101	108	42	48	85	66	36	43	66	51	Continue to monitor
	CHRISTIE 115KV - RING R1 & R4	P2	Breaker	66	79	100	107	42	48	85	66	36	43	66	51	Continue to monitor
	OLEUM 115KV - SECTION 1E & 1F	P2	Breaker	66	76	95	107	42	48	85	66	36	43	66	49	Continue to monitor
	SOBRANTE 115KV - SECTION 1D & 2D	P2	Breaker	66	79	101	105	42	48	85	66	36	43	66	49	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	66	79	101	105	42	48	85	66	36	43	66	51	Continue to monitor
	SOBRANTE 230KV - SECTION 1E & 2E	P2	Breaker	NA	76	98	108	NA	48	85	NA	36	NA	NA	49	Continue to monitor
	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	66	78	99	108	42	48	85	66	36	43	66	49	Continue to monitor
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	66	76	97	107	42	48	85	66	36	43	66	49	Continue to monitor
	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	66	76	97	107	42	48	85	66	36	43	66	49	Continue to monitor
	Tidewater-Sobrante 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	66	76	97	107	42	48	85	66	36	43	66	49	Continue to monitor
	Base Case	P0	Base Case	< 100	86	108	120	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	< 100	76	103	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	66	76	98	109	42	48	85	66	36	43	66	49	Install redundant battery supply
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	66	76	97	109	42	48	85	66	36	43	66	49	Install redundant relay
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	66	76	98	110	42	48	85	66	36	43	66	49	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	66	78	100	109	42	48	85	66	36	43	66	51	Project: Moraga 230-115 kV DC Supply and Control Circuit
	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	66	76	103	Diverge	42	48	85	66	36	43	66	49	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	71	124	134	160	42	53	106	66	36	43	66	66	Project: Sobrante 230-115 kV DC Supply and Control Circuit
CHRISTIE-SOBRANTE 115KV	SOBRANTE-G #1 115KV and SOBRANTE-G #2 115KV	P6	N-1-1	127	< 100	< 100	< 100	< 100	< 100	< 100	128	< 100	< 100	127	< 100	Project: Christie - Sobrante 115 kV Line Reconductor
	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	127	< 100	< 100	94	97	63	78	128	40	85	127	88	Project: Christie - Sobrante 115 kV Line Reconductor
C-L #1 115KV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	144	235	272	Diverge	146	204	240	173	128	151	171	181	Project: Moraga 230-115 kV DC Supply and Control Circuit
	OAKLAND-X 115KV - SECTION 2D & 1D	P2	Breaker	30	114	40	0	55	64	13	69	8	75	65	106	Project: North Oakland Reinforcement
	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	96	107	1	13	95	103	42	93	12	79	92	89	Project: North Oakland Reinforcement
	MORAGA.D 115KV - SECTION 1D & 2D	P2	Breaker	35	102	58	47	53	84	12	65	18	60	68	56	Project: North Oakland Reinforcement
	OAKLAND X 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	30	114	40	0	55	64	13	69	8	75	65	106	Project: North Oakland Reinforcement
	CLAREMONT (OAKLAND K) 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	96	107	1	13	95	103	42	93	12	79	92	89	Project: North Oakland Reinforcement
CLAYTN-LAKEWD-C-MEDW LNE-WALNUTCR 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and LAKEWOOD-CLAYTON 115KV	P3	G-1/N-1	< 100	< 100	115	123	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-SAN RAMON 230KV and LAKEWOOD-CLAYTON 115KV	P6	N-1-1	< 100	< 100	121	127	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LAKEWOOD-CLAYTON 115KV	P1	N-1	60	81	111	117	49	48	74	56	15	31	58	44	Continue to monitor
CLY LND 115/60KV TB 1	BAIR 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	< 100	< 100	< 100	111	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	Continue to monitor
CLY LND2 115/60KV TB 2	BAIR 115/60KV TB 1 and CLY LND 115/60KV TB 1	P6	N-1-1	< 100	< 100	< 100	111	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	Continue to monitor
CONTRA COSTA 230KV BUS TIE	C.COSTAPPE SECTION 2E & C.COSTAPPF SECTION 2F 230KV	P2	Breaker	90	98	11	109	26	30	53	61	82	74	52	68	Continue to monitor
	C.COSTAPPE 230KV SECTION 2E	P2	Bus	< 100	91	15	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPE - 2E 230KV & BVISTAWNDC1-DELTAPMP-C.COSTAPPE LINE	P2	Breaker	< 100	91	16	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPE 230KV SECTION 1E	P2	Bus	91	101	8	116	29	26	53	66	76	78	58	74	Continue to monitor
	C.COSTAPPE - 1E 230KV & ROSSMOOR-MORAGA-C.COSTAPPE LINE	P2	Breaker	91	101	8	116	29	26	53	66	76	78	58	74	Continue to monitor
	C.COSTAPPE SECTION 1E & C.COSTAPPF SECTION 1F 230KV	P2	Breaker	0	100	8	113	0	29	54	0	79	0	0	68	Continue to monitor
CONTRA COSTA-LAS POSITAS 230KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-TASSAJARA 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	75	82	NA	Diverge	43	82	106	49	69	55	41	69	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	75	79	NA	Diverge	47	78	102	56	66	59	49	69	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	74	77	NA	101	44	75	101	50	64	55	43	65	Continue to monitor
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	77	80	NA	96	46	84	109	54	72	54	44	67	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	NA	Diverge	61	83	Diverge	69	69	Diverge	63	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	92	NA	Diverge	61	83	Diverge	69	81	Diverge	63	Diverge	Install redundant relay
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	83	85	NA	107	49	87	114	58	76	60	48	73	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	84	86	NA	Diverge	50	88	117	59	77	61	49	74	Project: Moraga 230-115 kV DC Supply and Control Circuit
COOLEY LANDING - RAVENSWOOD 115 KV LINE (TAP CLY LND2	RAVENSWOOD-COOLEY LANDING #2 115KV and CLY LND 115/60KV TB 1	P6	N-1-1	< 100	< 100	< 100	121	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
COOLEY LANDING-PALO ALTO 115KV	RAVENSWOOD-COOLEY LANDING #2 115KV and RAVENSWOOD-COOLEY LANDING #1 115KV	P6	N-1-1	< 100	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Ravenswood-Cooley Landing Nos. 1 & 2 115 KV lines	P7	DCTL	81	87	85	114	48	54	93	68	68	62	67	63	Continue to monitor
	RVNSWD E 115KV - SECTION 2E & 1E	P2	Breaker	103	122	70	36	86	99	33	98	45	103	98	121	Project: Ames Distribution - Palo Alto 115 kV Transmission Line
	Ravenswood-Palo Alto Nos. 1 & 2 115 KV lines	P7	DCTL	101	118	91	75	84	97	46	96	56	101	96	118	Project: Ames Distribution - Palo Alto 115 kV Transmission Line
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	111	122	78	100	110	122	102	122	72	122	121	134	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	107	118	97	Diverge	111	121	131	120	101	119	120	124	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
COOLEY LANDING-STANFORD 60KV	Metcalf - San Jose B HVDC Gen and RAVENSWD SVD=V	P3	G-1/N-1	< 100	< 100	< 100	111	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CLY LND2 115/60KV TB 2 and CLY LND 115/60KV TB 1	P6	N-1-1	< 100	< 100	111	137	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	74	84	102	119	43	51	97	71	40	46	71	51	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	65	73	92	107	43	51	97	62	35	41	62	45	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	73	90	108	NA	51	97	NA	35	NA	NA	45	Continue to monitor
	CLY LND2 115/60KV TB 2	P1	N-1	65	73	90	107	43	51	97	62	35	41	62	45	Continue to monitor
	CLY LND 115/60KV TB 1	P1	N-1	65	73	90	107	43	51	97	62	35	41	62	45	Continue to monitor
	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	73	90	108	NA	51	97	NA	35	NA	NA	45	Continue to monitor
	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	73	90	108	NA	51	97	NA	35	NA	NA	45	Continue to monitor
	MONTAVIS 230KV - SECTION 1D & 2D	P2	Breaker	65	73	92	107	43	51	97	62	35	41	62	45	Continue to monitor
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	65	73	90	108	43	51	97	62	35	41	62	45	Continue to monitor
	Ravenswood-Cooley Landing Nos. 1 & 2 115 KV lines	P7	DCTL	65	73	90	107	43	51	97	62	35	41	62	45	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	65	73	92	107	43	51	97	62	35	41	62	45	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	65	73	92	107	43	51	97	62	35	41	62	45	Continue to monitor
	CLY LND 115/60KV TB 1 and CLY LND2 115/60KV TB 2	P6	N-1-1	< 100	< 100	111	137	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	65	73	92	109	43	51	97	62	35	41	62	45	Continue to monitor
	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	65	73	92	107	43	51	97	62	35	41	62	45	Continue to monitor
	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	65	73	92	109	43	51	97	62	35	41	62	45	Project: Potrero 115 kV DC Supply and Control Circuit Project

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	65	73	121	Diverge	43	51	Diverge	62	35	41	62	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	77	81	94	113	65	73	99	89	35	53	89	55	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	84	89	103	Diverge	58	66	83	92	37	61	93	60	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	73	90	107	43	51	97	62	Diverge	41	62	45	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
CP LECEF-LS ESTRS #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and CP LECEF-LS ESTRS #2 115KV	P3	G-1/N-1	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and CP LECEF-LS ESTRS #2 115KV	P6	N-1-1	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
CP LECEF-LS ESTRS #2 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and CP LECEF-LS ESTRS #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and CP LECEF-LS ESTRS #1 115KV	P6	N-1-1	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
C-X #2 115KV	CLAREMONT (OAKLAND K) 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	74	125	42	9	91	99	27	95	17	91	92	110	Install redundant battery supply
	CLARMNT 115KV - SECTION 2D & 1D	P2	Breaker	74	125	42	9	91	99	27	95	17	91	92	110	Project: North Oakland Reinforcement
	MORAGA-CLAREMONT #2 115KV and C-X #3 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110	Sensitivity only
	MORAGA.C 115KV - SECTION 1C & 2C	P2	Breaker	49	76	40	5	51	61	33	63	22	55	53	106	Sensitivity only
DIXON LD-MCKEE-MABURY 115KV	H-Z #2 230KV and PIERCY-METCALF 115KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	49	37	Diverge	81	74	Diverge	79	Diverge	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	73	123	166	Diverge	35	78	116	57	61	46	57	92	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	87	Diverge	Diverge	49	39	Diverge	80	33	Diverge	79	Diverge	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	74	125	165	Diverge	35	78	116	57	61	46	57	93	Install redundant relay
	Metcalf - San Jose B HVDC Gen and PIERCY-METCALF 115KV	P3	G-1/N-1	< 100	124	Diverge	Diverge	< 100	< 100	117	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	PIERCY-METCALF 115KV	P1	N-1	71	122	154	176	34	78	112	57	61	45	56	90	Potential capacity increase. Contribution from large load under review.
	METCALFE 115KV SECTION 2E	P2	Bus	71	122	155	181	35	78	112	57	61	45	57	90	Potential capacity increase. Contribution from large load under review.
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	71	122	156	Diverge	35	78	112	57	61	45	57	91	Potential capacity increase. Contribution from large load under review.
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	71	122	156	170	35	78	112	57	61	45	57	91	Potential capacity increase. Contribution from large load under review.
	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	71	122	156	Diverge	35	78	113	57	61	45	57	91	Potential capacity increase. Contribution from large load under review.
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	123	Diverge	Diverge	NA	78	114	NA	61	NA	NA	92	Potential capacity increase. Contribution from large load under review.
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	71	123	157	Diverge	35	78	113	57	61	45	57	91	Potential capacity increase. Contribution from large load under review.
DUMBARTON-NEWARK 115KV	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	100	< 100	110	127	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	18	43	50	110	28	49	87	65	32	10	64	60	Continue to monitor
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	99	179	108	Diverge	68	150	116	65	52	48	67	182	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	63	57	129	Diverge	27	31	Diverge	9	37	68	9	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	< 100	108	< 100	155	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line
E. SHORE 230/115KV TB 1	Q1552BESS 0.48KV GEN UNIT 1 and E. SHORE 230/115KV TB 2	P3	G-1/N-1	< 100	107	132	116	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	E. SHORE 230/115KV TB 2 and EASTSHORE-SAN MATEO 230KV	P6	N-1-1	116	< 100	148	< 100	102	< 100	143	< 100	< 100	104	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	E. SHORE 230/115KV TB 2	P1	N-1	77	108	134	118	72	92	106	35	56	64	36	100	Potential capacity increase. Contribution from large load under review.
	EASTSHRE 115KV SECTION ME	P2	Bus	55	92	100	103	62	89	100	37	53	45	39	92	Potential capacity increase. Contribution from large load under review.
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	67	88	108	Diverge	62	83	111	41	56	55	42	75	Potential capacity increase. Contribution from large load under review.
	E. SHORE 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	77	108	133	118	72	92	105	35	56	65	36	100	Potential capacity increase. Contribution from large load under review.
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	57	80	104	Diverge	54	70	94	32	48	48	32	74	Project: Moraga 230-115 kV DC Supply and Control Circuit
E. SHORE 230/115KV TB 2	Q1552BESS 0.48KV GEN UNIT 1 and E. SHORE 230/115KV TB 1	P3	G-1/N-1	< 100	106	131	115	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	EASTSHORE-SAN MATEO 230KV and E. SHORE 230/115KV TB 1	P6	N-1-1	116	< 100	147	117	102	< 100	143	< 100	< 100	104	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	E. SHORE 230/115KV TB 1	P1	N-1	77	107	132	117	71	91	106	35	56	64	36	100	Potential capacity increase. Contribution from large load under review.
	EASTSHRE 115KV SECTION MD	P2	Bus	76	105	132	117	69	88	103	34	55	63	34	96	Potential capacity increase. Contribution from large load under review.
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	66	85	106	Diverge	61	80	112	41	56	55	41	72	Potential capacity increase. Contribution from large load under review.
	E. SHORE 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	76	107	132	117	71	91	105	35	56	64	36	100	Potential capacity increase. Contribution from large load under review.
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	56	77	102	Diverge	53	67	95	32	48	48	32	69	Project: Moraga 230-115 kV DC Supply and Control Circuit
EAST GRAND-SAN MATEO 115KV	Metcalf - San Jose B HVDC Gen and MARTIN-EAST GRAND 115KV	P3	G-1/N-1	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO-MARTIN 230KV and POTRERO-TBC_POT1 #1 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	46	45	54	68	40	53	102	47	76	41	44	37	Continue to monitor
	MARTIN-EAST GRAND 115KV	P1	N-1	50	63	101	95	48	58	107	47	69	43	47	54	Continue to monitor
	MARTIN C 115KV - MIDDLE BREAKER BAY 5	P2	Breaker	50	63	100	94	48	58	107	47	69	43	47	54	Continue to monitor
	Martin-East Grand No. 2 115 KV and San Mateo-Martin No. 3 115 KV lines	P7	DCTL	50	63	101	95	49	58	107	47	69	43	47	54	Continue to monitor
	Martin-East Grand 115 KV and San Mateo-Martin No. 6 115 KV lines	P7	DCTL	50	63	101	95	49	58	107	47	69	43	47	54	Continue to monitor
	TESLA-NEWARK #2 230KV and MARTIN-EAST GRAND 115KV	P6	N-1-1	< 100	< 100	128	121	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO-MARTIN 230KV	P1	N-1	55	61	66	79	47	62	102	54	85	50	52	52	Continue to monitor
	JEFFERSN-EGBERTSWSTA 230KV	P1	N-1	NA	58	63	77	NA	59	101	NA	83	NA	NA	54	Continue to monitor
	POTRERO-TBC_POT1 #1 115KV	P1	N-1	62	67	75	85	56	68	104	62	90	59	61	62	Continue to monitor
	SAN MATEO-MARTIN 230KV (2)	P1	N-1	NA	61	66	79	NA	62	102	NA	85	NA	NA	52	Continue to monitor
	POTRERO 115KV SECTION 2E	P2	Bus	62	67	75	85	56	69	104	62	91	59	60	62	Continue to monitor
	EST GRND 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	56	74	112	105	54	69	117	53	86	52	53	69	Continue to monitor
	POTRERO - 2E 115KV & POTRERO-TBC_POT1 #1 LINE	P2	Breaker	62	67	75	85	56	69	104	62	91	59	60	62	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	56	63	70	85	50	63	108	58	86	53	56	58	Continue to monitor
	San Mateo-Martin No. 3 115 KV and SF Airport-San Mateo No. 5 115 KV lines	P7	DCTL	54	59	64	78	46	62	103	54	88	50	52	51	Continue to monitor
	San Mateo-Martin No. 3 115 KV and San Mateo-Burlingame No. 4 115 KV lines	P7	DCTL	53	58	63	76	45	60	101	53	86	49	51	50	Continue to monitor
	San Mateo-Martin No. 6 115 KV and SF Airport-San Matoe115 KV lines	P7	DCTL	53	59	64	77	46	62	102	54	88	50	51	51	Continue to monitor
	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	51	64	107	105	49	59	110	47	70	44	47	55	Continue to monitor
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	55	61	70	Diverge	48	62	107	56	84	51	54	56	Continue to monitor
	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	51	63	Diverge	102	49	58	Diverge	47	69	44	47	55	Project: Martin (SF H) 230-115-60 kV DC Supply and Control Circuit
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	63	Diverge	80	51	58	Diverge	57	84	Diverge	56	Diverge	Project: Metcalf 230 kV Redundant Bus Differential Relay
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	Diverge	51	59	Diverge	58	82	Diverge	56	Diverge	Project: Metcalf 500 kV-230 kV DC Supply and Control Circuit
EASTSHORE-DUMBARTON 115KV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	63	60	120	Diverge	33	38	Diverge	14	33	61	10	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	45	94	43	53	31	84	51	29	28	17	30	103	Sensitivity only
EASTSHORE-SAN MATEO 230KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN LEANDRO-OAKLND J #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	94	75	88	Diverge	76	81	89	72	91	115	70	60	Sensitivity only
EGBERTSWSTA-EMBRCDRD 230KV	H-Z #2 230KV and POTRERO-TBC_POT1 #1 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	62	54	82	NA	69	Diverge	NA	Diverge	NA	NA	55	Install redundant battery supply
	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	79	Diverge	127	NA	77	Diverge	NA	17	NA	NA	48	Install redundant battery supply
EGBERTSWSTA-JEFFERSN 230KV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	53	Diverge	85	NA	56	Diverge	NA	25	NA	NA	39	Project: Martin (SF H) 230-115-60 kV DC Supply and Control Circuit
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	90	77	Diverge	NA	101	Diverge	NA	Diverge	NA	NA	86	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
EGBERTSWSTA-MARTIN C 230KV	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	NA	72	57	Diverge	NA	80	Diverge	NA	Diverge	NA	NA	65	Install redundant battery supply
EL PATIO-SAN JOSE A 115KV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	63	Diverge	Diverge	NA	78	115	NA	80	NA	NA	105	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	Diverge	Diverge	Diverge	77	35	38	Diverge	73	75	Diverge	71	Diverge	Install redundant battery supply
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	116	50	55	Diverge	101	58	85	77	50	112	79	87	Install redundant battery supply
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	107	43	49	72	84	52	80	60	48	113	62	80	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery	72	70	95	Diverge	43	51	Diverge	40	61	74	41	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK E-F BUS TIE 230KV and LOS ESTEROS-METCALF 230KV	P6	N-1-1	114	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120	< 100	< 100	Project: San Jose area HVDC line
	METCALFE 115KV - SECTION 1E & 2E	P2	Breaker	112	NA	NA	NA	95	NA	NA	75	NA	114	77	NA	Project: San Jose area HVDC line
	Metcalf - Evergreen #1 and #2 115 KV Lines	P7	DCTL	104	NA	NA	NA	82	NA	NA	62	NA	103	65	NA	Project: San Jose area HVDC line
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	108	43	48	71	86	53	80	61	50	114	63	81	Project: San Jose area HVDC line
	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	98	NA	NA	NA	52	NA	NA	39	NA	100	41	NA	Sensitivity only
	SAN JOSE A-SAN JOSE B 115KV	P1	N-1	13	61	56	57	7	97	77	10	71	10	10	105	Sensitivity only

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	SN JSE A 115KV SECTION 1F	P2	Bus	10	61	56	57	6	97	77	8	71	8	8	105	Sensitivity only
	SANJOSEB 115KV - MIDDLE BREAKER BAY 4	P2	Breaker	NA	61	56	57	NA	97	77	NA	71	NA	NA	105	Sensitivity only
	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	13	61	57	59	7	97	77	10	71	10	10	107	Sensitivity only
EVERGREEN-ALMADEN 60KV	SILVERCRKSS-METCALFE #2 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	< 100	< 100	111	130	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	76	82	104	113	25	29	56	60	26	51	60	54	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	67	73	94	104	25	29	56	53	23	45	53	48	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	73	100	Diverge	NA	29	58	NA	23	NA	NA	48	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	67	73	96	108	25	29	56	53	23	45	53	48	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	73	92	105	NA	29	56	NA	23	NA	NA	48	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV (MARKHM J-EVRGRN 1)	P2	Line Section w/o Fault	67	73	96	108	25	29	56	53	23	45	53	48	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV (SANJOSEB-MARKHM J)	P2	Line Section w/o Fault	NA	73	96	108	NA	29	56	NA	23	NA	NA	48	Continue to monitor
	NEWARK D 230KV SECTION 1D	P2	Bus	67	73	102	Diverge	25	29	56	53	23	45	53	48	Continue to monitor
	EVRGRN 1 115KV SECTION 1D	P2	Bus	67	73	98	112	25	29	56	53	23	45	53	48	Continue to monitor
	EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN LINE	P2	Breaker	67	73	98	111	25	29	56	53	23	45	53	48	Continue to monitor
	SANJOSEB 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	73	96	108	NA	29	56	NA	23	NA	NA	48	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	67	73	100	Diverge	25	29	56	53	23	45	53	48	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	67	73	96	104	25	29	56	53	23	45	53	48	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	75	102	115	NA	29	59	NA	23	NA	NA	48	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	75	102	115	NA	29	59	NA	23	NA	NA	48	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	67	73	92	102	25	29	56	53	23	45	53	48	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV and SILVERCRKSS-METCALFE #1 115KV	P6	N-1-1	< 100	< 100	111	130	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	67	73	96	103	25	29	56	53	23	45	53	48	Install redundant battery supply
	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	67	75	98	114	25	29	56	53	23	45	53	48	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	78	76	115	Diverge	25	29	61	53	23	51	53	51	Install redundant battery supply
	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery	67	73	94	105	25	29	56	53	23	45	53	48	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	82	80	114	Diverge	25	29	61	55	23	53	55	54	Install redundant relay
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery	67	73	95	104	25	29	56	53	23	45	53	48	Install redundant relay
	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	67	73	94	103	25	29	56	53	23	45	53	48	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	71	76	115	Diverge	25	29	Diverge	53	23	48	53	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
EVRGRN 1 115/60KV TB 1	Metcalf - San Jose B HVDC Gen and MONTA VISTA-LOS GATOS 60KV	P3	G-1/N-1	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-LOS GATOS 60KV	P1	N-1	78	87	111	127	41	46	85	61	28	51	61	55	Continue to monitor
EVRGRN 1-SILVERCRKSS #1 115KV	EVRGRN 1-SILVERCRKSS #2 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	< 100	< 100	102	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
EVRGRN 1-SILVERCRKSS #2 115KV	EVRGRN 1-SILVERCRKSS #1 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	< 100	< 100	102	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	EVRGRN 1 115KV SECTION 1D	P2	Bus	NA	29	89	104	NA	4	61	NA	20	NA	NA	8	Continue to monitor
	EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN LINE	P2	Breaker	NA	29	89	104	NA	4	61	NA	20	NA	NA	8	Continue to monitor
FMC-SAN JOSE B 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NRS T1	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and PIERCY-METCALF 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	42	73	103	NA	54	100	NA	54	NA	NA	43	Continue to monitor
	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	42	73	103	NA	54	100	NA	54	NA	NA	43	Continue to monitor
	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	42	73	103	NA	54	100	NA	54	NA	NA	43	Continue to monitor
GARLICSWSTA-LLAGAS #1 115KV	GREENVALLEY-MRGN HIL #1 115KV and METCALF-MORGAN HILL 115KV	P6	N-1-1	< 100	< 100	151	167	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	Continue to monitor
GRANT-EASTSHORE #1 115KV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	83	99	113	Diverge	77	90	137	72	56	66	72	79	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and GRANT-EASTSHORE #2 115KV (2)	P3	G-1/N-1	< 100	134	< 100	105	< 100	156	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	MORAGA-OAKLAND J 115KV and GRANT-EASTSHORE #2 115KV (2)	P6	N-1-1	< 100	134	< 100	< 100	< 100	156	< 100	< 100	< 100	< 100	< 100	142	Potential capacity increase. Contribution from large load under review.
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	60	78	106	Diverge	62	59	100	52	35	51	51	71	Project: Moraga 230-115 kV DC Supply and Control Circuit
GRANT-EASTSHORE #2 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and GRANT-EASTSHORE #1 115KV	P3	G-1/N-1	< 100	135	< 100	104	< 100	126	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	MORAGA-OAKLAND J 115KV and GRANT-EASTSHORE #1 115KV	P6	N-1-1	< 100	134	< 100	< 100	< 100	126	< 100	< 100	< 100	< 100	< 100	107	Potential capacity increase. Contribution from large load under review.
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	80	95	109	Diverge	74	84	129	69	51	63	69	73	Continue to monitor
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	58	76	102	Diverge	59	54	94	49	30	49	48	65	Project: Moraga 230-115 kV DC Supply and Control Circuit
GRANT-EASTSHORE #2 115KV (2)	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and GRANT-EASTSHORE #1 115KV	P3	G-1/N-1	< 100	135	< 100	104	< 100	155	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	MORAGA-OAKLAND J 115KV and GRANT-EASTSHORE #1 115KV	P6	N-1-1	< 100	134	< 100	< 100	< 100	155	< 100	< 100	< 100	< 100	< 100	139	Potential capacity increase. Contribution from large load under review.
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	80	95	109	Diverge	85	113	159	81	81	63	81	105	Continue to monitor
	Moraga-Oakland J 115 KV and San Leandro-Oakland J #1 115 KV lines	P7	DCTL	53	65	73	82	63	89	120	62	70	44	62	82	Continue to monitor
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	58	76	102	Diverge	71	83	124	62	62	49	61	98	Project: Moraga 230-115 kV DC Supply and Control Circuit
GRANT-OAKLAND-J-EDES 115KV	Kifer BESS Gen Unit and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NORTH DUBLIN-CAYETANO 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	39	54	Diverge	Diverge	9	12	78	40	65	30	36	61	Continue to monitor
	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV GEN UNITS and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MANNING - METCALF 500 KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	27	39	74	108	5	21	49	27	49	20	24	42	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	43	24	84	125	16	11	68	23	69	37	20	50	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	27	39	72	108	1	23	53	27	46	21	24	42	Continue to monitor
	MORAGA-CASTRO VALLEY 230KV	P1	N-1	NA	39	73	105	NA	25	53	NA	50	NA	NA	41	Continue to monitor
	PITTSBURG-SAN MATEO 230KV	P1	N-1	27	38	71	109	1	24	53	27	47	17	24	39	Continue to monitor
	RUSCTYECST1 1B/230KV TB 1	P1	N-1	30	39	72	104	6	27	54	23	54	24	20	46	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	29	41	77	116	1	25	56	28	48	23	25	44	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	29	41	77	117	1	25	56	28	48	23	25	44	Continue to monitor
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	83	97	112	Diverge	62	71	108	72	56	67	72	77	Continue to monitor
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	41	28	109	122	6	15	81	44	61	24	41	52	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	38	48	80	115	11	35	57	45	61	35	41	56	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	29	40	76	113	1	24	56	28	48	23	25	45	Continue to monitor
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	32	43	68	111	1	29	54	30	54	23	25	46	Continue to monitor
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	33	43	64	111	1	28	54	30	54	25	26	44	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	33	43	69	111	1	28	54	30	54	25	26	45	Continue to monitor
	Base Case	P0	Base Case	< 100	39	75	111	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Pittsburg-San Mateo 230 KV and Pittsburg-East Shore 230 KV lines	P7	DCTL	< 100	26	100	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	< 100	32	95	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	23	35	Diverge	58	62	Diverge	56	Diverge	Install redundant battery supply
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	36	53	144	Diverge	41	42	117	43	89	55	41	50	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	38	Diverge	Diverge	23	35	Diverge	58	76	Diverge	56	Diverge	Install redundant relay
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	37	46	77	114	10	33	53	45	60	35	42	57	Install redundant relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	51	70	100	65	45	35	66	44	27	46	43	67	Project: Moraga 230-115 kV DC Supply and Control Circuit
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	30	43	110	Diverge	19	24	Diverge	52	86	58	46	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
GREEN VALLEY - MOSSLANDING 115 KV LINE	GARLICSWSTA-LLAGAS #1 115KV and METCALF-MORGAN HILL 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF-MOSSLANDING 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Continue to monitor
GREENVALLEY-MRGN HIL #1 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	94	Diverge	NA	47	NA	NA	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	102	Diverge	Diverge	NA	77	Diverge	NA	89	NA	NA	Diverge	Install redundant relay
HICKS-METCALF 230KV	NEWARK 1-25 25.00KV GEN UNIT VS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MORAGA-OAKLAND J 115KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-SARATOGA 230KV	P1	N-1	59	66	78	94	52	56	101	58	53	50	60	61	Continue to monitor
	SARATOGA-VASONA 230KV	P1	N-1	64	71	83	100	54	59	107	62	54	52	63	64	Continue to monitor
	VASONA-METCALF 230KV	P1	N-1	66	73	86	104	56	61	110	64	56	54	65	66	Continue to monitor
	METCALF-MONTA VISTA #3 230KV	P1	N-1	66	73	86	104	57	61	111	64	57	55	66	67	Continue to monitor
	MONTA VISTA-COYOTE SW STA 230KV	P1	N-1	67	74	86	104	57	62	111	64	57	55	66	67	Continue to monitor
	COYOTE SW STA-METCALF 230KV	P1	N-1	43	51	86	101	57	38	96	62	57	32	66	56	Continue to monitor
	METCALF 230KV SECTION 1E	P2	Bus	67	74	88	105	56	61	112	64	57	55	66	67	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	74	81	101	Diverge	63	69	122	72	63	60	73	73	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 1D	P2	Breaker	73	81	96	116	62	68	124	69	64	62	71	77	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	61	67	84	Diverge	52	56	102	60	51	52	61	63	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	62	68	83	101	52	56	102	59	51	52	60	63	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	77	85	104	Diverge	66	72	123	74	66	63	76	77	Continue to monitor
	Metcalf - MEC & Metcalf - Vasona 230 KV Lines	P7	DCTL	56	65	111	133	74	50	124	80	74	41	85	72	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	71	82	101	52	60	Diverge	60	Diverge	53	60	61	Install redundant battery supply
	VASONA 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	64	71	84	101	55	59	107	62	54	53	64	64	Install redundant battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	66	70	82	Diverge	53	57	107	61	54	54	62	64	Install redundant battery supply
	COYOTE SW STA (MEC) 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	63	70	86	104	57	58	109	64	57	52	66	66	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	68	77	96	Diverge	53	62	Diverge	61	55	56	62	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
H-Y #1 115KV	A-Y #1 (UNDERGROUND IDLE) 115KV and X-Y #1 115KV	P6	N-1-1	< 100	< 100	108	123	< 100	< 100	130	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	84	96	119	Diverge	80	82	131	70	57	78	70	84	Install redundant battery supply
JEFFERSN-EGBERTSWSTA 230KV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	52	Diverge	83	NA	56	Diverge	NA	25	NA	NA	37	Install redundant battery supply
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	88	73	Diverge	NA	101	Diverge	NA	Diverge	NA	NA	85	Install redundant battery supply
JEFFERSON-HILLSDALE JCT 60KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EGBERTSWSTA-JEFFERSN 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and JEFFERSN-EGBERTSWSTA 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	122	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	JEFFERSON #1 60KV MOAS OPENED ON CRYSTLSG_JCT_HILDAL47	P1	N-1	36	44	49	74	39	46	101	48	41	31	47	45	Continue to monitor
	JEFFERSN-EGBERTSWSTA 230KV	P1	N-1	NA	59	56	84	NA	56	120	NA	62	NA	NA	70	Continue to monitor
	EGBERTSWSTA-JEFFERSN 230KV	P1	N-1	NA	59	56	84	NA	56	120	NA	62	NA	NA	70	Continue to monitor
	JEFFERSN-JEDAMCX1 230KV NO FAULT	P2	Line Section w/o Fault	NA	59	56	85	NA	56	120	NA	62	NA	NA	70	Continue to monitor
	EGBERT S2-EGBERTSWSTA 230KV NO FAULT	P2	Line Section w/o Fault	NA	56	50	83	NA	55	120	NA	60	NA	NA	67	Continue to monitor
	JEFFERSN 230KV - MIDDLE BREAKER BAY 3	P2	Breaker	50	59	56	84	53	55	120	64	60	51	65	70	Continue to monitor
	EGBERTSWSTA 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	NA	59	55	84	NA	56	120	NA	62	NA	NA	70	Continue to monitor
	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	59	67	57	85	48	47	101	67	57	61	68	80	Continue to monitor
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	285	296	304	305	203	166	263	286	149	230	286	256	Project: Jefferson 230 kV Redundant Bus Differential Relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	59	Diverge	Diverge	52	21	Diverge	67	57	Diverge	71	Diverge	Project: Metcalf 230 kV Redundant Bus Differential Relay
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	51	22	Diverge	67	50	Diverge	71	Diverge	Project: Metcalf 500 kV-230 kV DC Supply and Control Circuit
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	88	77	51	Diverge	79	89	95	133	67	109	132	104	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
JEFFERSON-LAS PULGAS 60KV	Metcalf - San Jose B HVDC Gen and EGBERTSWSTA-JEFFERSN 230KV	P3	G-1/N-1	< 100	< 100	100	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	75	85	102	118	38	41	75	70	31	49	70	54	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	66	75	93	109	38	41	75	62	27	43	61	48	Continue to monitor
	JEFFERSN-EGBERTSWSTA 230KV	P1	N-1	NA	75	94	107	NA	41	75	NA	27	NA	NA	48	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	75	90	109	NA	41	75	NA	27	NA	NA	48	Continue to monitor
	EGBERTSWSTA-JEFFERSN 230KV	P1	N-1	NA	75	94	107	NA	41	75	NA	27	NA	NA	48	Continue to monitor
	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	75	90	109	NA	41	75	NA	27	NA	NA	48	Continue to monitor
	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	75	90	109	NA	41	75	NA	27	NA	NA	48	Continue to monitor
	EGBERTSWSTA 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	NA	75	94	107	NA	41	75	NA	27	NA	NA	48	Continue to monitor
	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	66	75	90	110	38	41	75	62	27	43	61	48	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	66	75	93	108	38	41	75	62	27	43	61	48	Continue to monitor
	Metcalf - Hicks & Metcalf - Vasona 230 KV Lines	P7	DCTL	66	75	90	106	38	41	75	62	27	43	61	48	Continue to monitor
	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	66	75	93	109	38	41	75	62	27	43	61	48	Continue to monitor
	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	66	75	94	112	38	41	75	62	27	43	61	48	Project: Potrero 115 kV DC Supply and Control Circuit Project
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	105	114	121	122	59	52	110	100	31	64	100	78	Project: Jefferson 230 kV Redundant Bus Differential Relay
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	100	98	90	84	81	66	69	111	73	100	111	103	Project: Jefferson 230 kV Redundant Bus Differential Relay
	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	66	75	Diverge	110	38	41	Diverge	62	27	43	61	48	Project: Martin (SF H) 230-115-60 kV DC Supply and Control Circuit
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	69	79	121	Diverge	38	41	Diverge	62	27	43	61	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	72	74	102	Diverge	52	50	Diverge	74	62	66	73	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	78	95	114	38	41	Diverge	62	Diverge	43	61	48	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	91	96	103	86	84	Diverge	87	Diverge	81	86	91	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
JEFFERSON-STANFORD 60KV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	JEFFERSN 230/60KV TB 2 and JEFFERSN 230/60KV TB 1	P6	N-1-1	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Jefferson - Stanford recabling (Menlo - SLAC 60 kV Tap only)
	JEFFERSN 230/60KV TB 1 and JEFFERSN 230/60KV TB 2	P6	N-1-1	127	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Jefferson - Stanford recabling (Menlo - SLAC 60 kV Tap only)
K-D #1 115KV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	94	134	21	Diverge	94	120	25	103	12	89	102	106	Project: Moraga 230-115 kV DC Supply and Control Circuit
K-D #2 115KV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	91	131	20	Diverge	91	116	25	100	12	87	99	104	Project: Moraga 230-115 kV DC Supply and Control Circuit
KIFER-FMC 115KV	CHARCOT-SANJOSEB 230KV and TRIMBLE-SAN JOSE B 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	137	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	63	54	22	Diverge	101	43	Diverge	100	Diverge	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	104	24	14	Diverge	57	27	8	86	25	81	86	32	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	28	Diverge	Diverge	54	22	Diverge	101	12	Diverge	100	13	Install redundant relay
	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	179	NA	NA	NA	101	NA	NA	31	NA	182	31	NA	Project: San Jose area HVDC line
LAKEWOOD-CLAYTON 115KV	PITTSBURG-SAN RAMON 230KV and CLAYTN-LAKEWD-C-MEDW LNE-WALNUTCR 115KV	P6	N-1-1	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CLAYTN 115KV SECTION 1D	P2	Bus	73	92	120	129	64	65	102	61	19	45	63	55	Continue to monitor
	CLAYTN - 1D 115KV & PITTSBURG-CLAYTON #3 LINE	P2	Breaker	73	92	120	129	64	65	102	61	19	45	63	55	Continue to monitor
LAS POSITAS-NEWARK 230KV	MILLBRAE1-25 25.00KV GEN UNIT VS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	85	98	97	Diverge	29	75	93	49	97	62	35	84	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	85	88	83	112	31	70	86	50	91	63	36	78	Continue to monitor
	NORTH DUBLIN-CAYETANO 230KV	P1	N-1	88	89	81	109	31	74	88	51	98	60	34	78	Continue to monitor
	NORTH DUBLIN-VINEYARD 230KV	P1	N-1	85	87	79	106	30	73	87	49	98	59	32	77	Continue to monitor
	LONETREE-VASCOWIND 230KV	P1	N-1	NA	87	81	106	NA	71	87	NA	98	NA	NA	72	Continue to monitor
	CONTRA COSTA-LONE TREE 230KV	P1	N-1	90	88	82	106	29	70	87	50	97	65	35	72	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	86	91	88	120	31	72	88	50	92	64	36	79	Continue to monitor
	CAYETANO 230KV - RING R3 & R4	P2	Breaker	89	90	82	110	31	75	89	52	99	61	35	79	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	87	91	88	120	32	72	88	50	92	64	36	79	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	94	96	92	Diverge	40	78	96	67	101	76	53	93	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	93	95	91	125	36	74	95	56	97	70	42	87	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	81	87	82	111	30	69	86	49	89	58	35	77	Continue to monitor
	Vaca-Peabody 230 KV and Vaca-Lambie SW STA 230 KV lines	P7	DCTL	75	69	64	73	28	76	83	47	105	41	22	55	Continue to monitor
	Lambie SW STA-Birds Landing SW STA 230 KV and Peabody-Birds Landing SW STA 230 KV lines	P7	DCTL	73	67	63	72	25	74	81	44	100	37	19	51	Continue to monitor
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	96	96	93	113	37	83	102	61	108	65	42	86	Continue to monitor
	Lonetree - Cayetano 230 KV and Cayetano - North Dublin230 KV lines	P7	DCTL	88	87	81	106	29	71	87	50	97	63	34	74	Continue to monitor
	Base Case	P0	Base Case	< 100	81	77	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	58	84	Diverge	90	105	Diverge	78	Diverge	Install redundant battery supply
	LONE TREE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	90	88	82	108	30	71	88	52	98	65	36	73	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	118	Diverge	Diverge	58	85	Diverge	90	128	Diverge	78	Diverge	Install redundant relay
	NORTH DUBLIN-VINEYARD 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	103	< 100	< 100	Diverge	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	93	102	91	Diverge	34	83	100	53	105	67	37	91	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	103	81	76	96	40	69	68	66	93	73	47	73	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	103	103	101	128	40	86	107	66	114	73	47	94	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	105	106	105	Diverge	41	88	111	68	115	75	49	96	Project: Moraga 230-115 kV DC Supply and Control Circuit
	SHELL 2 12.47KV GEN UNIT 1 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NORTH DUBLIN-VINEYARD 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	106	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	65	84	103	110	41	37	65	49	46	66	51	100	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	79	107	Diverge	NA	43	73	NA	52	NA	NA	94	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	63	81	100	107	42	39	68	48	44	63	50	94	Continue to monitor
	MTN VIEW-MONTA VISTA 115KV	P1	N-1	64	81	99	107	44	40	70	50	48	65	52	96	Continue to monitor
	BRITTON-MONTA VISTA 115KV	P1	N-1	66	85	104	110	46	43	73	51	48	67	52	100	Continue to monitor
	PIERCY-METCALF 115KV	P1	N-1	62	82	101	108	41	40	68	47	45	61	49	95	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	74	90	107	NA	35	61	NA	41	NA	NA	87	Continue to monitor
	Newark-Lawrence 115 KV and Newark-Applied Materials 115 KV lines	P7	DCTL	69	84	103	109	47	42	72	50	47	70	52	100	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	67	83	105	Diverge	46	42	71	53	48	68	56	100	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	75	91	112	123	50	46	80	57	53	75	59	107	Continue to monitor
	Whisman-Monta Vista & Mountain View-Monta Vista 115 KV Line	P7	DCTL	79	95	120	136	55	48	94	63	65	81	67	115	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
LAWRENCE-MONTA VISTA 115KV	Whisman-Mountain View & Mountain View-Ames 115 KV Lines	P7	DCTL	NA	80	102	114	NA	35	76	NA	57	NA	NA	103	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	67	90	108	115	45	44	73	52	48	66	54	102	Continue to monitor
	Metcalf - San Jose B HVDC Gen and BRITTON-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	118	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	WHISMAN-MONTA VISTA 115KV and MTN VIEW-MONTA VISTA 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	122	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK F-LAWRENCE-LOCKHD 1 115KV	P1	N-1	36	56	63	67	34	97	113	31	88	32	32	51	Continue to monitor
	LOS ESTEROS-METCALF 230KV	P1	N-1	47	57	69	74	39	74	103	36	74	47	37	68	Continue to monitor
	Newark - Lawrence 115 KV and Newark - Applied Materials 115 KV	P7	DCTL	36	56	63	67	34	97	113	31	88	32	32	51	Continue to monitor
	APPLIED MATERIALS 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	70	88	106	112	48	44	75	51	50	71	53	103	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	89	101	134	Diverge	56	52	93	67	61	85	69	116	Install redundant battery supply
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	78	87	109	Diverge	53	43	76	58	50	75	60	103	Install redundant battery supply
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	82	135	153	172	61	120	165	70	137	76	70	141	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	91	109	134	Diverge	57	56	92	68	62	87	70	126	Install redundant relay
	NEWARK-LAWRENCE 115KV (NEWARK F-LCKHD J1)	P2	Line Section w/o Fault	81	133	153	170	61	120	163	70	137	75	70	140	Potential capacity increase. Contribution from large load under review.
	NEWARK F 115KV SECTION 1F	P2	Bus	81	133	153	168	60	120	162	70	137	75	70	140	Potential capacity increase. Contribution from large load under review.
	NEWARK F 115KV SECTION 2Z	P2	Bus	112	113	137	136	64	60	86	69	60	106	70	125	Potential capacity increase. Contribution from large load under review.
	NEWARK F - 1F 115KV & NEWARK F-ZANKER-KRS LINE	P2	Breaker	81	133	153	170	60	120	162	70	137	75	70	140	Potential capacity increase. Contribution from large load under review.
	NEWARK F - 1F 115KV & NEWARK-MILPITAS #1 LINE	P2	Breaker	81	133	153	168	60	120	162	70	137	75	70	140	Potential capacity increase. Contribution from large load under review.
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	81	134	153	171	61	121	164	70	137	75	70	141	Potential capacity increase. Contribution from large load under review.
	NEWARK E SECTION 1E & NEWARK F SECTION 1F 115KV	P2	Breaker	81	133	153	170	61	120	163	70	137	75	70	140	Potential capacity increase. Contribution from large load under review.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	102	128	204	Diverge	60	70	Diverge	67	68	99	68	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	36	56	61	67	34	97	112	31	88	32	32	51	Project: Newark Bus E&F 115 kV DC Supply and Control Circuit
LIVERMORE-LAS POSITAS 60KV	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	91	95	Diverge	Diverge	48	74	96	68	79	64	54	89	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	103	109	114	Diverge	53	85	Diverge	73	86	74	59	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
LLAGAS - MORGAN HILL 115 KV LINE	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and GARLICSWSTA-LLAGAS #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	< 100	Continue to monitor
LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	78	78	100	Diverge	62	62	Diverge	75	74	78	75	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
LONETREE-CAYETANO 230KV	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV GEN UNITS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-METCALF 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	Diverge	Diverge	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LLAGAS 2-25 25.00KV GEN UNIT V8 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	93	87	93	104	35	61	94	54	70	80	49	58	Continue to monitor
	CONTRA COSTA-LAS POSITAS 230KV	P1	N-1	NA	91	81	105	NA	67	100	NA	79	NA	NA	58	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	93	90	96	110	35	62	96	53	71	80	49	59	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	94	90	96	110	35	62	96	53	71	80	49	58	Continue to monitor
	C.COSTAPPD - 1D 230KV & MARSHLD1-C.COSTAPPD #1 LINE	P2	Breaker	95	91	75	103	32	58	91	57	79	82	50	58	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	94	95	102	Diverge	34	65	101	53	75	81	49	61	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	98	93	100	Diverge	39	64	102	58	75	85	53	64	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	90	87	92	104	34	60	94	53	69	77	49	57	Continue to monitor
	Base Case	P0	Base Case	< 100	85	93	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #2 230KV and CONTRA COSTA-LAS POSITAS 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	124	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	94	87	94	118	39	72	97	71	92	79	55	69	Continue to monitor
	Q1349BESS 0.55KV GEN UNIT 2	P1	N-1	NA	85	88	112	NA	72	94	NA	67	NA	NA	61	Continue to monitor
	LAS POSITAS-NEWARK 230KV	P1	N-1	91	85	89	114	40	77	101	68	91	76	51	68	Continue to monitor
	TESLA-NEWARK #1 230KV	P1	N-1	92	86	93	117	44	75	102	72	87	80	58	73	Continue to monitor
	ROSSMOOR-MORAGA-C.COSTAPPE 230KV	P1	N-1	89	83	90	111	41	75	100	68	87	73	52	66	Continue to monitor
	NEWARK D 230KV SECTION 1D	P2	Bus	98	92	97	Diverge	46	81	108	74	94	85	58	78	Continue to monitor
	LS PSTAS 230KV SECTION 1D	P2	Bus	96	90	83	121	43	80	107	71	93	80	55	72	Continue to monitor
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	95	91	Diverge	Diverge	43	81	107	72	95	82	56	76	Continue to monitor
	MORAGA 230KV - SECTION 2D & 2E	P2	Breaker	NA	89	96	119	NA	79	106	NA	92	NA	NA	71	Continue to monitor
	Castro Valley-Newark 230 KV and Tassajara-Newark 230 KV lines	P7	DCTL	87	82	90	112	37	72	95	63	86	74	48	64	Continue to monitor
	Vaca-Peabody 230 KV and Vaca-Lambie SW STA 230 KV lines	P7	DCTL	86	75	82	95	40	81	101	68	96	63	46	56	Continue to monitor
	Base Case	P0	Base Case	< 100	87	95	121	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPD SECTION 1D & C.COSTAPPE SECTION 1E 230KV	P2	Breaker	< 100	99	81	133	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	< 100	94	102	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	< 100	95	104	126	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	60	73	Diverge	87	81	Diverge	83	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	110	Diverge	Diverge	60	73	Diverge	87	98	Diverge	83	Diverge	Install redundant relay
	C.COSTAPPD SECTION 1D & C.COSTAPPE SECTION 1E 230KV	P2	Breaker	101	97	78	115	36	65	95	61	84	84	54	64	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	108	83	89	94	43	61	80	67	73	89	58	55	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	100	94	99	Diverge	43	68	104	66	78	90	61	67	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	101	93	101	108	40	73	109	62	84	82	54	61	Potential new project or rescope of the Lone Tree – Cayetano – Newark Corridor Series Compensation project
	LAS POSITAS 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	96	89	92	102	35	66	98	55	78	80	48	57	Project: Las Positas 230-60 kV DC Supply and Control Circuit
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	108	99	107	117	43	76	114	67	89	89	58	69	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	109	101	110	Diverge	44	77	118	68	90	90	60	70	Project: Moraga 230-115 kV DC Supply and Control Circuit
LOS ESTEROS - MONTAGUE 115 KV LINE	NEWARK-TRIMBLE 115KV and LOS ESTEROS-TRIMBLE 115KV	P6	N-1-1	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line
LOS ESTEROS-METCALF 230KV	CHARCOT-SANJOSEB 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MANNING - METCALF 500 KV and TESLA-NEWARK #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV GEN UNITS and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	GATEWAY1 18.00KV & GATEWAY2 18.00KV & GATEWAY3 18.00KV GEN UNITS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	67	77	Diverge	NA	68	102	NA	68	NA	NA	81	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	71	73	79	100	62	61	96	57	58	71	60	85	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	74	74	76	95	68	64	102	64	63	75	67	89	Continue to monitor
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	72	Diverge	Diverge	NA	62	105	NA	65	NA	NA	86	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	79	79	86	Diverge	72	69	105	70	65	82	74	98	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	95	78	83	101	73	71	97	65	67	96	66	91	Continue to monitor
	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	131	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NORTH DUBLIN-CAYETANO 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	126	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	65	64	76	95	55	50	103	53	64	67	56	78	Continue to monitor
	TESLA-NEWARK #1 230KV	P1	N-1	70	70	85	105	64	61	119	61	67	73	64	86	Continue to monitor
	NEWARK E-F BUS TIE 230KV	P1	N-1	98	74	89	107	77	70	119	67	76	99	69	87	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	71	72	87	109	62	60	119	57	65	71	60	85	Continue to monitor
	TESLA 500/230KV TB 6	P1	N-1	69	66	81	97	59	54	111	57	66	74	60	83	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	70	73	89	113	62	60	120	56	65	71	59	85	Continue to monitor
	MONTAVIS 230KV - SECTION 2E & 2D	P2	Breaker	71	71	84	106	65	61	123	60	69	72	63	85	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	73	72	84	105	66	62	118	62	70	74	65	87	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	66	68	81	101	60	58	116	55	65	67	58	81	Continue to monitor
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	69	68	74	101	60	60	118	55	67	68	57	81	Continue to monitor
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	70	68	70	100	59	58	118	56	67	70	58	79	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	70	68	74	102	60	60	119	57	68	69	58	80	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	< 100	94	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	123	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	< 100	94	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and TESLA-NEWARK #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	< 100	92	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	92	92	92	Diverge	85	80	123	80	77	93	83	109	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	95	85	116	Diverge	79	72	121	76	75	92	79	101	Install redundant battery supply
	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	77	76	79	97	70	66	103	64	64	78	67	92	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	97	95	115	Diverge	80	81	120	77	76	94	81	113	Install redundant relay
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	78	75	91	111	64	66	127	60	73	74	61	84	Install redundant relay

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	107	104	Diverge	Diverge	84	92	117	74	79	107	75	119	Potential capacity increase. Contribution from large load under review.
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	< 100	107	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	< 100	74	116	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	< 100	107	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	< 100	74	118	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	< 100	105	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	< 100	73	118	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	128	136	142	Diverge	95	117	Diverge	85	93	125	85	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	109	89	97	Diverge	83	80	108	74	73	108	75	99	Project: South Bay Reinforcement
LOS ESTEROS-NORTECH 115KV	H-Z #2 230KV and PIERCY-METCALF 115KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	85	0	Diverge	< 100	59	65	< 100	46	< 100	65	46	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen and DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and FMC-SAN JOSE B 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	< 100	< 100	< 100	100	< 100	< 100	58	< 100	29	< 100	< 100	< 100	Continue to monitor
	NRS T2	P1	N-1	< 100	< 100	< 100	101	< 100	< 100	63	< 100	32	< 100	< 100	< 100	Continue to monitor
	NRS T1	P1	N-1	< 100	< 100	89	126	< 100	< 100	66	< 100	33	< 100	< 100	< 100	Continue to monitor
	TRIMBLE 115KV SECTION 1D	P2	Bus	< 100	< 100	< 100	102	< 100	< 100	64	< 100	33	< 100	< 100	< 100	Continue to monitor
	CHARCOTSS 230KV SECTION B2	P2	Bus	< 100	< 100	< 100	100	< 100	< 100	58	< 100	29	< 100	< 100	< 100	Continue to monitor
	CHARCOTSS 230KV SECTION 1E	P2	Bus	< 100	< 100	< 100	100	< 100	< 100	58	< 100	29	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	76	92	109	< 100	50	45	NA	37	NA	57	37	79	Potential capacity increase. Contribution from large load under review.
	NRS-NRSriser SVP 230 KV UG cable and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	CHARCOT-SANJOSEB 230KV	P1	N-1	< 100	< 100	107	140	< 100	< 100	58	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	< 100	< 100	114	148	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
LOS ESTEROS-TRIMBLE 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MANNING - METCALF 500 KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	63	71	Diverge	Diverge	50	56	89	57	44	50	56	76	Continue to monitor
	Los Esteros - Montague 115 KV and Montague - Trimble 115 KV	P7	DCTL	69	43	85	104	57	46	91	65	57	53	64	55	Continue to monitor
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	98	52	167	Diverge	71	51	102	76	57	80	76	66	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	104	61	167	Diverge	75	58	102	80	57	85	80	76	Install redundant relay
	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	111	NA	NA	NA	81	NA	NA	72	NA	93	71	NA	Project: San Jose area HVDC line
LS ESTRS 230/115KV TB 3	NEWARK D-NRS #1 230KV and LS ESTRS 230/115KV TB 4	P6	N-1-1	< 100	< 100	109	119	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and LS ESTRS 230/115KV TB 4	P3	G-1/N-1	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	Project: San Jose area HVDC line
LS ESTRS 230/115KV TB 4	NEWARK D-NRS #1 230KV and LS ESTRS 230/115KV TB 3	P6	N-1-1	< 100	< 100	109	119	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LECEFST1 13.80KV & LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and LS ESTRS 230/115KV TB 3	P3	G-1/N-1	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	Project: San Jose area HVDC line
LS ESTRS-RINGWOODSWST #1 115KV	CHARCOTSWSTA-MONTAGUE #1 115KV and SWIFT-METCALF 115KV	P6	N-1-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
LS PSTAS 230/60KV TB 4	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	69	74	Diverge	Diverge	46	80	102	50	64	60	48	65	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	78	84	87	Diverge	50	90	Diverge	54	69	68	52	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
MARTIN C 115/60KV TB 6	MARTIN-MILLBRAE #1 115KV and MILLBRAE-SAN MATEO #1 115KV	P6	N-1-1	< 100	< 100	121	141	< 100	< 100	162	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MARTIN-DALY CITY #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MARTIN-DALY CITY #2 115KV	P3	G-1/N-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and MARTIN-DALY CITY #2 115KV	P6	N-1-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MARTIN-DALY CITY #2 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MARTIN-DALY CITY #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and MARTIN-DALY CITY #1 115KV	P6	N-1-1	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MARTIN-EAST GRAND 115KV	EAST GRAND-SAN MATEO 115KV (SANMATEO-SFIA-MA)	P2	Line Section w/o Fault	56	71	102	97	60	74	121	53	78	50	53	64	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	52	81	75	46	55	Diverge	39	Diverge	37	39	46	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
MARTINEZ - SOBRANTE 115 KV LINE	PITTSBURG-D 230KV - SECTION 2D & 1D	P2	Breaker	47	NA	NA	NA	1	NA	NA	20	NA	134	20	NA	Sensitivity only
MARTINEZ 115KV BUS TIE	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1	48	102	Diverge	22	41	79	14	24	63	13	20	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	79	149	180	155	76	87	149	79	27	41	79	101	Project: Sobrante 230-115 kV DC Supply and Control Circuit
MARTIN-SNEATH LANE 60KV	MILLBRAE-SAN MATEO #1 115KV and MARTIN-MILLBRAE #1 115KV	P6	N-1-1	164	< 100	103	119	< 100	< 100	129	< 100	< 100	< 100	< 100	< 100	Millbrae Reverse Power Relay
MARTNZ D-NRTH TWR 115KV	PITTSBURG-TESORO 230KV and PITTSBURG-TIDEWATER 230KV	P6	N-1-1	< 100	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-F 230KV - SECTION 2F & 1F	P2	Breaker	NA	33	80	107	NA	33	74	NA	33	NA	NA	7	Continue to monitor
	SOBRANTE 230KV - SECTION 1E & 2E	P2	Breaker	NA	38	81	110	NA	36	75	NA	31	NA	NA	8	Continue to monitor
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	12	39	82	113	28	35	77	9	35	40	13	9	Continue to monitor
	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	12	38	81	112	26	34	76	9	36	42	10	8	Continue to monitor
	Tidewater-Sobrante 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	15	36	79	108	25	35	74	9	32	44	13	8	Continue to monitor
	PITTSBURG-MARTINEZ #2 115KV and PITTSBURG-MARTINEZ #1 115KV MOAS OPENED ON PITTSBURG-E W.P.BART	P6	N-1-1	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-E 115KV - SECTION 2E & 1E	P2	Breaker	NA	98	100	62	NA	27	31	NA	15	NA	NA	90	Continue to monitor
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	23	46	78	100	31	45	73	27	8	17	27	13	Project: Moraga 230-115 kV DC Supply and Control Circuit
	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	34	34	116	Diverge	13	39	90	6	39	124	8	8	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	PITTSBURG-D 230KV - SECTION 2D & 1D	P2	Breaker	32	8	47	71	11	22	38	6	32	123	6	36	Sensitivity only
METCALF - EVERGREEN 115 KV LINE	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	100	NA	NA	NA	79	NA	NA	NA	NA	NA	110	Project: South Bay Reinforcement
METCALF - PROLOGIS 115 KV LINE (TEMP)	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	102	NA	NA	NA	67	NA	NA	71	NA	89	73	NA	Project: San Jose area HVDC line
	EL PATIO-SAN JOSE A 115KV and EVRGRN 1-METCALFE #2 115KV	P6	N-1-1	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line
METCALF 230/115KV TB 1	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALFD-METCALFD 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 230/115KV TB 4 and METCALFE-METCALFE 115KV (2)	P6	N-1-1	< 100	< 100	107	115	< 100	< 100	117	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 230KV SECTION 2D	P2	Bus	83	81	92	Diverge	56	62	104	64	65	72	65	83	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	0	0	Diverge	0	68	Diverge	0	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	75	85	100	Diverge	50	67	Diverge	57	63	65	57	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
METCALF 230/115KV TB 2	MARSHCT1 16.50KV GEN UNIT 1 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MORAGA-OAKLAND J 115KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALFD-METCALFD 115KV	P1	N-1	86	85	94	102	56	64	104	67	67	73	67	85	Continue to monitor
	METCALFE-METCALFE 115KV	P1	N-1	85	84	94	101	56	64	103	66	67	73	66	85	Continue to monitor
	METCALF 230/115KV TB 1	P1	N-1	85	84	94	101	56	64	103	66	66	72	66	85	Continue to monitor
	METCALF 230/115KV TB 4	P1	N-1	86	85	94	102	56	64	104	67	67	73	67	85	Continue to monitor
	METCALF 230/115KV TB 3	P1	N-1	85	84	94	101	56	64	103	66	67	73	66	85	Continue to monitor
	METCALF 230KV SECTION 1E	P2	Bus	86	84	95	103	56	63	104	66	67	74	67	84	Continue to monitor
	METCALF 230KV SECTION 2D	P2	Bus	93	92	103	Diverge	63	70	117	72	74	81	73	94	Continue to monitor
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	84	96	89	95	60	83	111	69	96	79	69	107	Continue to monitor
	METCALFD 115KV - SECTION 2D & 1D	P2	Breaker	84	92	95	111	61	78	115	67	85	76	68	99	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	78	81	93	103	53	62	103	61	64	68	62	83	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	0	0	Diverge	0	77	Diverge	0	Diverge	Install redundant battery supply
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	82	86	102	Diverge	58	67	113	65	68	71	66	88	Install redundant battery supply
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	87	79	91	Diverge	61	61	101	67	63	74	68	81	Install redundant battery supply
	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	77	80	91	99	53	61	101	60	63	66	60	82	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	85	96	112	Diverge	57	76	Diverge	65	71	73	64	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
METCALF 230/115KV TB 3	SMATO2SC 13.20KV GEN UNIT 1 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 230/115KV TB 4 and METCALF 230/115KV TB 2	P6	N-1-1	< 100	< 100	119	128	< 100	< 100	130	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALFD-METCALFD 115KV	P1	N-1	84	83	93	100	56	63	102	66	66	72	66	84	Continue to monitor
	METCALFE-METCALFE 115KV (2)	P1	N-1	84	83	93	100	55	63	102	65	66	72	65	84	Continue to monitor
	METCALF 230/115KV TB 1	P1	N-1	84	83	92	100	55	63	101	65	65	71	65	83	Continue to monitor
	METCALF 230/115KV TB 4	P1	N-1	84	83	93	100	56	63	102	66	66	72	66	84	Continue to monitor
	METCALF 230/115KV TB 2	P1	N-1	84	83	93	100	55	63	102	65	66	72	65	84	Continue to monitor
	METCALF 230KV SECTION 2D	P2	Bus	92	90	102	Diverge	62	69	116	71	73	79	72	92	Continue to monitor
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	83	95	88	95	59	82	111	69	95	78	69	106	Continue to monitor
	METCALFD 115KV - SECTION 2D & 1D	P2	Breaker	83	91	93	109	60	77	113	66	83	75	67	97	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	77	80	91	101	52	61	102	60	63	67	61	82	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	0	0	Diverge	0	76	Diverge	0	Diverge	Install redundant battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	81	85	101	Diverge	57	66	111	64	67	70	65	87	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	83	94	111	Diverge	56	75	Diverge	64	70	72	63	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
METCALF 230/115KV TB 4	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALFD-METCALFD 115KV (2)	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 230/115KV TB 2 and METCALF 230/115KV TB 1	P6	N-1-1	< 100	< 100	106	114	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	0	0	Diverge	0	68	Diverge	0	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	75	84	99	Diverge	50	67	Diverge	57	62	64	57	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
METCALF 500/230KV TB 11	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALF 500/230KV TB 14	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500/230KV TB 13 and METCALF 500/230KV TB 14	P6	N-1-1	< 100	< 100	106	120	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	Continue to monitor
METCALF 500/230KV TB 12	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALF 500/230KV TB 14	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500/230KV TB 14 and METCALF 500/230KV TB 13	P6	N-1-1	< 100	< 100	112	128	< 100	< 100	127	< 100	< 100	< 100	< 100	< 100	Project: Metcalf 500/230 kV TB. Long-term overload under review
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	75	85	95	Diverge	61	64	Diverge	67	60	69	68	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
METCALF 500/230KV TB 13	TESLA-NEWARK #1 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALF 500/230KV TB 14	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	79	90	100	Diverge	64	67	Diverge	70	63	73	71	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
METCALF 500/230KV TB 14	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALF 500/230KV TB 13	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #1 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 230KV SECTION 2E	P2	Bus	< 100	NA	88	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	Diverge	Diverge	NA	NA	Diverge	NA	113	NA	NA	NA	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	93	Diverge	NA	NA	Diverge	NA	61	NA	NA	NA	Project: Newark 230 kV DC Supply and Control Circuit
METCALF-EDENVALE #2 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and ST TRESA-METCALFD 115KV	P3	G-1/N-1	< 100	< 100	< 100	114	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and ST TRESA-METCALFD 115KV	P6	N-1-1	< 100	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	ST TRESA-METCALFD 115KV	P1	N-1	79	86	105	112	49	34	62	62	25	62	62	67	Continue to monitor
	METCALF-SANTA TERESA 115KV (EDNVL J1-METCALFD)	P2	Line Section w/o Fault	82	89	108	115	52	37	65	65	27	64	65	70	Continue to monitor
	ST TRESA 115KV - RING R2 & R1	P2	Breaker	71	79	97	103	43	28	54	56	21	55	56	60	Continue to monitor
METCALF-EL PATIO #1 115KV	METCALFD 115KV SECTION 2D	P2	Bus	83	67	80	105	61	60	105	59	69	81	60	85	Continue to monitor
	METCALFD - 2D 115KV & METCALF-EL PATIO #2 LINE	P2	Breaker	83	67	80	105	61	60	105	59	69	81	60	85	Continue to monitor
	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	92	70	90	Diverge	66	62	112	64	73	89	66	89	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	5	9	Diverge	18	61	Diverge	18	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	75	73	114	Diverge	48	57	Diverge	47	53	70	47	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	108	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	SAN JOSE A-SAN JOSE B 115KV and METCALF-EL PATIO #2 115KV	P6	N-1-1	< 100	< 100	163	178	< 100	< 100	176	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	58	Diverge	Diverge	NA	51	101	NA	64	NA	NA	73	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
METCALF-EL PATIO #2 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	5	9	Diverge	18	61	Diverge	18	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	75	73	114	Diverge	49	58	Diverge	47	53	70	47	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	108	Diverge	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	SAN JOSE A-SAN JOSE B 115KV and METCALF-EL PATIO #1 115KV	P6	N-1-1	< 100	< 100	163	178	< 100	< 100	180	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	METCALFD 115KV SECTION 1D	P2	Bus	98	83	105	126	72	69	119	71	76	93	72	99	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	METCALFD - 1D 115KV & METCALF-EL PATIO #1 LINE	P2	Breaker	98	83	105	126	72	69	119	71	76	93	72	99	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	METCALFD - 1D 115KV & ST TRESA-METCALFD LINE	P2	Breaker	99	84	105	127	73	70	120	72	77	93	73	100	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	METCALFD - 1D 115KV & METCALF-EDENVALE #2 LINE	P2	Breaker	98	83	105	126	72	69	119	71	76	93	72	99	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
	METCALFD SECTION 1D & METCALFE SECTION 1E 115KV	P2	Breaker	108	87	107	138	78	72	127	77	79	101	79	103	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
METCALFE-METCALFE 115KV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	78	90	87	93	56	77	105	65	89	73	65	101	Continue to monitor
	METCALFBK2JT-METCALFE 115KV NO FAULT (2)	P2	Line Section w/o Fault	80	81	94	107	53	62	101	63	64	68	63	82	Continue to monitor
METCALF-MORGAN HILL 115KV	LLAGAS 115KV SECTION 1F	P2	Bus	79	79	66	93	49	90	100	46	101	87	46	91	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	8	132	Diverge	17	71	Diverge	16	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	130	Diverge	Diverge	8	110	Diverge	17	137	Diverge	16	Diverge	Install redundant relay
	LLAGAS 115KV SECTION 1D	P2	Bus	104	13	41	33	66	17	22	99	15	81	98	26	Project: Morgan Hill Area Reinforcement (formerly Spring 230/115 kV substation)
	LLAGAS - 1D 115KV & METCALFD-LLAGAS LINE	P2	Breaker	104	NA	NA	NA	66	NA	NA	99	NA	81	98	NA	Project: Morgan Hill Area Reinforcement (formerly Spring 230/115 kV substation)
	LLAGAS - 1D 115KV & LLAGAS-GILROY F-GILROYENG-GILROYPK LINE	P2	Breaker	104	13	41	33	66	17	22	99	15	81	98	26	Project: Morgan Hill Area Reinforcement (formerly Spring 230/115 kV substation)
	GREENVALLEY-MRGN HIL #1 115KV and METCALF-MORGAN HILL 115KV	P6	N-1-1	< 100	< 100	253	234	< 100	< 100	132	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
	LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV and GREENVALLEY-MRGN HIL #1 115KV	P6	N-1-1	< 100	< 100	117	106	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential capacity increase. Contribution from large load under review.
MILLBRAE-SAN MATEO #1 115KV	Q1552BESS 0.48KV GEN UNIT 1 and POTRERO-TBC_POT1 #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO-MARTIN 230KV and POTRERO-TBC_POT1 #1 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	53	54	56	75	49	59	102	55	67	47	53	47	Continue to monitor
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	52	53	57	Diverge	47	57	101	53	65	45	52	47	Continue to monitor
MILLBRAE-SNEATH LANE 60KV	MILLBRAE-SAN MATEO #1 115KV and MARTIN-MILLBRAE #1 115KV	P6	N-1-1	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Martin - Millbrae 60 kV Area Reinforcement
	MILLBRAE-SAN MATEO #1 115KV and MARTIN-MILLBRAE #1 115KV	P6	N-1-1	118	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Martin - Millbrae 60 kV Area Reinforcement
MILPITAS-SWIFT 115KV	Metcalf - San Jose B HVDC Gen and PIERCY-METCALF 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	38	11	Diverge	66	93	Diverge	64	Diverge	Install redundant battery supply
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	45	68	65	Diverge	54	68	105	45	57	50	47	86	Install redundant battery supply
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	58	83	104	116	35	58	84	45	47	44	45	67	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	47	76	100	Diverge	50	77	Diverge	42	64	49	43	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	57	108	34	44	60	101	61	71	36	43	71	117	Project: South Bay Reinforcement
	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	57	108	26	39	60	101	53	71	28	43	71	117	Project: South Bay Reinforcement
	NEWARK-MILPITAS #1 115KV MOAS OPENED ON NEWARK F_BARTRC_J and RINGWOODSWST-MILPITAS #1 115KV	P6	N-1-1	< 100	< 100	102	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement. Long-term overload under review for contribution from large load.
MONTA VISTA-HICKS 230KV	MONTA VISTA-SARATOGA 230KV	P1	N-1	56	61	68	85	57	61	107	55	62	NA	57	67	Continue to monitor
	SARATOGA-VASONA 230KV	P1	N-1	61	67	76	94	61	65	115	60	65	NA	62	71	Continue to monitor
	VASONA-METCALF 230KV	P1	N-1	64	70	80	98	63	67	118	63	66	NA	64	73	Continue to monitor
	METCALF-MONTA VISTA #3 230KV	P1	N-1	64	71	80	99	64	68	120	63	68	NA	65	74	Continue to monitor
	MONTA VISTA-COYOTE SW STA 230KV	P1	N-1	65	71	80	99	64	68	120	63	68	NA	65	74	Continue to monitor
	METCALF 230KV SECTION 1E	P2	Bus	65	71	81	100	63	68	121	63	68	NA	65	75	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	73	80	95	Diverge	73	79	134	73	76	NA	75	82	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 1D	P2	Breaker	72	79	91	113	71	77	137	70	77	NA	71	86	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	57	63	75	Diverge	57	61	107	58	60	NA	59	69	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	59	64	75	94	57	61	108	56	60	NA	57	69	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	78	85	102	Diverge	76	83	136	77	80	NA	78	87	Continue to monitor
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	54	58	66	82	54	56	101	52	58	NA	54	64	Continue to monitor
	Metcalf - MEC & Metcalf - Vasona 230 KV Lines	P7	DCTL	50	59	112	137	87	52	137	84	90	NA	91	82	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and VASONA-METCALF 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	125	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-COYOTE SW STA 230KV and VASONA-METCALF 230KV	P6	N-1-1	< 100	< 100	112	138	< 100	< 100	164	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	< 100	80	98	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	< 100	86	100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - MEC & Metcalf - Vasona 230 KV Lines	P7	DCTL	< 100	60	115	137	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	66	73	94	58	67	Diverge	57	Diverge	NA	57	66	Install redundant battery supply
	VASONA 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	62	68	76	95	61	65	115	60	65	NA	62	71	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	63	66	73	Diverge	59	62	115	58	64	NA	60	70	Install redundant battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	COYOTE SW STA (MEC) 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	60	67	80	98	64	64	118	63	68	NA	65	73	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	64	70	72	Diverge	59	65	115	59	64	NA	60	75	Install redundant relay
MONTA VISTA-JEFFERSON #2 230KV	MONTAVIS-JEFFERSN 230KV	P1	N-1	58	63	65	86	57	60	106	66	67	56	66	69	Continue to monitor
	MONTA VISTA-JEFFERSON #1 230KV (MONTAVIS-SLACTAP1)	P2	Line Section w/o Fault	57	62	65	85	56	60	105	65	66	55	65	68	Continue to monitor
	JEFFERSN 230KV - MIDDLE BREAKER BAY 1	P2	Breaker	56	61	64	84	56	59	104	65	66	55	65	67	Continue to monitor
	MONTAVIS - 1E 230KV & MONTAVIS-JEFFERSN LINE	P2	Breaker	54	59	62	81	53	57	100	62	63	53	62	65	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 1D	P2	Breaker	56	61	63	83	52	55	100	60	61	53	60	66	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MONTAVIS-JEFFERSN 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTAVIS-JEFFERSN 230KV and POTRERO-TBC_POT1 #1 115KV	P6	N-1-1	< 100	< 100	< 100	102	< 100	< 100	121	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	79	74	Diverge	65	84	Diverge	77	Diverge	72	74	72	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
MONTA VISTA-LOS ALTOS 60KV	Base Case	P0	Base Case	89	103	124	142	65	70	122	79	44	57	79	67	Potential capacity increase.
MONTA VISTA-LOS GATOS 60KV	Metcalf - San Jose B HVDC Gen and MONTA VISTA-LOS GATOS 60KV	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MONTA VISTA-SARATOGA 230KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and HICKS-METCALF 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-COYOTE SW STA 230KV and HICKS-METCALF 230KV	P6	N-1-1	< 100	< 100	102	128	< 100	< 100	136	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 230KV SECTION 2D	P2	Bus	63	68	75	95	54	57	103	59	69	62	61	77	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	63	68	78	91	58	62	104	64	73	61	65	74	Continue to monitor
	MONTAVIS 230KV - SECTION 2E & 2D	P2	Breaker	64	68	70	90	58	62	102	63	73	64	65	78	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	68	73	85	Diverge	61	66	106	67	77	65	69	80	Continue to monitor
MONTA VISTA-WOLFE 115KV	Metcalf - San Jose B HVDC Gen and STELLING-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	102	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and STELLING-MONTA VISTA 115KV	P6	N-1-1	< 100	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	STELLING-MONTA VISTA 115KV	P1	N-1	69	78	90	101	60	66	110	64	42	50	64	57	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 4	P2	Breaker	69	78	90	101	60	66	110	64	42	50	64	57	Continue to monitor
MONTAGUE-RINGWOODSWST #1 115KV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	127	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D-NRS #1 230KV and NRS-NRSriser SVP 230 KV UG cable	P6	N-1-1	< 100	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
MONTAVIS 230/115KV TB 2	DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and TESLA-NEWARK #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	57	62	79	89	53	59	103	52	58	51	53	63	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	59	78	Diverge	NA	61	103	NA	60	NA	NA	61	Continue to monitor
	JEFFERSN-EGBERTSWSTA 230KV	P1	N-1	NA	60	73	86	NA	59	104	NA	59	NA	NA	62	Continue to monitor
	EGBERTSWSTA-JEFFERSN 230KV	P1	N-1	NA	60	73	86	NA	59	104	NA	59	NA	NA	62	Continue to monitor
	MONTAVIS 230/115KV TB 3	P1	N-1	69	75	94	109	62	70	123	60	67	62	62	76	Continue to monitor
	MONTAVIS 230/115KV TB 4	P1	N-1	73	79	100	114	67	75	130	65	72	65	67	80	Continue to monitor
	MONTAVIS 230KV SECTION 2E	P2	Bus	65	70	87	99	59	66	115	57	63	58	58	72	Continue to monitor
	MONTAVIS 230KV SECTION 2D	P2	Bus	69	75	93	105	63	71	121	61	67	62	63	76	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	69	76	95	109	63	72	124	61	67	61	62	75	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	66	71	82	93	62	68	118	61	68	61	62	75	Continue to monitor
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	61	66	79	93	57	63	109	57	63	55	58	68	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	60	65	83	90	56	62	107	56	60	55	57	68	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	63	68	85	98	58	63	111	56	61	58	57	70	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	61	66	79	93	57	63	109	57	63	55	58	68	Continue to monitor
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	60	62	77	89	55	59	104	53	58	55	54	64	Continue to monitor
	JEFFERSON 230-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	59	65	77	92	56	62	111	56	62	55	57	67	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	70	73	103	Diverge	61	66	119	61	66	63	62	74	Install redundant battery supply
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	61	66	80	94	57	63	110	57	63	56	58	68	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	71	78	103	Diverge	61	70	119	61	67	63	63	80	Install redundant relay
	MONTAVIS 230KV - SECTION 2E & 2D	P2	Breaker	96	104	128	140	86	95	162	81	88	87	83	107	Potential transformer capacity increase.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	76	84	90	Diverge	61	76	Diverge	61	68	68	61	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
MONTAVIS 230/115KV TB 3	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MONTAVIS 230/115KV TB 4	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	119	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTAVIS 230/115KV TB 2	P1	N-1	65	71	87	101	57	63	114	54	60	59	55	71	Continue to monitor
	MONTAVIS 230/115KV TB 4	P1	N-1	66	71	88	102	57	64	115	54	60	59	55	72	Continue to monitor
	MONTAVIS 230KV SECTION 1D	P2	Bus	61	66	81	92	54	60	106	51	56	54	53	67	Continue to monitor
	MONTAVIS 230KV SECTION 2D	P2	Bus	63	68	83	94	54	60	107	50	56	56	52	68	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 3	P2	Breaker	62	69	85	95	54	61	110	50	56	55	52	68	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	62	67	83	94	54	55	105	51	53	55	52	66	Continue to monitor
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	64	66	81	Diverge	52	57	106	51	55	57	52	67	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	65	70	80	Diverge	53	60	106	51	56	58	52	72	Install redundant relay
	MONTAVIS 230/115KV TB 2 and MONTAVIS 230/115KV TB 4	P6	N-1-1	107	< 100	140	158	< 100	< 100	183	< 100	< 100	< 100	< 100	< 100	Potential transformer capacity increase.
	MONTAVIS 230KV - SECTION 1D & 2D	P2	Breaker	95	103	122	Diverge	83	92	156	79	84	83	82	104	Potential transformer capacity increase.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	68	75	80	Diverge	54	66	Diverge	52	57	62	52	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
MONTAVIS 230/115KV TB 4	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-TASSAJARA 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	59	64	78	90	53	60	106	51	57	53	52	65	Continue to monitor
	JEFFERSN-EGBERTSWSTA 230KV	P1	N-1	NA	62	73	87	NA	59	107	NA	59	NA	NA	64	Continue to monitor
	LOS ESTEROS-METCALF 230KV	P1	N-1	60	64	77	89	54	59	106	52	58	55	53	66	Continue to monitor
	EGBERTSWSTA-JEFFERSN 230KV	P1	N-1	NA	62	73	87	NA	59	107	NA	59	NA	NA	64	Continue to monitor
	MONTAVIS 230/115KV TB 2	P1	N-1	74	81	101	115	68	76	132	65	72	66	67	82	Continue to monitor
	MONTAVIS 230/115KV TB 3	P1	N-1	71	77	95	111	63	71	127	61	67	64	62	78	Continue to monitor
	MONTAVIS 230KV SECTION 2E	P2	Bus	67	72	88	100	60	67	118	57	64	60	58	74	Continue to monitor
	MONTAVIS 230KV SECTION 1D	P2	Bus	69	76	92	108	65	72	123	63	69	62	64	77	Continue to monitor
	MONTAVIS - 2E 230KV & MONTA VISTA-JEFFERSON #2 LINE	P2	Breaker	66	72	88	100	60	67	118	57	64	60	58	74	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	70	76	94	110	64	67	122	62	65	62	63	76	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	68	73	83	95	63	69	121	62	69	63	63	76	Continue to monitor
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	62	68	80	95	58	64	112	57	64	57	58	69	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	62	67	84	Diverge	57	63	110	56	60	57	58	70	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	65	70	86	99	58	64	114	56	61	59	57	72	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	62	68	80	95	58	64	112	57	64	57	58	69	Continue to monitor
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	61	64	78	90	55	60	107	53	58	57	54	66	Continue to monitor
	JEFFERSON 230-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	61	67	78	93	57	63	114	56	63	56	57	68	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	72	75	104	Diverge	62	67	123	61	66	64	62	76	Install redundant battery supply
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	63	68	80	95	58	64	113	57	64	57	58	70	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	73	80	104	Diverge	62	71	123	62	67	65	63	82	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	77	87	91	Diverge	63	78	Diverge	61	69	69	62	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
MONTAVIS-JEFFERSN 230KV	MONTA VISTA-JEFFERSON #2 230KV	P1	N-1	58	63	65	86	57	60	106	66	67	56	66	69	Continue to monitor
	MONTA VISTA-JEFFERSON #2 230KV (MONTAVIS-SLACTAP2)	P2	Line Section w/o Fault	58	63	65	86	57	60	106	66	67	56	66	69	Continue to monitor
	MONTA VISTA-JEFFERSON #2 230KV (SLACTAP2-JEFFERSN)	P2	Line Section w/o Fault	58	63	65	86	57	60	106	66	67	56	66	69	Continue to monitor
	MONTAVIS 230KV SECTION 2E	P2	Bus	56	61	64	85	55	58	104	64	65	54	64	67	Continue to monitor
	JEFFERSN 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	56	61	64	84	56	59	104	65	66	55	65	67	Continue to monitor
	MONTAVIS 230KV - SECTION 2E & 2D	P2	Breaker	56	61	65	86	55	58	105	63	66	54	63	67	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MONTA VISTA-JEFFERSON #2 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	115	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-JEFFERSON #2 230KV and POTRERO-TBC_POT1 #1 115KV	P6	N-1-1	< 100	< 100	< 100	102	< 100	< 100	121	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	81	76	Diverge	67	86	Diverge	80	Diverge	74	76	75	Project: San Mateo 230-115-60 kV DC Supply and Control Circuit
MORAGA 230/115KV TB 1	MORAGA.D SECTION 2D & MORAGA.E SECTION 2E 115KV	P2	Breaker	77	93	76	69	73	85	101	87	51	74	79	105	Continue to monitor
	MORAGA 230KV - SECTION 2E & 1E	P2	Breaker	NA	77	87	83	NA	69	106	NA	60	NA	NA	82	Continue to monitor
	MORAGA 230/115KV TB 2 and MORAGA 230/115KV TB 3	P6	N-1-1	< 100	109	< 100	< 100	< 100	104	106	< 100	< 100	< 100	< 100	120	Project: Moraga 230/115 kV Transformer Bank
MORAGA 230/115KV TB 2	MORAGA 230/115KV TB 1 and MORAGA 230/115KV TB 3	P6	N-1-1	< 100	109	< 100	< 100	< 100	105	107	< 100	< 100	< 100	< 100	120	Project: Moraga 230/115 kV Transformer Bank
MORAGA 230/115KV TB 3	MORAGA 230KV - SECTION 2D & 2E	P2	Breaker	NA	100	115	109	NA	96	144	NA	75	NA	NA	105	Project: Moraga 230/115 kV Transformer Bank -Connection reconfiguration
	MORAGA 230/115KV TB 1 and MORAGA 230/115KV TB 2	P6	N-1-1	< 100	109	< 100	< 100	< 100	101	106	< 100	< 100	< 100	< 100	119	Project: Moraga 230/115 kV Transformer Bank
	MORAGA 230KV SECTION 2D	P2	Bus	84	100	74	67	69	98	100	82	51	71	74	110	Project: Moraga 230/115 kV Transformer Bank
	Kifer BESS Gen Unit and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SANJOSEB230 230/115KV TB 1 and CHARCOT-SANJOSEB 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #1 230KV	P1	N-1	70	73	96	103	26	49	61	39	60	58	35	56	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	74	79	103	113	26	51	64	38	59	60	33	58	Continue to monitor
	CONTRA COSTA-LAS POSITAS 230KV	P1	N-1	NA	73	80	100	NA	50	60	NA	62	NA	NA	51	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	76	84	111	Diverge	27	54	68	38	61	62	34	60	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	77	84	111	Diverge	27	54	68	38	61	62	34	60	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
MORAGA-CASTRO VALLEY 230KV	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	80	90	112	Diverge	29	61	74	39	68	63	33	66	Continue to monitor
	MORAGA,E 115KV - SECTION 1E & 2E	P2	Breaker	72	76	104	120	26	53	71	40	65	56	34	56	Continue to monitor
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	72	84	108	111	21	57	63	37	60	50	31	48	Continue to monitor
	C.COSTAPPO 230KV - SECTION 1D & 2D	P2	Breaker	85	88	95	123	26	52	66	44	72	68	37	61	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	78	83	109	Diverge	33	56	71	49	67	68	45	68	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	81	86	112	Diverge	31	55	74	43	65	67	39	66	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	69	78	101	113	25	50	64	37	57	55	32	57	Continue to monitor
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	83	87	90	118	28	62	65	43	73	62	34	64	Continue to monitor
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	86	87	80	123	28	59	65	44	73	68	37	60	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	85	87	91	124	28	60	65	44	74	67	36	61	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	50	64	Diverge	71	70	Diverge	68	Diverge	Install redundant battery supply
	OAKLAND J 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	64	68	92	102	21	46	59	33	60	50	28	48	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	108	Diverge	Diverge	50	64	Diverge	71	92	Diverge	68	Diverge	Install redundant relay
	OAKLAND J 115 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	65	68	92	103	21	47	60	33	61	51	28	49	Install redundant relay
MORAGA-CLAREMONT #1 115KV	MORAGA,C 115KV SECTION 2C	P2	Bus	52	69	53	20	49	61	106	59	41	38	49	100	Continue to monitor
	PITTSBURG-F 230KV - SECTION 2F & 1F	P2	Breaker	NA	70	79	74	NA	53	103	NA	4	NA	NA	79	Continue to monitor
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	37	69	79	73	47	52	102	42	4	18	40	78	Continue to monitor
	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	37	68	77	72	46	51	101	42	6	17	38	76	Continue to monitor
	MORAGA-CLAREMONT #2 115KV and SOBRANTE-MORAGA 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	< 100	100	Continue to monitor
	OAKLAND X 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	62	101	46	30	65	77	68	77	26	63	70	114	Install redundant battery supply
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	33	70	Diverge	Diverge	46	51	106	45	8	23	40	86	Install redundant battery supply
	OAKLAND-X 115KV - SECTION 2D & 1D	P2	Breaker	62	101	46	30	65	77	68	77	26	63	70	114	Project: North Oakland Reinforcement
MORAGA-CLAREMONT #2 115KV	PITTSBURG-F 230KV - SECTION 2F & 1F	P2	Breaker	NA	70	79	74	NA	53	103	NA	4	NA	NA	79	Continue to monitor
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	37	69	79	74	47	53	103	42	4	18	40	78	Continue to monitor
	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	37	68	78	72	46	51	101	42	6	17	38	77	Continue to monitor
	MORAGA-CLAREMONT #1 115KV and SOBRANTE-MORAGA 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	< 100	100	Continue to monitor
	OAKLAND X 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	62	102	46	30	66	77	68	77	26	63	70	115	Install redundant battery supply
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	33	70	Diverge	Diverge	46	51	106	45	8	23	40	86	Install redundant battery supply
	OAKLAND-X 115KV - SECTION 2D & 1D	P2	Breaker	62	102	46	30	66	77	68	77	26	63	70	115	Project: North Oakland Reinforcement
MORAGA-LAKEWOOD 115KV	PITTSBURG-CLAYTON #4 115KV and PITTSBURG-CLAYTON #1 115KV	P6	N-1-1	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CLAYTN 115KV SECTION 2D	P2	Bus	48	36	98	110	18	16	31	29	37	53	26	46	Continue to monitor
	PITTSBURG-D 115KV - SECTION 2D & 1D	P2	Breaker	65	41	100	111	35	25	37	47	23	45	44	36	Continue to monitor
	CLAYTN 115KV - SECTION 2D & 1D	P2	Breaker	84	93	98	109	76	72	97	82	65	80	82	86	Continue to monitor
	Pittsburg-Clayton Nos. 3 & 4 115 KV lines	P7	DCTL	39	24	98	110	10	7	18	21	34	47	18	39	Continue to monitor
	Lakewood-Clayton and Lakewood-Meadow Lane-Clayton 115 KV lines	P7	DCTL	85	93	98	110	76	72	97	82	51	80	82	86	Continue to monitor
	PITTSBURG-CLAYTON #1 115KV and PITTSBURG-CLAYTON #3 115KV	P6	N-1-1	< 100	< 100	104	116	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CLAYTN 115KV SECTION 2D	P2	Bus	< 100	38	105	116	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-D 115KV - SECTION 2D & 1D	P2	Breaker	< 100	44	106	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Pittsburg-Clayton Nos. 3 & 4 115 KV lines	P7	DCTL	< 100	25	105	116	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Lakewood-Clayton and Lakewood-Meadow Lane-Clayton 115 KV lines	P7	DCTL	< 100	99	105	116	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	85	84	Diverge	Diverge	76	71	99	81	70	80	81	89	Install redundant battery supply
	CLAYTON 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	84	93	98	109	76	72	97	82	51	80	82	86	Install redundant battery supply
	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	52	12	98	Diverge	6	25	60	17	51	141	17	33	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	PITTSBURG-D 230KV - SECTION 2D & 1D	P2	Breaker	51	17	23	12	2	5	6	17	52	139	15	49	Sensitivity only
MORAGA-OAKLAND J 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN LEANDRO-OAKLND J #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	80	88	39	Diverge	61	148	45	90	29	76	87	89	Install redundant battery supply
	EASTSHORE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	81	296	35	39	75	88	40	71	17	64	71	79	Install redundant battery supply
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	197	276	61	Diverge	88	247	62	83	35	89	81	248	Install redundant battery supply
	EAST SHORE 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	81	296	35	39	75	88	40	71	17	64	71	79	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	162	Diverge	Diverge	68	89	Diverge	92	32	Diverge	90	Diverge	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	158	197	52	Diverge	64	181	Diverge	87	34	86	82	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	E. SHORE 230/115KV TB 2 and E. SHORE 230/115KV TB 1	P6	N-1-1	192	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Leandro and Oaklnd J RAS
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	81	146	41	56	62	143	45	62	30	69	60	81	Project: South Oakland Reinforcement
	MORAGA-SAN LEANDRO #1 115KV	P1	N-1	NA	111	36	49	NA	111	42	NA	25	NA	NA	74	Project: South Oakland Reinforcement
	MORAGA-SAN LEANDRO #2 115KV	P1	N-1	NA	111	36	49	NA	111	42	NA	25	NA	NA	74	Project: South Oakland Reinforcement
	MORAGA-SAN LEANDRO #3 115KV	P1	N-1	NA	111	36	49	NA	111	42	NA	25	NA	NA	75	Project: South Oakland Reinforcement
	PITTSBURG-E 230KV SECTION 1E	P2	Bus	73	150	43	48	48	144	47	78	27	53	75	80	Project: South Oakland Reinforcement
	PITTSBURG-E - 1E 230KV & PITTSBURG-TESLA #1 LINE	P2	Breaker	73	150	43	48	48	144	47	78	27	53	75	80	Project: South Oakland Reinforcement
	EASTSHRE 115KV - SECTION MD & ME	P2	Breaker	81	296	35	39	83	415	46	79	23	64	79	362	Project: South Oakland Reinforcement
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	79	160	47	52	51	152	49	81	28	55	78	82	Project: South Oakland Reinforcement
	PITTSBURG-E 230KV - SECTION 1D & 1E	P2	Breaker	NA	150	43	48	NA	144	47	NA	27	NA	NA	80	Project: South Oakland Reinforcement
	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	81	298	35	39	75	88	40	71	17	64	71	80	Project: South Oakland Reinforcement
	Pittsburg-San Mateo 230 KV and Pittsburg-East Shore 230 KV lines	P7	DCTL	75	151	43	49	52	145	48	80	27	53	77	83	Project: South Oakland Reinforcement
	Moraga-San Leandro Nos. 1 & 2 115 KV lines	P7	DCTL	91	111	44	58	57	111	50	95	30	62	91	105	Project: South Oakland Reinforcement
	SN LNDRO 115KV SECTION ME	P2	Bus	0	0	43	58	62	0	50	96	29	74	91	106	Sensitivity only
MTN VIEW-MONTA VISTA 115KV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	101	91	54	Diverge	79	70	65	88	41	96	91	107	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	102	101	53	Diverge	80	77	65	90	42	98	92	119	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	103	106	56	Diverge	78	83	Diverge	88	42	100	89	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	LOS ESTEROS-METCALF 230KV and WHISMAN-MONTA VISTA 115KV	P6	N-1-1	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement
	Metcalf - San Jose B HVDC Gen and WHISMAN-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111	Sensitivity only
	WHISMAN-MONTA VISTA 115KV	P1	N-1	85	80	46	58	75	63	62	81	42	88	83	101	Sensitivity only
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	85	82	48	Diverge	75	66	59	83	38	88	86	102	Sensitivity only
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	86	86	47	57	75	71	57	87	43	90	89	104	Sensitivity only
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	89	85	47	59	75	65	60	79	38	89	83	103	Sensitivity only
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	89	92	52	61	77	76	65	80	42	90	82	110	Sensitivity only
	Lawrence - Monta Vista & Applied Materials-Britton 115 KV Lines	P7	DCTL	81	82	46	55	68	66	58	72	39	83	74	103	Sensitivity only
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	86	84	43	56	76	67	59	85	40	87	87	100	Sensitivity only
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	96	95	51	59	78	75	57	85	42	94	87	107	Sensitivity only
NEWARK 115 KV BUS TIE	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
NEWARK 230/115 KV TR #7	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	0	82	Diverge	Diverge	0	76	98	0	56	0	0	74	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MANNING - METCALF 500 KV and TESLA-METCALF 500KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-METCALF 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	0	83	Diverge	Diverge	0	76	99	0	56	0	0	75	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	92	Diverge	103	84	Diverge	110	61	95	111	Diverge	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	103	84	Diverge	110	61	Diverge	111	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	93	Diverge	Diverge	103	84	Diverge	110	77	Diverge	111	Diverge	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	95	Diverge	Diverge	104	84	Diverge	110	77	Diverge	111	Diverge	Install redundant relay
NEWARK D 115/60KV TB 1	LS PSTAS 230/60KV TB 4 and SANRAMON 230/60KV TB 1	P6	N-1-1	< 100	< 100	138	158	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SANRAMON 230/60KV TB 1 and LS PSTAS 230/60KV TB 4	P6	N-1-1	< 100	< 100	128	144	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
NEWARK D-NRS #1 230KV	SHELL 1 12.47KV GEN UNIT 1 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MANNING - METCALF 500 KV and TESLA-METCALF 500KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	NA	51	78	100	NA	22	32	NA	21	NA	NA	58	Continue to monitor
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	NA	61	82	104	NA	44	56	NA	38	NA	NA	68	Continue to monitor
	Base Case	P0	Base Case	< 100	42	70	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	71	95	Diverge	NA	51	64	NA	41	NA	NA	75	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	78	Diverge	Diverge	NA	46	Diverge	NA	49	NA	NA	Diverge	Install redundant relay
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	62	88	108	NA	45	59	NA	36	NA	NA	69	Install redundant relay
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK D 230/115KV TB 9	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
NEWARK E 230/115KV TB 11	NEWARK D 230KV SECTION 1D	P2	Bus	89	77	91	Diverge	65	71	97	68	53	73	65	67	Continue to monitor
	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #1 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	101	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D-NRS #1 230KV	P1	N-1	NA	81	100	108	NA	74	96	NA	53	NA	NA	73	Continue to monitor
	NEWARK D 230/115KV TB 7	P1	N-1	94	85	93	102	68	82	100	68	59	79	66	74	Continue to monitor
	NEWARK D 230KV SECTION 2Y	P2	Bus	NA	97	111	134	NA	81	115	NA	55	NA	NA	80	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	92	88	93	106	71	87	104	79	68	82	76	80	Continue to monitor
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	83	78	97	Diverge	62	77	105	63	64	73	61	67	Install redundant battery supply
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	88	85	94	Diverge	66	77	104	64	60	77	63	79	Install redundant battery supply
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	110	70	82	Diverge	82	68	85	77	52	95	74	60	Install redundant battery supply
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	95	91	96	107	74	89	104	79	68	84	77	82	Install redundant relay
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	107	68	83	89	73	67	85	69	50	97	67	59	Install redundant relay
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	100	126	Diverge	Diverge	75	106	147	78	73	84	77	101	Potential transformer capacity increase.
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	< 100	100	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Potential transformer capacity increase.
	NEWARK E 115KV SECTION 2Y	P2	Bus	101	87	98	101	69	83	95	65	59	86	63	78	Project: San Jose area HVDC line
	NEWARK E 115KV - SECTION 1E & 2E	P2	Breaker	100	86	98	100	68	82	94	64	59	85	62	77	Project: San Jose area HVDC line
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 115KV	P2	Breaker	105	85	100	101	69	80	93	62	58	92	59	77	Project: San Jose area HVDC line
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	106	70	81	88	73	69	85	69	54	96	67	59	Project: San Jose area HVDC line
NEWARK E-F BUS TIE 230KV	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MANNING - METCALF 500 KV and TESLA-METCALF 500KV	P6	N-1-1	< 100	< 100	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	< 100	79	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	91	73	Diverge	100	70	Diverge	100	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	86	Diverge	Diverge	91	73	Diverge	100	87	Diverge	100	Diverge	Install redundant relay
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	108	52	64	63	52	50	46	44	49	103	40	47	Install redundant relay
NEWARK E-TASSAJAR-RESEARCH 230KV	Metcalf - San Jose B HVDC Gen and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NORTH DUBLIN-CAYETANO 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RUSCTYECST1 18/230KV TB 1 and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	41	59	85	100	17	32	42	16	29	32	17	34	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	46	65	93	Diverge	20	36	49	21	34	38	22	40	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	34	58	86	103	14	33	42	12	29	27	13	32	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	< 100	66	100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	75	Diverge	Diverge	27	40	Diverge	33	53	Diverge	34	Diverge	Install redundant relay
NEWARK F-COMPONENT_SW 115KV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	149	103	69	Diverge	87	23	22	94	22	133	93	47	Install redundant battery supply
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	118	12	34	27	52	11	19	44	17	126	43	34	Install redundant relay
	LOS ESTEROS 115KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	139	15	33	23	81	16	17	89	18	124	88	39	Install redundant relay
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	125	15	32	26	63	17	18	56	22	132	55	37	Project: San Jose area HVDC line
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	132	14	31	21	77	15	16	87	18	118	86	36	Project: San Jose area HVDC line
	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line
	NEWARK E-F BUS TIE 230KV and LOS ESTEROS-METCALF 230KV	P6	N-1-1	139	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144	< 100	< 100	Project: San Jose area HVDC line
NEWARK F-LAWRENCE-LOCKHD 1 115KV	LAWRENCE 115KV SECTION 1F	P2	Bus	52	93	113	122	45	92	126	44	98	50	44	101	Continue to monitor
	LAWRENCE - 1F 115KV & LAWRENCE-MONTA VISTA LINE	P2	Breaker	52	93	113	122	45	92	126	44	98	50	44	101	Continue to monitor
	Newark-Lawrence 115 KV and Newark-Applied Materials 115 KV lines	P7	DCTL	37	68	71	77	39	95	108	45	94	32	44	61	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and LAWRENCE-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	133	150	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and LAWRENCE-MONTA VISTA 115KV	P6	N-1-1	< 100	< 100	< 100	152	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	107	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	47	80	97	104	33	82	111	42	113	47	42	101	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	70	92	Diverge	NA	77	107	NA	99	NA	NA	89	Continue to monitor
	NEWARK-LAWRENCE 115KV (NEWARK F-LCKHD J1)	P2	Line Section w/o Fault	41	73	88	97	31	83	113	37	107	41	37	93	Continue to monitor
	NEWARK F 115KV SECTION 1F	P2	Bus	41	73	88	97	31	83	113	37	107	41	37	93	Continue to monitor
	NEWARK F - 1F 115KV & NEWARK F-ZANKER-KRS LINE	P2	Breaker	41	73	88	97	31	83	113	37	107	41	37	93	Continue to monitor
	NEWARK F - 1F 115KV & NEWARK-MILPITAS #1 LINE	P2	Breaker	41	73	88	97	31	83	113	37	107	41	37	93	Continue to monitor
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	41	74	88	98	31	84	114	37	108	41	37	94	Continue to monitor
	NEWARK E SECTION 1E & NEWARK F SECTION 1F 115KV	P2	Breaker	41	73	88	97	31	83	113	37	108	41	37	93	Continue to monitor
	APPLIED MATERIALS 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	36	64	68	74	38	92	105	44	91	31	42	58	Install redundant battery supply
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	68	110	137	Diverge	54	101	143	56	104	63	56	117	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	73	103	Diverge	90	140	Diverge	93	Diverge	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	41	70	91	Diverge	31	77	107	37	99	41	37	91	Install redundant battery supply
	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	68	110	133	148	54	101	140	56	104	63	56	116	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	89	Diverge	Diverge	73	101	Diverge	89	134	Diverge	93	Diverge	Install redundant relay
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	41	74	88	98	31	83	115	37	107	41	37	94	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	41	70	109	Diverge	31	77	107	37	99	41	37	92	Install redundant relay
	LAWRENCE-MONTA VISTA 115KV	P1	N-1	67	109	129	138	54	101	138	56	104	62	56	114	Potential capacity increase. Contribution from large load under review.
	LAWRENCE-MONTA VISTA 115KV (LAWRENCE-PHILLIPSJCT)	P2	Line Section w/o Fault	67	109	129	138	54	101	138	56	105	62	56	114	Potential capacity increase. Contribution from large load under review.
	LAWRENCE-MONTA VISTA 115KV (PHILLIPSJCT-MNTA VSA)	P2	Line Section w/o Fault	67	109	129	138	54	151	191	57	161	62	57	114	Potential capacity increase. Contribution from large load under review.
	MNTA VSA 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	67	109	129	139	54	101	138	56	104	62	56	115	Potential capacity increase. Contribution from large load under review.
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	67	109	130	142	54	102	139	56	105	62	56	115	Potential capacity increase. Contribution from large load under review.
	Lawrence - Monta Vista & Applied Materials-Britton 115 KV Lines	P7	DCTL	67	109	129	141	54	101	139	56	104	62	56	115	Potential capacity increase. Contribution from large load under review.
	Newark-Applied Materials & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	97	142	165	180	81	129	177	81	127	91	81	148	Potential capacity increase. Contribution from large load under review.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	41	73	136	Diverge	31	77	Diverge	37	99	41	37	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK F-LOCKHD 2-APP MAT 115KV	BRITTON-MONTA VISTA 115KV	P1	N-1	68	93	104	112	69	92	124	64	72	62	64	86	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	68	93	105	113	69	92	124	64	72	62	64	86	Continue to monitor
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	68	94	105	114	70	92	124	64	72	62	64	87	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and BRITTON-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	108	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and BRITTON-MONTA VISTA 115KV	P6	N-1-1	< 100	< 100	< 100	122	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	71	65	Diverge	76	79	Diverge	78	Diverge	Install redundant battery supply
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	69	95	111	Diverge	70	91	128	63	71	63	63	88	Install redundant battery supply
	LAWRENCE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	79	112	127	139	64	110	151	71	124	78	71	130	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	67	Diverge	Diverge	72	63	Diverge	75	74	Diverge	78	Diverge	Install redundant relay
	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	69	94	107	119	69	91	125	63	71	63	63	87	Install redundant relay
	LOCKHD 1 115KV SECTION 1E	P2	Bus	79	112	129	140	64	110	151	71	125	78	71	131	Potential capacity increase. Contribution from large load under review.
	LOCKHD 1 - 1E 115KV & NEWARK F-LAWRENCE-LOCKHD 1 LINE	P2	Breaker	79	112	128	140	64	110	151	71	125	78	71	131	Potential capacity increase. Contribution from large load under review.
NEWARK F-RINGWOODSWST #1 115KV	NEWARK-MILPITAS #1 115KV MOAS OPENED ON NEWARK F_BARTRC_J and SWIFT-METCALF 115KV	P6	N-1-1	101	161	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	108	< 100	Project: South Bay Reinforcement
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	72	68	Diverge	Diverge	29	39	69	3	29	76	4	80	Continue to monitor
	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and FMC-SAN JOSE B 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D-NRS #1 230KV	P1	N-1	NA	42	100	113	NA	18	56	NA	17	NA	NA	54	Continue to monitor
	NEWARK D 230KV SECTION 1D	P2	Bus	45	40	103	Diverge	16	16	52	16	15	50	15	53	Continue to monitor
	MANNING - METCALF 500 KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	107	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	118	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	132	42	82	Diverge	84	22	55	46	22	125	45	51	Install redundant battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
NEWARK F-ZANKER-KRS 115KV	Singele DC Supply Failure at NRS400 115KV bus	P5	Non-Redundant Battery/Relay	121	NA	NA	NA	66	NA	NA	21	NA	120	20	NA	Install redundant relay
	Single Control Circuitry Failure at SRS 115KV bus	P5	Non-Redundant Battery/Relay	102	NA	NA	NA	27	NA	NA	4	NA	99	8	NA	Install redundant relay
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	125	32	69	75	67	17	47	36	19	131	35	44	Install redundant relay
	Singele DC Supply Failure at NRS300 115KV bus	P5	Non-Redundant Battery/Relay	104	NA	NA	NA	54	NA	NA	5	NA	103	6	NA	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	66	44	113	Diverge	18	23	Diverge	16	22	73	16	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NRS 300 115 KV bus	P2	Bus	104	NA	NA	NA	54	NA	NA	5	NA	103	6	NA	Project: NRS rebuild
	NRS 400 115 KV bus	P2	Bus	121	NA	NA	NA	66	NA	NA	21	NA	120	20	NA	Project: San Jose area HVDC line
	SRS 115 KV bus	P2	Bus	102	NA	NA	NA	27	NA	NA	4	NA	99	8	NA	Project: San Jose area HVDC line
	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	374	NA	NA	NA	178	NA	NA	79	NA	366	78	NA	Project: San Jose area HVDC line
	Northern - Scott #1 and #2 115 KV Lines	P7	DCTL	119	33	73	84	29	14	53	4	17	116	5	41	Project: San Jose area HVDC line
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	122	34	67	76	62	19	48	32	21	127	31	45	Project: San Jose area HVDC line
	PGAE lines but internal to SVP - NRS-SRS#2 115 KV and NRS-SRS#1 115 KV	P7	DCTL	119	33	73	84	29	14	53	4	17	116	5	41	Project: San Jose area HVDC line
NEWARK-AMES #1 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	55	39	Diverge	69	89	Diverge	71	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	61	69	159	Diverge	23	44	Diverge	5	26	59	6	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK-AMES #2 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	61	44	Diverge	77	99	Diverge	79	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	68	76	177	Diverge	26	49	Diverge	6	28	65	7	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK-AMES #3 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	60	43	Diverge	75	97	Diverge	78	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	67	75	172	Diverge	25	48	Diverge	6	29	64	7	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK-AMES DISTRIBUTION 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	60	43	Diverge	76	98	Diverge	78	Diverge	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	67	75	179	Diverge	25	49	Diverge	6	22	64	7	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK-DIXON LANDING 115KV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	122	63	103	Diverge	61	43	64	96	32	84	96	48	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	76	26	Diverge	122	20	Diverge	121	Diverge	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	123	64	103	Diverge	61	43	64	96	32	84	96	49	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	50	Diverge	Diverge	76	27	Diverge	122	21	Diverge	120	Diverge	Install redundant relay
	PIERCY-METCALF 115KV	P1	N-1	118	62	79	86	61	42	62	96	31	82	96	48	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	METCALFE 115KV SECTION 2E	P2	Bus	118	62	79	86	61	42	63	96	31	82	96	48	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	118	62	80	87	61	42	63	96	31	82	96	48	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	118	62	80	87	61	42	63	96	31	82	96	48	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	METCALFE 115KV - SECTION 1E & 2E	P2	Breaker	120	NA	NA	NA	61	NA	NA	96	NA	83	96	NA	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	118	62	80	87	61	42	63	96	31	82	96	48	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	118	63	80	88	61	43	63	96	31	82	96	48	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
NEWARK-JARVIS #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK-JARVIS #2 115KV	P3	G-1/N-1	< 100	< 100	119	133	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and NEWARK-JARVIS #2 115KV	P6	N-1-1	< 100	< 100	< 100	137	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK-JARVIS #2 115KV	P1	N-1	72	91	114	125	48	59	92	55	50	56	55	72	Continue to monitor
	NEWARK-JARVIS #2 115KV (NUMI JCT-JARVIS)	P2	Line Section w/o Fault	72	91	114	125	48	59	92	55	50	56	55	72	Continue to monitor
	NEWARK-JARVIS #2 115KV (NEWARK D-NUMI JCT)	P2	Line Section w/o Fault	72	91	114	125	48	59	92	55	50	56	54	72	Continue to monitor
NEWARK-LIVERMORE 60KV	SANRAMON 230/60KV TB 1 and LS PSTAS 230/60KV TB 4	P6	N-1-1	< 100	< 100	177	184	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	103	120	124	Diverge	41	86	Diverge	56	89	82	44	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK-LOS ESTEROS 230KV	NEWARK D-NRS #1 230KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	124	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	< 100	74	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D-NRS #1 230KV and LOS ESTEROS-METCALF 230KV	P6	N-1-1	< 100	< 100	108	125	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	106	80	Diverge	104	70	Diverge	104	Diverge	Install redundant battery supply
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	112	42	54	51	56	50	35	39	45	109	35	39	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	81	Diverge	Diverge	106	79	Diverge	104	89	Diverge	104	Diverge	Install redundant relay
NEWARK-MILPITAS #1 115KV	RINGWOODSWST-MILPITAS #1 115KV and SWIFT-METCALF 115KV	P6	N-1-1	< 100	< 100	144	160	< 100	< 100	122	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RINGWOODSWST-MILPITAS #1 115KV and SWIFT-METCALF 115KV	P6	N-1-1	< 100	< 100	145	161	< 100	< 100	123	< 100	< 100	< 100	< 100	< 100	Continue to monitor
NEWARK-NORTHERN RECEIVING STATION #1 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	70	19	Diverge	52	14	Diverge	51	Diverge	Install redundant battery supply
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	176	50	98	Diverge	114	28	56	72	33	165	69	56	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	44	Diverge	Diverge	70	20	Diverge	52	35	Diverge	51	Diverge	Install redundant relay
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	167	37	80	71	88	21	45	56	30	173	53	45	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	83	50	140	Diverge	32	26	Diverge	9	34	92	11	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	113	36	81	72	53	18	41	23	26	114	23	38	Project: Newark Bus E&F 115 kV DC Supply and Control Circuit
	NEWARK E-F BUS TIE 230KV	P1	N-1	108	29	67	60	50	15	35	20	24	110	18	33	Project: San Jose area HVDC line
	SSS-NRSriser SVP 230 KV path	P1	N-1	103	26	65	60	60	12	36	27	23	97	26	31	Project: San Jose area HVDC line
	NRS-NRSriser SVP 230 KV UG cable	P1	N-1	104	26	65	60	61	12	36	28	23	98	27	31	Project: San Jose area HVDC line
	Loss of PST 230 KV Path	P1	N-1	103	26	65	60	60	12	36	27	23	97	26	31	Project: San Jose area HVDC line
	NRS T2	P1	N-1	103	33	79	72	61	15	45	28	26	98	27	37	Project: San Jose area HVDC line
	NEWARK E 230KV SECTION 1E	P2	Bus	108	30	67	61	50	16	35	20	25	109	18	34	Project: San Jose area HVDC line
	NEWARK F 115KV SECTION 2Z	P2	Bus	117	46	95	80	59	26	50	31	33	114	30	51	Project: San Jose area HVDC line
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	112	34	87	75	50	12	40	18	22	114	19	42	Project: San Jose area HVDC line
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	112	91	Diverge	Diverge	51	60	83	21	51	112	18	102	Project: San Jose area HVDC line
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	111	30	80	Diverge	50	17	37	20	26	113	16	35	Project: San Jose area HVDC line
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	162	39	77	73	82	24	46	50	34	167	48	47	Project: San Jose area HVDC line
	NEWARK D-NRS #1 230KV	P1	N-1	NA	52	119	127	NA	25	58	NA	29	NA	NA	63	Project: San Jose area HVDC line. Long-term overload under review
	NEWARK D 230KV SECTION 1D	P2	Bus	65	51	129	Diverge	32	24	57	14	28	67	15	62	Project: San Jose area HVDC line. Long-term overload under review
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	109	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line. Long-term overload under review
	TESLA-NEWARK #2 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	130	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line. Long-term overload under review
	NEWARK-LOS ESTEROS 230KV	P1	N-1	99	26	64	57	44	13	30	12	23	102	8	31	Sensitivity only
NEWARK-NORTHERN RECEIVING STATION #2 115KV	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	70	71	Diverge	Diverge	25	41	65	11	30	77	12	87	Continue to monitor
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D-NRS #1 230KV	P1	N-1	NA	36	94	117	NA	8	48	NA	16	NA	NA	52	Continue to monitor
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	153	37	76	Diverge	100	21	47	53	22	146	53	48	Install redundant battery supply
	Singele DC Supply Failure at NRS400 115KV bus	P5	Non-Redundant Battery/Relay	116	NA	NA	NA	69	NA	NA	16	NA	118	16	NA	Install redundant relay
	LOS ESTEROS 230 KV BAAH BUS #1&2 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	147	25	61	66	76	17	37	41	18	156	40	41	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	54	40	102	Diverge	13	28	Diverge	24	22	66	24	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NRS 400 115 KV bus	P2	Bus	116	NA	NA	NA	69	NA	NA	16	NA	118	16	NA	Project: San Jose area HVDC line
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	142	27	58	68	71	19	38	36	21	150	35	42	Project: San Jose area HVDC line
	NEWARK D 230KV SECTION 1D	P2	Bus	33	34	103	Diverge	9	5	43	28	14	41	28	51	Project: San Jose area HVDC line. Long-term overload under review
	CHARCOT-SANJOSEB 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	114	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line. Long-term overload under review
NEWARK-NUMMI 115KV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	108	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	85	83	115	Diverge	62	61	Diverge	79	80	86	79	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NEWARK-RAVENSWOOD 230KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and TESLA-RAVENSWOOD 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	101	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	EASTSHORE-SAN MATEO 230KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	Continue to monitor
NEWARK-VALLECITOS 60KV	SANRAMON 230/60KV TB 1 and LS PSTAS 230/60KV TB 4	P6	N-1-1	< 100	< 100	153	156	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LS PSTAS 230/60KV TB 4 and SANRAMON 230/60KV TB 1	P6	N-1-1	< 100	< 100	196	207	< 100	< 100	110	< 100	< 100	102	< 100	< 100	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	91	110	128	Diverge	40	81	Diverge	46	75	75	38	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
NORTECH-NORTHERN RECEIVING STATION 115KV	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	64	76	Diverge	Diverge	56	61	70	30	22	44	30	77	Continue to monitor
	CHARCOT-SANJOSEB 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units and NEWARK D-NRS #1 230KV	P3	G-1/N-1	< 100	< 100	133	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
NORTH DUBLIN-CAYETANO 230KV	NEWARK 1-25 25.00KV GEN UNIT VS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RUSCTYECST1 18/230KV TB 1 and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #1 230KV	P1	N-1	72	78	78	99	45	80	100	51	65	49	42	73	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	73	80	80	103	44	80	101	49	64	49	40	73	Continue to monitor
	CONTRA COSTA-LAS POSITAS 230KV	P1	N-1	NA	83	69	104	NA	86	106	NA	71	NA	NA	75	Continue to monitor
	NEWARK D 230KV SECTION 1D	P2	Bus	77	83	84	Diverge	47	86	105	52	70	53	42	78	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	74	82	83	108	44	81	103	49	64	49	40	74	Continue to monitor
	LS PSTAS 230KV SECTION 1D	P2	Bus	76	82	69	102	44	85	105	51	70	50	39	74	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	74	82	83	108	44	81	103	49	64	49	40	74	Continue to monitor
	C.COSTAPPD - 1D 230KV & MARSHLD1-C.COSTAPPD #1 LINE	P2	Breaker	76	83	63	102	41	78	98	52	71	51	41	75	Continue to monitor
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	75	82	Diverge	Diverge	44	86	105	51	71	51	40	76	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	73	86	90	Diverge	42	84	106	51	67	48	42	77	Continue to monitor
	C.COSTAPPD SECTION 1D & C.COSTAPPE SECTION 1E 230KV	P2	Breaker	81	89	66	113	44	84	102	55	75	53	44	80	Continue to monitor
	MORAGA 230KV - SECTION 2D & 2E	P2	Breaker	NA	81	81	101	NA	83	104	NA	69	NA	NA	73	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	78	85	86	Diverge	51	86	109	59	69	56	49	82	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	77	84	85	111	48	83	108	53	67	52	43	78	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	71	80	79	103	43	79	101	49	63	46	39	73	Continue to monitor
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	80	86	86	105	49	92	115	56	75	51	44	79	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	67	92	Diverge	75	72	Diverge	67	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	99	Diverge	Diverge	67	92	Diverge	75	85	Diverge	67	Diverge	Install redundant relay
	LAS POSITAS 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	76	82	78	102	44	85	105	50	70	50	39	74	Project: Las Positas 230-60 kV DC Supply and Control Circuit
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	85	91	92	116	52	95	120	60	78	56	47	84	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	87	92	95	Diverge	53	96	122	61	79	57	48	85	Project: Moraga 230-115 kV DC Supply and Control Circuit
NORTH DUBLIN-VINEYARD 230KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	73	104	Diverge	81	62	Diverge	71	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	110	Diverge	Diverge	73	105	Diverge	81	73	Diverge	71	Diverge	Install redundant relay
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	92	99	73	89	58	108	98	65	68	60	50	95	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	93	101	76	Diverge	59	110	100	66	69	61	51	96	Project: Moraga 230-115 kV DC Supply and Control Circuit
	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and CONTRA COSTA-LAS POSITAS 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	106	< 100	< 100	< 100	< 100	< 100	< 100	Project: North Dublin - Vineyard 230 kV line Reconductoring
	CONTRA COSTA-LAS POSITAS 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	104	< 100	Diverge	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	Project: North Dublin - Vineyard 230 kV line Reconductoring
	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	86	93	69	83	55	105	94	60	65	54	46	88	Project: North Dublin - Vineyard 230 kV line Reconductoring
NRS - KRS 115 KV LINE	Northern - Scott #1 and #2 115 KV Lines	P7	DCTL	NA	76	107	126	45	59	102	26	45	NA	26	74	Continue to monitor
	PGAE lines but internal to SVP - NRS-SRS#2 115 KV and NRS-SRS#1 115 KV	P7	DCTL	NA	76	107	126	45	59	102	26	45	NA	26	74	Continue to monitor
NRS 115/60 KV TR #1	PGAE lines but internal to SVP - NRS-SRS#1 115 KV	P1	N-1	NA	47	88	119	NA	64	107	NA	63	NA	NA	46	Continue to monitor
	PGAE lines but internal to SVP - NRS-SRS#2 115 KV	P1	N-1	NA	47	88	119	NA	64	107	NA	63	NA	NA	46	Continue to monitor
	new SVP 115KV line - NRS-KRS 115 KV	P1	N-1	NA	48	90	122	NA	66	109	NA	65	NA	NA	47	Continue to monitor
	SRS 115/60KV transformer	P1	N-1	NA	54	97	134	NA	73	119	NA	70	NA	NA	53	Continue to monitor
	FMC 115KV SECTION 1E	P2	Bus	NA	45	87	117	NA	64	106	NA	63	NA	NA	44	Continue to monitor
	SANJOSEB 115KV - MIDDLE BREAKER BAY 5	P2	Breaker	NA	45	87	117	NA	64	106	NA	63	NA	NA	44	Continue to monitor
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	NA	45	87	117	NA	64	106	NA	63	NA	NA	44	Continue to monitor
	Newark - Kifer & FMC - Kifer 115 KV Lines	P7	DCTL	NA	45	87	118	NA	64	106	NA	63	NA	NA	44	Continue to monitor
NRS 115/60 KV TR #4	KRS 115/60KV transformer	P1	N-1	NA	51	75	107	NA	50	88	NA	42	NA	NA	50	Continue to monitor
NRS 230/115 KV TR #1	NRS T2	P1	N-1	NA	47	68	130	NA	57	101	NA	53	NA	NA	46	Continue to monitor
NRS 230/115 KV TR #2	FMC-SAN JOSE B 115KV	P1	N-1	NA	60	85	100	NA	50	90	NA	46	NA	NA	58	Continue to monitor
	NRS T3	P1	N-1	NA	69	117	131	NA	58	102	NA	53	NA	NA	67	Continue to monitor
	NRS T1	P1	N-1	NA	69	116	141	NA	61	108	NA	57	NA	NA	67	Continue to monitor
	NEWARK F 115KV SECTION 2Z	P2	Bus	NA	65	88	100	NA	55	90	NA	48	NA	NA	63	Continue to monitor
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	62	113	123	NA	48	92	NA	46	NA	NA	62	Install redundant relay
	LOS ESTEROS 115KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	66	91	101	NA	53	90	NA	46	NA	NA	62	Install redundant relay
	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	58	87	100	NA	47	87	NA	43	NA	NA	58	Project: Newark Bus E&F 115 kV DC Supply and Control Circuit
OAKLAND D - OAKLAND L 115 KV CABLE	OAKLAND X 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	58	145	NA	NA	83	95	NA	96	NA	100	91	133	Install redundant battery supply
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	53	104	NA	NA	61	72	NA	70	NA	72	68	83	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	173	268	NA	NA	174	235	NA	200	NA	176	198	209	Project: Moraga 230-115 kV DC Supply and Control Circuit
	OAKLAND-X 115KV - SECTION 2D & 1D	P2	Breaker	58	145	NA	NA	83	95	NA	96	NA	100	91	133	Project: North Oakland Reinforcement
	MORAGA.D 115KV - SECTION 1D & 2D	P2	Breaker	64	133	NA	NA	81	115	NA	92	NA	85	94	81	Project: North Oakland Reinforcement
	C-X #2 115KV and C-X #3 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	Sensitivity only
OLEUM-CHRISTIE 115KV	SOBRANTE-G #1 115KV and SOBRANTE-G #2 115KV	P6	N-1-1	< 100	151	161	102	< 100	< 100	103	< 100	< 100	< 100	< 100	126	Operating solution
	PITTSBURG-E 115KV - SECTION 2E & 1E	P2	Breaker	37	106	107	66	14	43	36	18	6	15	17	94	Operating solution
	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	61	151	161	102	52	93	103	65	47	47	63	126	Operating solution
	CHRISTIE-SOBRANTE 115KV	P1	N-1	112	NA	NA	NA	62	NA	NA	101	NA	73	101	NA	Project: North Tower 115 kV Looping Project
	SOBRANTE 115KV SECTION 2D	P2	Bus	112	66	81	84	61	35	54	101	35	73	101	48	Project: North Tower 115 kV Looping Project
	CHRISTIE 115KV - RING R4 & R3	P2	Breaker	112	67	82	85	62	35	54	101	35	73	101	48	Project: North Tower 115 kV Looping Project
	CHRISTIE 115KV - RING R1 & R4	P2	Breaker	112	67	82	86	62	35	54	101	35	73	101	48	Project: North Tower 115 kV Looping Project
	SOBRANTE - 2D 115KV & SOBRANTE-STANDARD OIL SW STA #1 LINE	P2	Breaker	112	66	81	84	61	35	54	101	35	73	101	48	Project: North Tower 115 kV Looping Project
	SOBRANTE - 2D 115KV & MARTINEZ-SOBRANTE LINE	P2	Breaker	112	NA	NA	NA	62	NA	NA	101	NA	73	101	NA	Project: North Tower 115 kV Looping Project
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	112	67	82	85	62	35	54	101	35	73	101	49	Project: North Tower 115 kV Looping Project
	Christie-Sobrante 115 KV and Martinez-Sobrante 115 KV lines	P7	DCTL	112	67	80	84	62	35	54	101	35	73	101	48	Project: North Tower 115 kV Looping Project
	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	119	105	109	127	65	39	69	105	36	75	105	63	Project: Sobrante 230-115 kV DC Supply and Control Circuit
OLEUM-G #1 115KV	PITTSBURG-E 115KV - SECTION 2E & 1E	P2	Breaker	49	98	103	63	28	36	32	49	16	18	49	82	Continue to monitor
	SOBRANTE-G #2 115KV and SOBRANTE-G #1 115KV	P6	N-1-1	< 100	162	215	229	< 100	120	205	< 100	< 100	< 100	< 100	< 100	Operating solution
	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	131	162	215	231	106	120	205	129	66	77	129	94	Operating solution
	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	138	217	232	308	110	133	269	134	66	78	134	122	Project: Sobrante 230-115 kV DC Supply and Control Circuit
OLEUM-MARTINEZ 115KV	SOBRANTE-G #2 115KV and SOBRANTE-G #1 115KV	P6	N-1-1	< 100	< 100	145	133	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 115KV - SECTION 1D & 2D	P2	Breaker	57	57	100	91	51	55	57	72	6	7	73	31	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	63	80	116	104	55	63	67	77	5	10	79	54	Continue to monitor
	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	85	97	145	134	73	81	98	98	9	28	99	55	Continue to monitor
	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	< 100	42	93	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE-G #1 115KV and SOBRANTE-G #2 115KV	P6	N-1-1	< 100	< 100	122	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	< 100	82	123	113	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-E 115KV - SECTION 2E & 1E	P2	Breaker	17	103	99	60	6	20	33	11	15	16	10	88	Project: North Tower 115 kV Looping Project
	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	6	37	132	Diverge	28	46	78	30	47	105	29	5	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	233	400	414	388	167	199	282	244	74	120	244	257	Project: Sobrante 230-115 kV DC Supply and Control Circuit
	PITTSBURG-D 230KV - SECTION 2D & 1D	P2	Breaker	5	16	52	45	26	30	24	29	38	105	28	34	Sensitivity only
PARKWAY-MORAGA 230KV	COLLINSVILLE-TESLA 500KV and TABLE MT-TESLA 500KV	P6	N-1-1	< 100	< 100	100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	C.COSTAPPE 230KV - SECTION 1E & 2E	P2	Breaker	82	88	95	Diverge	42	51	88	65	62	79	59	90	Continue to monitor
	Birds-CC PP 230 KV and Birds-CC Sub 230 KV lines	P7	DCTL	< 100	82	93	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	60	80	Diverge	Diverge	37	39	86	50	34	60	53	82	Install redundant battery supply
	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	87	93	107	Diverge	49	59	100	71	66	84	65	99	Install redundant battery supply
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	89	95	110	Diverge	50	60	102	72	66	86	67	100	Install redundant relay
PIERCY-METCALF 115KV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	114	61	76	83	59	41	61	88	31	78	88	47	Install redundant relay
	NEWARK-DIXON LANDING 115KV	P1	N-1	111	60	74	81	59	41	61	87	31	76	87	46	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	NEWARK F 115KV SECTION 2F	P2	Bus	111	61	74	81	59	41	61	87	31	77	87	46	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	111	61	74	81	59	41	61	87	31	77	87	46	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	NEWARK F - 2F 115KV & NEWARK F-LOCKHD 2-APP MAT LINE	P2	Breaker	111	61	74	81	59	41	60	87	31	76	87	46	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	NEWARK F - 2F 115KV & NEWARK-TRIMBLE LINE	P2	Breaker	111	NA	NA	NA	59	NA	NA	87	NA	77	87	NA	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	113	62	75	81	59	42	61	88	31	77	88	47	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	Newark-Dixon Landing 115 KV and Newark-Milpitas No. 1 115 KV lines	P7	DCTL	111	61	74	81	59	41	61	87	31	76	87	46	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	Newark - Dixon Landing & Newark - Milpitas #1 115 KV Lines	P7	DCTL	111	61	74	81	59	41	61	87	31	76	87	46	Project: Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	113	61	74	81	59	42	60	88	31	77	88	47	Project: Newark Bus E&F 115 kV DC Supply and Control Circuit
PITTSBURG-D 230/115KV TB 13	LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS and PITSBG D 230/115KV TB 12	P3	G-1/N-1	108	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Pittsburg 230/115 kV Transformer Capacity Increase
	PITTSBURG-D 230/115KV TB 12 and PITTSBURG-F 230/115KV TB 14	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112	Sensitivity only
PITTSBURG-D-TBC_PTB1 #1 230KV	Metcalf - San Jose B HVDC Gen and LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS	P3	G-1/N-1	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	< 100	94	102	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
PITTSBURG-EASTSHORE 230KV	Metcalf - San Jose B HVDC Gen and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-METCALF 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	NA	41	NA	NA	75	NA	Diverge	76	NA	Install redundant relay
PITTSBURG-F 230/115KV TB 14	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	80	51	Diverge	NA	31	87	NA	59	NA	NA	115	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	CHARCOT-SANJOSEB 230KV and PITTSBURG-LOS MEDANOS #2 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
PITTSBURG-LOS MEDANOS #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PITTSBURG-LOS MEDANOS #2 115KV	P3	G-1/N-1	< 100	< 100	101	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-LOS MEDANOS #2 115KV	P1	N-1	100	98	97	Diverge	100	100	113	100	100	25	100	26	Continue to monitor
	PITTSBURG-D 115KV SECTION 2D	P2	Bus	100	98	99	Diverge	100	99	112	99	100	26	99	26	Continue to monitor
	PITTSBURG-D - 2D 115KV & PITTSBURG-KIRKER-COLUMBIA STEEL LINE	P2	Breaker	100	98	99	Diverge	100	99	112	99	100	26	99	26	Continue to monitor
	CHARCOT-SANJOSEB 230KV and PITTSBURG-LOS MEDANOS #1 115KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
PITTSBURG-LOS MEDANOS #2 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PITTSBURG-LOS MEDANOS #1 115KV	P3	G-1/N-1	< 100	< 100	101	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG-LOS MEDANOS #1 115KV	P1	N-1	100	98	97	Diverge	100	100	113	100	100	25	100	26	Continue to monitor
	PITTSBURG-D 115KV SECTION 1D	P2	Bus	100	98	97	Diverge	100	100	113	100	100	25	100	26	Continue to monitor
	PITTSBURG-D - 1D 115KV & PITTSBURG-D-CLMBIAHS LINE	P2	Breaker	100	98	97	Diverge	100	100	113	100	100	25	100	26	Continue to monitor
	PITTSBURG-D - 1D 115KV & PITTSBURG-CLAYTON #3 LINE	P2	Breaker	100	98	97	Diverge	100	100	113	100	100	25	100	26	Continue to monitor
PITTSBURG-MARTINEZ #1 115KV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	64	124	144	114	55	61	101	65	25	36	65	91	Project: Sobrante 230-115 kV DC Supply and Control Circuit
	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	50	110	129	98	46	52	91	50	15	25	50	79	Project: Sobrante 230-115 kV DC Supply and Control Circuit
PITTSBURG-MARTINEZ #2 115KV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	61	127	148	115	53	60	102	62	22	33	62	93	Project: Sobrante 230-115 kV DC Supply and Control Circuit
	NEWARK 1-25 25.00KV GEN UNIT VS and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
PITTSBURG-SAN MATEO 230KV	Base Case	P0	Base Case	< 100	66	86	108	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	< 100	88	102	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	NA	47	NA	NA	65	NA	NA	65	NA	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	NA	48	NA	NA	65	NA	NA	65	NA	Install redundant relay
PITTSBURG-TASSAJARA 230KV	TESLA-NEWARK #1 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
POTRERO-TBC_POT1 #1 115KV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	87	86	108	Diverge	87	87	Diverge	87	87	87	87	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
RADUM-IUKA-VALLECTS 60KV	LS PSTAS 230/60KV TB 4 and SANRAMON 230/60KV TB 1	P6	N-1-1	< 100	< 100	149	151	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	95	114	132	Diverge	43	84	Diverge	49	78	78	41	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	60	Diverge	Diverge	95	55	Diverge	98	71	Diverge	99	Diverge	Project: Metcalf 230 kV Redundant Bus Differential Relay
RAVENSWD 230/115KV TB 1	LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS and RAVENSWD 230/115KV TB 2	P3	G-1/N-1	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Redwood City Area 115 kV System Reinforcement
	RAVENSWD 230/115KV TB 2 and TESLA-METCALF 500KV	P6	N-1-1	114	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Redwood City Area 115 kV System Reinforcement
	RAVENSWD 230/115KV TB 2	P1	N-1	104	60	74	76	87	56	79	86	57	92	85	53	Project: Redwood City Area 115 kV System Reinforcement
	RAVENSWD 230KV - MIDDLE BREAKER BAY 2	P2	Breaker	108	62	76	81	92	59	86	95	61	96	93	56	Project: Redwood City Area 115 kV System Reinforcement
RAVENSWD 230/115KV TB 2	RVNSWD E 115KV - SECTION 2E & 1E	P2	Breaker	93	101	79	86	79	91	92	88	63	83	87	90	Invalid contingency
RAVENSWOOD-AMES #1 115KV	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	81	94	41	52	73	89	52	105	55	83	103	103	Project: Ravenswood 230 kV Redundant Bus Differential Relay
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	71	81	33	47	67	79	54	108	57	83	105	99	Project: Redwood City Area 115 kV System Reinforcement
	NEWARK-RAVENSWOOD 230KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	106	< 100	Project: Redwood City Area 115 kV System Reinforcement
RAVENSWOOD-AMES #2 115KV	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	80	94	40	51	73	89	51	105	54	83	103	103	Project: Ravenswood 230 kV Redundant Bus Differential Relay
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	71	81	32	46	67	79	53	108	56	83	105	99	Project: Redwood City Area 115 kV System Reinforcement
	NEWARK-RAVENSWOOD 230KV and TESLA-RAVENSWOOD 230KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	106	< 100	Project: Redwood City Area 115 kV System Reinforcement
RAVENSWOOD-BAIR #1 115KV	SAN MATEO-BELMONT 115KV and BAIR-RVNSWD D-LONESTAR 115KV	P6	N-1-1	102	< 100	< 100	< 100	< 100	< 100	< 100	108	< 100	< 100	106	< 100	Project: Redwood City Area 115 kV System Reinforcement
RAVENSWOOD-COOLEY LANDING #1 115KV	RVNSWD E 115KV SECTION 1X	P2	Bus	106	51	64	43	76	35	29	70	25	90	70	36	Invalid contingency
	RVNSWD E 115KV - SECTION 2E & 1E	P2	Breaker	144	162	119	123	112	127	83	127	64	127	127	142	Invalid contingency
	RAVENSWOOD-COOLEY LANDING #2 115KV and RAVENSWOOD-PALO ALTO #1 115KV	P6	N-1-1	< 100	< 100	< 100	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
RAVENSWOOD-COOLEY LANDING #2 115KV	RVNSWD D 115KV SECTION 1Y	P2	Bus	82	102	92	115	63	82	116	83	80	71	82	87	Invalid contingency
	RAVENSWOOD-PALO ALTO #1 115KV and RAVENSWOOD-COOLEY LANDING #1 115KV	P6	N-1-1	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RVNSWD E SECTION 1E & RVNSWD D SECTION 1D 115KV	P2	Breaker	82	96	95	108	62	74	91	75	66	71	74	82	Continue to monitor
RAVENSWOOD-PALO ALTO #1 115KV	RVNSWD E 115KV SECTION 2E	P2	Bus	95	124	118	126	78	102	105	97	84	88	97	114	Project: Ames Distribution - Palo Alto 115 kV Transmission Line. Anticipated overload under review
	RVNSWD E SECTION 2E & RVNSWD F SECTION 2F 115KV	P2	Breaker	95	124	118	126	78	102	105	97	84	88	97	114	Invalid contingency
	RVNSWD E SECTION 2E & RVNSWD D SECTION 2D 115KV	P2	Breaker	93	122	117	125	77	100	103	96	83	86	95	113	Project: Ames Distribution - Palo Alto 115 kV Transmission Line. Anticipated overload under review
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	39	45	127	Diverge	33	38	Diverge	37	37	38	37	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
RAVENSWOOD-PALO ALTO #2 115KV	Ravenswood-Palo Alto No. 1 115 KV and Cooley Landing-Palo Alto 115 KV lines	P7	DCTL	94	109	101	83	84	97	58	89	58	94	89	109	Project: Ames Distribution - Palo Alto 115 kV Transmission Line. Anticipated overload under review
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	39	45	126	Diverge	33	38	Diverge	36	37	37	36	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
RICHMOND-SOBRANTE 115 KV	SOBRANTE-R #2 115KV [3780]	P1	N-1	< 100	76	92	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	RICHMOND 115KV SECTION 1D	P2	Bus	< 100	76	92	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 115KV SECTION 2D	P2	Bus	< 100	75	92	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE - 2D 115KV & SOBRANTE-STANDARD OIL SW STA #1 LINE	P2	Breaker	< 100	76	93	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	< 100	76	93	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
RINGWOODSWST-MILPITAS #1 115KV	NEWARK-MILPITAS #1 115KV MOAS OPENED ON NEWARK F_BARTRC_J and SWIFT-METCALF 115KV	P6	N-1-1	101	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: San Jose area HVDC line
	TESLA-METCALF 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen and EL PATIO-SAN JOSE A 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	115	Continue to monitor
	EL PATIO-SAN JOSE A 115KV	P1	N-1	NA	66	77	76	NA	92	100	NA	101	NA	NA	111	Continue to monitor
	EL PATIO-SAN JOSE A 115KV (SN JSE A-ELPT_SJ1)	P2	Line Section w/o Fault	NA	66	77	76	NA	92	100	NA	101	NA	NA	111	Continue to monitor
	EL PATIO 115KV SECTION 1D	P2	Bus	NA	66	77	76	NA	92	100	NA	100	NA	NA	111	Continue to monitor
	EL PATIO - 1D 115KV & EL PATIO-SAN JOSE A LINE	P2	Breaker	NA	66	77	76	NA	92	100	NA	101	NA	NA	111	Continue to monitor
	EL PATIO - 1D 115KV & METCALF-EL PATIO #1 LINE	P2	Breaker	NA	66	77	76	NA	92	100	NA	100	NA	NA	111	Continue to monitor
	EL PATIO 115KV - SECTION 1D & 1E	P2	Breaker	NA	66	77	76	NA	92	100	NA	100	NA	NA	110	Continue to monitor
SAN JOSE A-SAN JOSE B 115KV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	29	19	Diverge	NA	38	42	NA	33	NA	NA	45	Install redundant battery supply
	EL PATIO 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	66	77	76	NA	92	100	NA	101	NA	NA	110	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	124	163	Diverge	NA	119	154	NA	122	NA	NA	156	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	131	Diverge	NA	47	NA	NA	Diverge	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	126	162	Diverge	NA	120	154	NA	122	NA	NA	160	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	183	Diverge	Diverge	NA	135	Diverge	NA	142	NA	NA	Diverge	Install redundant relay
	METCALFD 115KV - SECTION 2D & 1D	P2	Breaker	NA	122	147	153	NA	118	147	NA	121	NA	NA	151	Potential capacity increase. Contribution from large load under review.
	Metcalf - El Patio No. 1 & 2 115 KV Lines	P7	DCTL	NA	122	147	153	NA	118	147	NA	121	NA	NA	152	Potential capacity increase. Contribution from large load under review.
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	62	28	Diverge	NA	32	Diverge	NA	29	NA	NA	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK E-F BUS TIE 230KV and LOS ESTEROS-METCALF 230KV	P6	N-1-1	116	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	125	< 100	< 100	Project: San Jose area HVDC line
SAN JOSE B-STONE-EVERGREEN 115KV	MANNING - METCALF 500 KV and TESLA-METCALF 500KV	P6	N-1-1	< 100	< 100	Diverge	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	66	Diverge	Diverge	NA	49	166	NA	126	NA	NA	61	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	91	234	252	NA	66	163	NA	126	NA	NA	82	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	91	234	252	NA	66	163	NA	126	NA	NA	82	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	77	Diverge	NA	41	NA	NA	Diverge	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	56	259	Diverge	NA	38	169	NA	126	NA	NA	55	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	177	257	Diverge	NA	129	169	NA	126	NA	NA	180	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	151	Diverge	Diverge	NA	81	Diverge	NA	82	NA	NA	Diverge	Install redundant relay
	DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-RAVENSWOOD 230KV	P1	N-1	NA	36	67	127	NA	NA	97	NA	67	NA	NA	40	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
SAN JOSE HVDC TIE	POTRERO-TBC_POT1 #1 115KV	P1	N-1	NA	37	68	127	NA	NA	98	NA	65	NA	NA	40	Continue to monitor
	RAVENSWD SVD=V	P1	N-1	NA	38	68	127	NA	NA	98	NA	65	NA	NA	40	Continue to monitor
	NEWARK E SHUNT=7H & NEWARK E SHUNT=5H & NEWARK E SHUNT=C1 & NEWARK E SVD=V	P1	N-1	NA	39	68	127	NA	NA	98	NA	67	NA	NA	40	Continue to monitor
	NEWARK D SHUNT=C1 & NEWARK D SHUNT=C2 & NEWARK D SHUNT=C3	P1	N-1	NA	37	68	127	NA	NA	97	NA	67	NA	NA	40	Continue to monitor
	POTRERO-TBC_POT1 115KV NO FAULT	P2	Line Section w/o Fault	NA	37	68	127	NA	NA	98	NA	65	NA	NA	40	Continue to monitor
	METCALFE 115KV SECTION 1E	P2	Bus	NA	37	68	127	NA	NA	98	NA	66	NA	NA	40	Continue to monitor
	POTRERO 115KV SECTION 2E	P2	Bus	NA	37	68	127	NA	NA	98	NA	65	NA	NA	40	Continue to monitor
	METCALFE - 1E 115KV & METCALF-COYOTE PUMPING PLANT LINE	P2	Breaker	NA	37	68	127	NA	NA	98	NA	66	NA	NA	40	Continue to monitor
	C.COSTAPPD SECTION 1D & C.COSTAPPE SECTION 1E 230KV	P2	Breaker	NA	36	68	127	NA	NA	98	NA	67	NA	NA	40	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	NA	39	68	127	NA	NA	96	NA	67	NA	NA	40	Continue to monitor
	Metcalf - Hicks & Metcalf - Vasona 230 KV Lines	P7	DCTL	NA	36	68	127	NA	NA	97	NA	67	NA	NA	40	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	NA	36	69	127	NA	NA	97	NA	67	NA	NA	40	Continue to monitor
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	NA	36	67	127	NA	NA	98	NA	67	NA	NA	40	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	NA	36	67	127	NA	NA	98	NA	67	NA	NA	40	Continue to monitor
	GROYPKR3 13.8/115KV TB 1 and RUSCTYECST1 18/230KV TB 1	P6	N-1-1	< 100	< 100	< 100	127	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	40	Diverge	Diverge	NA	NA	102	NA	67	NA	NA	40	Install redundant battery supply
	Single DC Supply Failure at Duane 115KV bus	P5	Non-Redundant Battery/Relay	NA	35	68	127	NA	NA	97	NA	67	NA	NA	40	Install redundant relay
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	37	68	127	NA	NA	96	NA	67	NA	NA	40	Install redundant relay
	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	35	68	126	NA	NA	96	NA	66	NA	NA	40	Install redundant relay
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	37	68	127	NA	NA	98	NA	67	NA	NA	40	Project: Moraga 230 kV Redundant Bus Differential Relay
SAN LEANDRO-OAKLND J #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MORAGA-OAKLAND J 115KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MORAGA-OAKLAND J 115KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0	0	91	101	90	0	92	88	55	96	86	0	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	66	90	Diverge	101	44	Diverge	98	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0	Diverge	Diverge	67	90	Diverge	100	50	Diverge	98	Diverge	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0	0	76	Diverge	61	0	Diverge	95	54	97	88	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	80	0	Diverge	Diverge	49	0	70	81	45	67	76	102	Sensitivity only
SAN MATEO - HILLSDALE JCT 60 KV LINE (BERESFORD - HILLSDA	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	79	94	111	137	73	85	145	81	74	58	80	71	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	79	94	111	137	73	85	145	81	74	58	80	71	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	92	109	126	Diverge	85	96	168	94	86	71	93	85	Operating solution
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	92	109	126	Diverge	85	97	155	94	86	71	93	83	Operating solution
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	307	331	373	396	261	231	412	305	155	232	305	267	Project: Jefferson 230 kV Redundant Bus Differential Relay
SAN MATEO 115/60KV TB 3	JEFFERSN 230/60KV TB 1 and JEFFERSN 230/60KV TB 2	P6	N-1-1	< 100	< 100	108	110	< 100	< 100	126	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SAN MATEO 230/115KV TB 6	SANMATEO 230KV - SECTION 1D & 1E	P2	Breaker	113	NA	NA	NA	95	NA	NA	94	NA	98	91	NA	Invalid contingency
SAN MATEO 60/115KV TB 8	JEFFERSN 230/60KV TB 1 and JEFFERSN 230/60KV TB 2	P6	N-1-1	< 100	< 100	111	114	< 100	< 100	130	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SAN MATEO-BAIR 60KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN MATEO-BAIR 60KV MOAS OPENED ON SAN CRLS BAIR	P3	G-1/N-1	< 100	< 100	< 100	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN MATEO-BAIR 60KV MOAS OPENED ON SAN CRLS_BAIR	P1	N-1	71	80	89	102	49	53	86	65	36	52	65	57	Continue to monitor
	Belmont-Bair 115 KV and San Carlos-Bair 60 KV lines	P7	DCTL	71	80	89	102	49	53	86	65	36	53	65	57	Continue to monitor
	SANMATEO 115/60KV TB 3 and SAN MATO 60/115KV TB 8	P6	N-1-1	< 100	< 100	107	124	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	BAIR 115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	72	80	88	101	49	53	86	65	36	52	65	57	Continue to monitor
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	426	432	129	133	350	363	109	396	63	385	396	388	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	320	310	54	45	283	294	28	308	27	311	307	307	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	412	421	108	Diverge	348	360	60	392	28	379	392	366	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	302	295	28	Diverge	281	290	28	301	10	303	302	277	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
SAN MATEO-BAY MEADOWS #1 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN MATEO-BAY MEADOWS #2 115KV	P3	G-1/N-1	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and SAN MATEO-BAY MEADOWS #2 115KV	P6	N-1-1	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SAN MATEO-BAY MEADOWS #2 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and SAN MATEO-BAY MEADOWS #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and SAN MATEO-BAY MEADOWS #1 115KV	P6	N-1-1	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SANMATEO 115KV - MIDDLE BREAKER BAY 8	P2	Breaker	79	88	86	101	66	72	98	75	49	62	75	66	Continue to monitor
SAN MATEO-BELMONT 115KV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	347	184	94	100	286	150	87	316	49	311	316	163	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	335	179	85	Diverge	279	146	46	308	34	303	308	155	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
	RAVENSWD 230/115KV TB 1 and RAVENSWD 230/115KV TB 2	P6	N-1-1	124	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: Redwood City Area 115 kV System Reinforcement
	RVNSWD D 115KV - SECTION 1D & 2D	P2	Breaker	114	60	74	77	85	46	70	92	38	91	93	47	Project: Redwood City Area 115 kV System Reinforcement
	Ravenswood-Bair Nos. 1 & 2 115 KV lines	P7	DCTL	100	56	69	72	75	42	66	83	35	79	84	43	Project: Redwood City Area 115 kV System Reinforcement
SAN MATEO-HILLSDALE JCT 60KV	MANNING - METCALF 500 KV and TESLA-METCALF 500KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	76	91	107	131	71	80	138	90	67	54	90	67	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	76	91	107	131	71	80	138	90	67	54	90	67	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	82	97	112	Diverge	77	88	151	82	82	66	81	79	Continue to monitor
	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	69	82	97	121	64	77	128	70	69	53	69	65	Continue to monitor
	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	69	82	97	121	64	77	128	70	69	53	69	65	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	82	97	111	Diverge	76	88	139	83	82	66	81	77	Continue to monitor
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	70	83	103	Diverge	64	77	137	69	69	52	68	65	Continue to monitor
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	76	91	110	Diverge	71	80	146	90	67	54	88	66	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	87	103	121	Diverge	80	90	146	98	78	65	99	76	Operating solution
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	87	103	119	Diverge	81	89	158	100	78	65	99	78	Operating solution
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	299	320	353	372	257	221	392	302	150	229	302	263	Project: Jefferson 230 kV Redundant Bus Differential Relay
	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	268	290	330	353	222	203	362	248	136	202	248	232	Project: Jefferson 230 kV Redundant Bus Differential Relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	73	Diverge	Diverge	87	49	Diverge	84	64	Diverge	89	Diverge	Project: Metcalf 230 kV Redundant Bus Differential Relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	84	Diverge	Diverge	89	57	Diverge	100	62	Diverge	104	Diverge	Project: Metcalf 230 kV Redundant Bus Differential Relay
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	87	50	Diverge	84	56	Diverge	89	67	Project: Metcalf 500 kV-230 kV DC Supply and Control Circuit
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	90	58	Diverge	101	56	Diverge	104	Diverge	Project: Metcalf 500 kV-230 kV DC Supply and Control Circuit
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	83	65	25	Diverge	75	88	60	123	72	111	122	105	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
SAN MATEO-MARTIN 230KV	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	NA	65	58	77	NA	67	101	NA	74	NA	NA	57	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	NA	NA	NA	74	NA	NA	91	NA	87	86	NA	Install redundant battery supply
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	71	54	Diverge	NA	78	Diverge	NA	Diverge	NA	NA	64	Install redundant battery supply
SAN MATO 60/115KV TB 8	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	91	97	109	108	80	76	129	82	44	68	82	75	Project: Jefferson 230 kV Redundant Bus Differential Relay
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	109	112	55	53	95	102	46	95	14	95	94	95	Project: Ravenswood 115 kV Redundant Bus Differential Relay
	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	95	101	42	Diverge	87	91	8	81	11	85	82	77	Project: Ravenswood 230-115 kV DC Supply and Control Circuit
SAN RAMN-E DUBLIN-RADUM-PARKS 60KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and CONTRA COSTA-LAS POSITAS 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and PITTSBURG-SAN MATEO 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	53	64	92	102	34	49	64	31	30	48	36	39	Continue to monitor
	LIVERMORE-LAS POSITAS 60KV	P1	N-1	85	93	113	128	55	72	96	58	54	68	57	68	Continue to monitor
	CONTRA COSTA-LAS POSITAS 230KV	P1	N-1	NA	86	77	125	NA	75	95	NA	55	NA	NA	56	Continue to monitor
	LS PSTAS 230/60KV TB 4	P1	N-1	81	91	117	140	55	81	108	53	53	77	61	62	Continue to monitor
	LS PSTAS 230KV SECTION 1G	P2	Bus	81	91	117	140	55	81	108	53	53	77	61	62	Continue to monitor
	C.COSTAPPD 230KV SECTION 1D	P2	Bus	75	86	77	125	44	72	92	46	55	63	47	56	Continue to monitor
	C.COSTAPPD - 1D 230KV & MARSHLD1-C.COSTAPPD #1 LINE	P2	Breaker	75	86	77	125	44	72	92	46	55	63	47	56	Continue to monitor
	LS PSTAS 230KV - SECTION 1F & 1G	P2	Breaker	83	94	120	143	56	84	111	55	56	79	62	65	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	62	76	115	Diverge	37	59	76	34	38	57	39	47	Continue to monitor
	PITTSBURG-D SECTION 1D & PITTSBURG-E SECTION 1E 230KV	P2	Breaker	60	76	108	107	34	61	74	38	35	45	41	36	Continue to monitor
	C.COSTAPPD 230KV - SECTION 1D & 2D	P2	Breaker	84	95	115	143	48	77	100	51	61	70	51	62	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	56	67	98	110	36	51	70	33	33	51	38	43	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	52	64	91	102	34	48	64	30	30	48	35	39	Continue to monitor
	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	82	94	81	136	49	83	99	50	61	67	50	63	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	84	94	77	141	49	81	99	51	61	70	51	61	Continue to monitor
	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	83	94	80	144	49	82	100	51	62	70	51	62	Continue to monitor
	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	67	79	102	119	38	62	81	39	48	60	41	49	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	83	Diverge	Diverge	50	58	Diverge	48	49	Diverge	54	Diverge	Install redundant relay
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	66	78	103	120	38	62	80	38	48	59	40	48	Install redundant relay
	LAS POSITAS 230-60KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	88	96	116	136	57	75	100	60	57	70	59	71	Project: Las Positas 230-60 kV DC Supply and Control Circuit
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	55	73	114	Diverge	34	51	Diverge	28	21	55	36	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
SANJOSEB230 230/115KV TB 1	TESLA-METCALF 500KV and 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	LECEFGT1 13.80KV & LECEFGT2 13.80KV & LECEFGT3 13.80KV & LECEFGT4 13.80KV GEN UNITS and 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	182	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	NA	67	92	100	NA	57	76	NA	67	NA	NA	62	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	62	122	142	NA	100	181	NA	121	NA	NA	61	Continue to monitor
	TRIMBLE 115KV SECTION 1D	P2	Bus	NA	69	96	104	NA	71	95	NA	68	NA	NA	66	Continue to monitor
	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	62	122	142	NA	100	181	NA	121	NA	NA	61	Continue to monitor
	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	62	122	142	NA	100	181	NA	121	NA	NA	61	Continue to monitor
	METCALFD 115KV - SECTION 2D & 1D	P2	Breaker	NA	73	92	101	NA	73	99	NA	69	NA	NA	73	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	68	97	108	NA	66	98	NA	68	NA	NA	66	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	68	120	134	NA	66	98	NA	68	NA	NA	66	Continue to monitor
	Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	NA	77	112	124	NA	79	111	NA	78	NA	NA	78	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	95	Diverge	NA	24	NA	NA	Diverge	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	82	125	Diverge	NA	80	133	NA	87	NA	NA	84	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	110	125	Diverge	NA	104	133	NA	87	NA	NA	114	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	115	Diverge	Diverge	NA	98	Diverge	NA	90	NA	NA	Diverge	Install redundant relay
SANMATEO 115/60KV TB 3	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	87	93	105	104	76	73	125	78	42	64	79	71	Project: Jefferson 230 kV Redundant Bus Differential Relay
	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	105	107	54	51	91	98	45	91	13	90	90	90	Project: Ravenswood 115 kV Redundant Bus Differential Relay
SANRAMON 230/60KV TB 1	CONTRA COSTA-LAS POSITAS 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SARATOGA-VASONA 230KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and HICKS-METCALF 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	HICKS-METCALF 230KV and MONTA VISTA-COYOTE SW STA 230KV	P6	N-1-1	< 100	< 100	118	144	< 100	< 100	146	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-HICKS 230KV	P1	N-1	61	68	79	97	53	57	102	61	60	54	62	67	Continue to monitor
	METCALF-MONTA VISTA #3 230KV	P1	N-1	65	72	84	103	56	59	107	64	63	57	66	71	Continue to monitor
	MONTA VISTA-COYOTE SW STA 230KV	P1	N-1	66	73	84	103	55	60	107	64	62	58	66	71	Continue to monitor
	HICKS-METCALF 230KV	P1	N-1	67	74	86	106	55	59	107	66	62	57	67	70	Continue to monitor
	METCALF 230KV SECTION 2D	P2	Bus	73	80	95	116	60	64	117	70	68	64	72	78	Continue to monitor
	MONTAVIS 230KV - SECTION 1E & 2E	P2	Breaker	74	82	101	Diverge	63	68	119	73	70	63	75	78	Continue to monitor
	MONTAVIS 230KV - SECTION 2E & 2D	P2	Breaker	73	80	90	112	63	68	117	74	71	65	75	79	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	78	86	105	Diverge	66	71	121	77	74	67	78	82	Continue to monitor
	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	69	78	99	51	58	Diverge	59	Diverge	55	59	64	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	65	68	78	Diverge	51	55	103	60	59	56	62	67	Install redundant battery supply
	HICKS 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	62	69	80	98	53	57	103	61	60	55	63	68	Install redundant battery supply
	COYOTE SW STA (MEC) 230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	62	69	84	103	55	56	105	64	62	53	66	69	Install redundant battery supply
	HICKS 230KV BUS(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	62	69	80	98	53	57	103	61	60	55	63	68	Install redundant relay
SILVERCRKSS-METCALFE #1 115KV	FOSTER W 12.47KV GEN UNIT 2 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MORAGA-OAKLAND J 115KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SHELL 2 12.47KV GEN UNIT 1 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	POTRERO-TBC_POT1 #1 115KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	NA	53	97	105	NA	45	76	NA	54	NA	NA	54	Continue to monitor
	SILVERCRKSS-METCALFE #2 115KV	P1	N-1	NA	73	119	139	NA	66	122	NA	79	NA	NA	86	Continue to monitor
	METCALFE 115KV SECTION 2E	P2	Bus	NA	78	139	165	NA	66	134	NA	74	NA	NA	87	Continue to monitor
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	NA	63	121	Diverge	NA	53	111	NA	54	NA	NA	70	Continue to monitor
	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	NA	62	121	Diverge	NA	53	111	NA	54	NA	NA	70	Continue to monitor
	SILVERCRKSS 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	72	116	133	NA	69	117	NA	80	NA	NA	87	Continue to monitor
	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	NA	81	145	Diverge	NA	69	140	NA	77	NA	NA	91	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	NA	59	94	107	NA	52	96	NA	59	NA	NA	69	Continue to monitor
	Metcalf - El Patio No. 1 & 2 115 KV Lines	P7	DCTL	NA	57	89	100	NA	51	94	NA	59	NA	NA	68	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	NA	59	96	108	NA	53	98	NA	60	NA	NA	68	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	23	Diverge	NA	72	NA	NA	Diverge	Install redundant battery supply
	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	54	99	108	NA	45	77	NA	54	NA	NA	55	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	73	146	Diverge	NA	62	Diverge	NA	66	NA	NA	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
SILVERCRKSS-METCALFE #2 115KV	FOSTER W 12.47KV GEN UNIT 2 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	POTRERO-TBC_POT1 #1 115KV and NEWARK D-NRS #1 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SHELL 2 12.47KV GEN UNIT 1 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	NA	53	97	105	NA	44	74	NA	54	NA	NA	54	Continue to monitor
	SILVERCRKSS-METCALFE #1 115KV	P1	N-1	NA	73	119	139	NA	65	119	NA	79	NA	NA	86	Continue to monitor
	SAN JOSE B-STONE-EVERGREEN 115KV (SANJOSEB-MARKHM J)	P2	Line Section w/o Fault	NA	55	100	108	NA	44	75	NA	56	NA	NA	55	Continue to monitor
	NEWARK D 230KV SECTION 1D	P2	Bus	NA	57	101	Diverge	NA	49	88	NA	56	NA	NA	69	Continue to monitor
	METCALFE 115KV SECTION 1E	P2	Bus	NA	72	131	155	NA	61	125	NA	75	NA	NA	85	Continue to monitor
	METCALFE - 1E 115KV & METCALF-COYOTE PUMPING PLANT LINE	P2	Breaker	NA	72	131	155	NA	61	125	NA	75	NA	NA	85	Continue to monitor
	SILVERCRKSS 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	NA	72	116	133	NA	67	114	NA	80	NA	NA	87	Continue to monitor
	METCALFD SECTION 1D & METCALFE SECTION 1E 115KV	P2	Breaker	NA	75	135	161	NA	64	131	NA	79	NA	NA	89	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	NA	59	94	107	NA	51	93	NA	59	NA	NA	69	Continue to monitor
	Metcalf - El Patio No. 1 & 2 115 KV Lines	P7	DCTL	NA	57	89	100	NA	50	92	NA	59	NA	NA	68	Continue to monitor
	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	NA	59	96	108	NA	52	96	NA	60	NA	NA	68	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	23	Diverge	NA	72	NA	NA	Diverge	Install redundant battery supply
	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	54	99	108	NA	44	75	NA	54	NA	NA	55	Install redundant battery supply
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	73	146	Diverge	NA	61	Diverge	NA	66	NA	NA	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
SOBRANTE 230/115KV TB 1	SOBRANTE 230/115KV TB 2 and SOBRANTE 230/115KV TB 3	P6	N-1-1	< 100	< 100	116	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	38	95	107	106	40	73	86	41	42	35	43	62	Continue to monitor
	SOBRANTE 230KV - SECTION 2D & 2E	P2	Breaker	NA	95	102	90	NA	77	73	NA	46	NA	NA	54	Continue to monitor
SOBRANTE 230/115KV TB 2	SOBRANTE 230/115KV TB 1 and SOBRANTE 230/115KV TB 3	P6	N-1-1	< 100	< 100	113	107	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SOBRANTE 230/115KV TB 3	Metcalf - San Jose B HVDC Gen and CONTRA COSTA-MORAGA #2 230KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 230/115KV TB 2 and SOBRANTE 230/115KV TB 1	P6	N-1-1	< 100	< 100	133	< 100	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	NA	NA	111	NA	NA	NA	96	NA	19	NA	NA	NA	Continue to monitor
	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	94	NA	NA	NA	107	NA	42	NA	NA	NA	Install redundant battery supply
	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	93	NA	NA	NA	102	NA	49	NA	NA	NA	Install redundant battery supply
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	NA	94	NA	NA	NA	109	NA	49	NA	NA	NA	Install redundant relay
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	NA	114	NA	NA	NA	129	NA	59	NA	NA	NA	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	110	NA	NA	NA	125	NA	45	NA	NA	NA	Project: Moraga 230-115 kV DC Supply and Control Circuit
SOBRANTE-G #1 115KV	LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS and SOBRANTE-G #2 115KV	P3	G-1/N-1	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	93	110	122	102	67	72	95	93	41	64	92	85	Operating solution
	CHRISTIE-SOBRANTE 115KV and SOBRANTE-G #2 115KV	P6	N-1-1	< 100	116	128	109	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	Operating solution
SOBRANTE-G #2 115KV	SOBRANTE - 1D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #1 LINE	P2	Breaker	68	92	102	91	52	60	83	69	36	43	68	68	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-R #1 LINE	P2	Breaker	68	92	102	91	52	60	83	69	36	43	68	68	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-OAKLAND-D LINE	P2	Breaker	NA	92	102	91	NA	60	83	NA	36	NA	NA	68	Continue to monitor
	SOBRANTE 115KV - SECTION 1E & 1D	P2	Breaker	NA	93	104	93	NA	61	83	NA	37	NA	NA	67	Continue to monitor
	LMECCT2 18.00KV & LMECCT1 18.00KV & LMECST1 18.00KV GEN UNITS and SOBRANTE-G #1 115KV	P3	G-1/N-1	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 115KV - SECTION 1D & 2D	P2	Breaker	96	124	131	107	67	74	97	95	46	66	94	99	Operating solution
	CHRISTIE-SOBRANTE 115KV and SOBRANTE-G #1 115KV	P6	N-1-1	< 100	116	128	109	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Operating solution
SOBRANTE-GRIZZLY-CLAREMONT #1 115KV	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	79	116	42	40	60	67	38	84	24	80	84	97	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	125	185	31	Diverge	99	118	28	138	16	120	137	151	Project: Moraga 230-115 kV DC Supply and Control Circuit

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	109	156	16	Diverge	85	108	20	119	8	101	118	121	Project: Moraga 230-115 kV DC Supply and Control Circuit
SOBRANTE-GRIZZLY-CLAREMONT #2 115KV	PITTSBURG-SAN RAMON 230KV and SOBRANTE-GRIZZLY-CLAREMONT #1 115KV	P6	N-1-1	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	82	113	28	30	61	74	30	86	16	81	85	89	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	140	200	17	Diverge	109	138	20	154	9	131	152	156	Project: Moraga 230-115 kV DC Supply and Control Circuit
	SOBRANTE 115KV - SECTION 1E & 1D	P2	Breaker	NA	115	57	50	NA	59	22	NA	24	NA	NA	15	Project: North Oakland Reinforcement
SOBRANTE-MORAGA 115KV	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	100	133	150	170	75	97	129	102	89	98	101	104	Project: Moraga 230 kV Redundant Bus Differential Relay
	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	100	75	56	25	79	52	50	101	58	81	98	91	Project: North Oakland Reinforcement
	MORAGA 230KV - SECTION 2D & 1D	P2	Breaker	100	74	76	101	75	45	49	102	47	98	101	36	Project: North Oakland Reinforcement
SOBRANTE-NRTH TWR 115KV	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	132	Diverge	Diverge	NA	44	59	NA	12	NA	NA	104	Install redundant battery supply
	PITTSBURG-MARTINEZ #2 115KV and PITTSBURG-MARTINEZ #1 115KV MOAS OPENED ON PITTSBURG-E W.P.BART	P6	N-1-1	< 100	146	149	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114	Operating solution
	MARTNZ E 115KV SECTION 1E	P2	Bus	NA	130	131	83	NA	43	57	NA	13	NA	NA	101	Operating solution
	MARTNZ E - 1E 115KV & PITTSBURG-MARTINEZ #2 LINE	P2	Breaker	NA	130	131	83	NA	43	57	NA	13	NA	NA	101	Operating solution
	MARTNZ E - 1E 115KV & PITTSBURG-MARTINEZ #1 LINE	P2	Breaker	NA	130	131	83	NA	43	57	NA	13	NA	NA	101	Operating solution
	MARTNZ E - 1E 115KV & LINE	P2	Breaker	NA	130	131	83	NA	43	57	NA	13	NA	NA	101	Operating solution
	PITTSBURG-E 115KV - SECTION 2E & 1E	P2	Breaker	NA	145	148	100	NA	51	65	NA	20	NA	NA	116	Operating solution
	Pittsburg-Martinez Nos. 1 & 2 115 KV lines	P7	DCTL	NA	129	130	85	NA	43	57	NA	12	NA	NA	100	Operating solution
SOBRANTE-OAKLAND-L 115KV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	177	Diverge	NA	NA	165	NA	85	NA	NA	NA	Project: Moraga 230-115 kV DC Supply and Control Circuit
SOBRANTE-R #1 115KV	SOBRANTE-R #2 115KV	P1	N-1	NA	73	89	99	NA	66	102	NA	21	NA	NA	35	Continue to monitor
	RICHMOND 115KV SECTION 1D	P2	Bus	64	73	89	99	61	66	102	65	21	27	65	35	Continue to monitor
	SOBRANTE 115KV SECTION 2D	P2	Bus	64	72	89	100	60	65	103	65	21	27	65	35	Continue to monitor
	SOBRANTE - 2D 115KV & SOBRANTE-STANDARD OIL SW STA #1 LINE	P2	Breaker	64	72	90	100	60	66	103	65	21	27	65	35	Continue to monitor
	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	64	72	90	101	61	65	103	65	20	27	65	35	Continue to monitor
	RICHMOND2-25 25.00KV GEN UNIT VS and SOBRANTE-R #2 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE-R #2 115KV and RICHMOND2-25 25/115KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	104	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SOBRANTE-R #2 115KV	SOBRANTE-R #1 115KV	P1	N-1	NA	76	92	103	NA	84	131	NA	22	NA	NA	40	Continue to monitor
	SOBRANTE-R #1 115KV (RICHMOND-ELCRTJ2)	P2	Line Section w/o Fault	67	76	92	103	79	84	131	66	22	32	66	40	Continue to monitor
	SOBRANTE-R #1 115KV (ELCRTJ2-SOBRANTE)	P2	Line Section w/o Fault	64	74	90	101	78	87	133	68	29	27	68	35	Continue to monitor
	SOBRANTE 115KV SECTION 1D	P2	Bus	64	72	88	101	78	86	133	68	29	27	68	35	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #1 LINE	P2	Breaker	64	73	88	101	78	86	133	68	29	27	68	35	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-G #1 LINE	P2	Breaker	64	72	88	101	78	86	133	68	29	27	68	35	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-R #1 LINE	P2	Breaker	67	75	91	103	79	84	131	66	22	32	66	40	Continue to monitor
	SOBRANTE - 1D 115KV & SOBRANTE-OAKLAND-D LINE	P2	Breaker	NA	72	88	101	NA	86	133	NA	29	NA	NA	35	Continue to monitor
	RICHMOND2-25 25.00KV GEN UNIT VS and SOBRANTE-R #1 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	134	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE-R #1 115KV and RICHMOND2-25 25/115KV TB 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	134	< 100	< 100	< 100	< 100	< 100	Continue to monitor
SSS 230/230KV TB 1	RUSCTYECST1 18/230KV TB 1 and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	86	84	84	117	85	103	114	76	100	86	76	83	Continue to monitor
	LOS ESTEROS-TRIMBLE 115KV	P1	N-1	79	79	81	112	78	97	108	70	94	79	70	79	Continue to monitor
	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	77	79	98	NA	98	109	NA	97	NA	NA	77	Continue to monitor
	LS ESTRS 230/115KV TB 4	P1	N-1	85	79	82	112	80	96	108	72	93	85	72	80	Continue to monitor
	LS ESTRS 230/115KV TB 3	P1	N-1	85	79	82	112	80	96	108	72	93	85	72	80	Continue to monitor
	NEWARK D 230KV SECTION 2Y	P2	Bus	NA	86	91	128	NA	95	114	NA	89	NA	NA	82	Continue to monitor
	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	77	79	98	NA	98	109	NA	97	NA	NA	77	Continue to monitor
	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	77	79	98	NA	98	109	NA	97	NA	NA	77	Continue to monitor
	NEWARK D SECTION 1D & NEWARK E SECTION 1E 230KV	P2	Breaker	61	78	Diverge	Diverge	69	88	107	64	83	61	64	79	Continue to monitor
	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	79	Diverge	Diverge	NA	97	108	NA	94	NA	NA	78	Continue to monitor
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	77	79	75	Diverge	77	96	106	69	93	77	68	79	Continue to monitor
	Metcalf - El Patio No. 1 & 2 115 KV Lines	P7	DCTL	81	78	78	110	80	96	107	72	93	81	72	78	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	78	79	110	NA	96	107	NA	93	NA	NA	78	Continue to monitor
	Newark - Northern #1 & #2 115 KV Lines	P7	DCTL	87	77	79	110	81	95	104	69	92	87	68	77	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	78	79	110	NA	96	107	NA	93	NA	NA	78	Continue to monitor
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	84	84	87	117	80	99	112	72	96	81	72	84	Continue to monitor
	Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	80	79	81	112	79	96	108	71	94	80	71	78	Continue to monitor
	LS ESTRS1-25 25.00KV GEN UNIT V8 and Metcalf - San Jose B HVDC Gen	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	105	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	< 100	84	84	112	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	80	80	Diverge	NA	103	113	NA	103	NA	NA	78	HVDC, Los Esteros PST, and Los Esteros - Nortech series reactor set-points and/or SVP PST capacity upgrade.
	NEWARK D-NRS #1 230KV	P1	N-1	NA	103	115	157	NA	110	128	NA	100	NA	NA	105	HVDC, Los Esteros PST, and Los Esteros - Nortech series reactor set-points and/or SVP PST capacity upgrade.
	NEWARK D 230KV SECTION 1D	P2	Bus	81	102	109	Diverge	79	109	127	72	99	80	72	102	HVDC, Los Esteros PST, and Los Esteros - Nortech series reactor set-points and/or SVP PST capacity upgrade.
	NEWARK D 230KV - SECTION 1D & 2D	P2	Breaker	83	116	Diverge	Diverge	82	118	138	75	105	83	75	111	HVDC, Los Esteros PST, and Los Esteros - Nortech series reactor set-points and/or SVP PST capacity upgrade.
	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	81	81	78	Diverge	80	98	108	72	95	81	72	80	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	89	83	81	Diverge	86	100	112	78	98	88	78	82	Install redundant battery supply
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	111	77	80	110	87	93	104	70	92	106	70	77	Install redundant relay
	LOS ESTEROS 115KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	102	89	94	Diverge	93	104	120	82	98	99	81	90	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	90	86	81	Diverge	87	103	112	80	98	88	80	86	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	65	88	53	Diverge	73	98	Diverge	68	89	63	68	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
ST TRESA-METCALFD 115KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and METCALF-EDENVALE #2 115KV	P3	G-1/N-1	< 100	< 100	< 100	117	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and METCALF-EDENVALE #2 115KV	P6	N-1-1	< 100	< 100	< 100	118	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF-EDENVALE #2 115KV	P1	N-1	82	89	108	115	52	37	65	65	27	64	65	70	Continue to monitor
	METCALF-EDENVALE #2 115KV (EDENVALE-BAILY J2)	P2	Line Section w/o Fault	82	89	108	115	52	37	65	65	27	64	65	70	Continue to monitor
	METCALF-EDENVALE #2 115KV (METCALFD-BAILY J2)	P2	Line Section w/o Fault	84	92	110	117	54	40	67	67	30	67	67	72	Continue to monitor
STD. OIL-SAN PBLO-SOBRANTE 115KV	CHEVGEN2 13.80KV GEN UNIT 1 and SOBRANTE-STANDARD OIL SW STA #1 115KV	P3	G-1/N-1	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	SOBRANTE 230/115KV TB 3 and SOBRANTE-STANDARD OIL SW STA #1 115KV	P6	N-1-1	< 100	< 100	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
STELLING-MONTA VISTA 115KV	Metcalf - San Jose B HVDC Gen and MONTA VISTA-WOLFE 115KV	P3	G-1/N-1	< 100	< 100	< 100	101	< 100	< 100	112	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and MONTA VISTA-WOLFE 115KV	P6	N-1-1	< 100	< 100	< 100	105	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MONTA VISTA-WOLFE 115KV	P1	N-1	68	78	90	100	59	65	109	64	42	49	63	56	Continue to monitor
	MNTA VSA 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	69	78	90	101	59	65	109	63	42	49	63	56	Continue to monitor
TESLA-NEWARK #1 230KV	CHARCOT-SANJOSEB 230KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	63	76	90	Diverge	58	69	98	66	50	66	67	86	Continue to monitor
	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	59	76	97	Diverge	55	66	97	63	49	63	66	85	Continue to monitor
	Metcalf - San Jose B HVDC Gen and TESLA-NEWARK #2 230KV	P3	G-1/N-1	< 100	< 100	Diverge	Diverge	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-RAVENSWOOD 230KV	P1	N-1	63	72	87	100	61	67	96	71	51	69	74	86	Continue to monitor
	TESLA-NEWARK #2 230KV	P1	N-1	62	72	88	102	58	64	94	66	47	66	68	83	Continue to monitor
	NEWARK E 230KV SECTION 2E	P2	Bus	62	74	91	107	58	65	95	65	48	66	68	84	Continue to monitor
	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	62	74	91	107	58	65	95	65	48	66	68	84	Continue to monitor
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	68	78	96	Diverge	64	69	104	71	52	72	74	91	Continue to monitor
	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	58	72	87	102	57	63	93	65	46	62	68	83	Continue to monitor
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	94	85	Diverge	106	62	Diverge	109	Diverge	Install redundant battery supply
	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	67	74	89	101	60	69	99	69	53	68	70	83	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	101	Diverge	Diverge	93	85	Diverge	105	82	Diverge	109	Diverge	Install redundant relay
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	69	75	91	103	60	69	100	70	53	69	71	84	Install redundant relay
TESLA-NEWARK #2 230KV	Metcalf - San Jose B HVDC Gen and TESLA-NEWARK #1 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	CHARCOT-SANJOSEB 230KV and TESLA-METCALF 500KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-NEWARK #1 230KV [5720]	P1	N-1	< 100	93	80	103	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	83	103	Diverge	Diverge	57	68	92	65	31	68	68	100	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	130	Diverge	Diverge	87	85	Diverge	100	59	Diverge	105	Diverge	Install redundant relay
	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	82	96	80	102	51	66	82	59	33	70	60	89	Install redundant relay
	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	87	104	89	Diverge	62	74	91	72	37	81	75	105	Project: Tesla - Newark 230 kV Line No. 2 Reconductoring
	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	83	102	89	Diverge	56	67	87	65	29	70	68	99	Project: Pittsburg PP 230 kV Redundant Bus Differential Relay
	PITTSBURG-E 230KV - SECTION 1E & 2E	P2	Breaker	78	95	76	97	54	63	83	62	30	70	66	100	Sensitivity only
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	86	86	Diverge	100	42	Diverge	104	Diverge	Sensitivity only
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	139	NA	NA	NA	71	NA	NA	78	NA	102	78	NA	Install redundant battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Greater Bay Area**
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
TRIMBLE - SAN JOSE B 115 KV LINE	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	158	NA	NA	NA	85	NA	NA	92	NA	120	92	NA	Install redundant relay
	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	163	NA	NA	NA	72	NA	NA	45	NA	135	42	NA	Project: San Jose area HVDC line
TRIMBLE - ZANKER 115 KV LINE	LOS ESTEROS 115KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	139	NA	NA	NA	81	NA	NA	89	NA	124	88	NA	Install redundant relay
	NEWARK E-F BUS TIE 230KV and LOS ESTEROS-METCALF 230KV	P6	N-1-1	139	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144	< 100	< 100	Project: San Jose area HVDC line
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	132	NA	NA	NA	77	NA	NA	87	NA	118	86	NA	Project: San Jose area HVDC line
TRIMBLE-CHARCOTSWSTA #1 115KV	MEC CTG1 18.00KV & MEC CTG2 18.00KV & MEC STG1 18.00KV GEN UNITS and RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	TESLA-METCALF 500KV and MANNING - METCALF 500 KV	P6	N-1-1	< 100	< 100	Diverge	< 100	< 100	< 100	113	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Base Case	P0	Base Case	NA	72	109	100	NA	88	95	NA	68	NA	NA	83	Continue to monitor
	NEWARK E-F BUS TIE 230KV	P1	N-1	NA	81	121	111	NA	99	106	NA	79	NA	NA	91	Continue to monitor
	RINGWOODSWST-MILPITAS #1 115KV	P1	N-1	NA	72	118	112	NA	88	99	NA	68	NA	NA	83	Continue to monitor
	TRIMBLE-SAN JOSE B 115KV	P1	N-1	NA	68	107	92	NA	92	118	NA	85	NA	NA	87	Continue to monitor
	EL PATIO-SAN JOSE A 115KV	P1	N-1	NA	72	115	107	NA	88	110	NA	76	NA	NA	83	Continue to monitor
	CHARCOTSWSTA-MONTAGUE #1 115KV	P1	N-1	NA	81	137	130	NA	93	123	NA	87	NA	NA	88	Continue to monitor
	NRS T1	P1	N-1	NA	78	116	112	NA	95	106	NA	73	NA	NA	89	Continue to monitor
	SANJOSEB 115KV SECTION 1G	P2	Bus	NA	NA	186	180	NA	NA	167	NA	119	NA	NA	NA	Continue to monitor
	MONTAGUE 115KV SECTION 1F	P2	Bus	NA	79	136	128	NA	92	122	NA	87	NA	NA	83	Continue to monitor
	CHARCOTSWSTA 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	81	137	130	NA	93	123	NA	87	NA	NA	88	Continue to monitor
	MONTAGUE 115KV - SECTION 1E & 1F	P2	Breaker	NA	NA	134	126	NA	NA	121	NA	86	NA	NA	NA	Continue to monitor
	Trimble - San Jose B & FMC - San Jose B 115 KV Lines	P7	DCTL	NA	72	106	97	NA	94	123	NA	87	NA	NA	90	Continue to monitor
	Trimble - San Jose B & Kifer - FMC 115 KV Lines	P7	DCTL	NA	69	107	95	NA	92	121	NA	86	NA	NA	89	Continue to monitor
	Metcalf - El Patio No. 1 & 2 115 KV Lines	P7	DCTL	NA	74	127	119	NA	88	118	NA	79	NA	NA	86	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	72	141	133	NA	88	125	NA	85	NA	NA	85	Continue to monitor
	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	72	141	133	NA	88	125	NA	85	NA	NA	85	Continue to monitor
	Los Esteros - Trimble & Los Esteros - Montague 115 KV	P7	DCTL	NA	96	136	135	NA	114	125	NA	84	NA	NA	116	Continue to monitor
	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	79	116	103	NA	102	127	NA	92	NA	NA	96	Install redundant battery supply
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	82	162	Diverge	NA	96	142	NA	93	NA	NA	95	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	109	Diverge	NA	106	NA	NA	Diverge	Install redundant battery supply
	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	86	137	Diverge	NA	102	118	NA	78	NA	NA	106	Install redundant battery supply
	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	77	136	131	NA	92	112	NA	76	NA	NA	94	Install redundant relay
	LOS ESTEROS 115KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	95	141	138	NA	113	126	NA	84	NA	NA	116	Install redundant relay
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	88	161	Diverge	NA	101	142	NA	93	NA	NA	102	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	107	Diverge	Diverge	NA	110	Diverge	NA	94	NA	NA	Diverge	Install redundant relay
	LOS ESTEROS-TRIMBLE 115KV	P1	N-1	NA	109	149	153	NA	126	140	NA	93	NA	NA	131	Potential capacity increase. Contribution from large load under review.
	SANJOSEB230 230/115KV TB 1	P1	N-1	NA	104	186	180	NA	122	167	NA	119	NA	NA	113	Potential capacity increase. Contribution from large load under review.
	NEWARK F 115KV SECTION 2Z	P2	Bus	NA	93	111	103	NA	107	95	NA	68	NA	NA	104	Potential capacity increase. Contribution from large load under review.
	LS ESTRS 115KV - MIDDLE BREAKER BAY 4	P2	Breaker	NA	109	149	153	NA	126	140	NA	93	NA	NA	131	Potential capacity increase. Contribution from large load under review.
	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	NA	86	128	123	NA	105	120	NA	89	NA	NA	99	Potential capacity increase. Contribution from large load under review.
	SANJOSEB 115KV - MIDDLE BREAKER BAY 5	P2	Breaker	NA	103	93	81	NA	122	78	NA	61	NA	NA	112	Project: San Jose area HVDC line
TRIMBLE-SAN JOSE B 115KV	CHARCOT-SANJOSEB 230KV and FMC-SAN JOSE B 115KV	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	35	60	Diverge	NA	17	40	NA	19	NA	NA	28	Install redundant battery supply
	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	Diverge	Diverge	Diverge	NA	26	Diverge	NA	0	NA	NA	Diverge	Install redundant battery supply
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	64	60	Diverge	NA	40	40	NA	19	NA	NA	59	Install redundant relay
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	68	Diverge	Diverge	NA	28	Diverge	NA	8	NA	NA	Diverge	Install redundant relay
	Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	NA	84	55	56	NA	112	69	NA	47	NA	NA	124	Project: San Jose area HVDC line
VASONA-METCALF 230KV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and HICKS-METCALF 230KV	P3	G-1/N-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	HICKS-METCALF 230KV and MONTA VISTA-COYOTE SW STA 230KV	P6	N-1-1	< 100	< 100	< 100	116	< 100	< 100	118	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 kV Line	P7	DCTL	< 100	72	86	Diverge	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor
VINEYARD-NEWARK 230KV	CONTRA COSTA-LAS POSITAS 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	102	< 100	< 100	< 100	< 100	< 100	Continue to monitor
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	83	Diverge	Diverge	57	87	Diverge	60	93	Diverge	51	Diverge	Install redundant relay
	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	63	70	67	85	39	91	101	45	86	38	30	77	Project: Moraga 230 kV Redundant Bus Differential Relay
	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	65	72	70	90	40	92	104	46	86	40	31	78	Project: Moraga 230-115 kV DC Supply and Control Circuit
WHISMAN-MONTA VISTA 115KV	METCALF 500-230KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	Diverge	Diverge	Diverge	85	40	Diverge	101	44	Diverge	108	Diverge	Install redundant battery supply
	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	61	Diverge	Diverge	83	37	Diverge	100	44	Diverge	107	Diverge	Install redundant relay
	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	97	99	51	Diverge	74	78	Diverge	83	44	98	84	Diverge	Project: Newark 230 kV DC Supply and Control Circuit
	LOS ESTEROS-METCALF 230KV and MTN VIEW-MONTA VISTA 115KV	P6	N-1-1	102	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Project: South Bay Reinforcement
	Metcalf - San Jose B HVDC Gen and MTN VIEW-MONTA VISTA 115KV	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109	Sensitivity only
	MNTA VSA 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	89	84	49	61	80	67	65	84	46	95	87	112	Sensitivity only
	Newark-Ravenswood 230 KV and Tesla-Ravenswood 230 KV lines	P7	DCTL	80	78	43	53	71	65	54	82	44	87	84	101	Sensitivity only
	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	82	77	43	56	70	59	57	74	39	87	77	100	Sensitivity only
	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	83	84	49	58	73	71	64	74	44	87	77	108	Sensitivity only
	RAVENSWOOD 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	89	87	48	55	73	69	54	79	43	91	81	105	Sensitivity only
	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	97	94	51	Diverge	76	72	63	85	44	96	87	117	Sensitivity only
	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	95	83	51	Diverge	75	64	63	83	43	94	86	105	Sensitivity only
X-Y #1 115KV	A-X #1 115KV and A-P #1 115KV	P6	N-1-1	< 100	< 100	< 100	109	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
LIVERMRE 60.0 kV	Base Case	P0	Base Case	1.01	1.01	0.96	0.95	1.04	1.04	1.02	1.04	1.04	1.02	1.04	1.00	Continue to monitor
RADUM 60.0 kV	Base Case	P0	Base Case	1.01	1.00	0.96	0.94	1.04	1.04	1.02	1.04	1.04	1.01	1.04	1.00	Continue to monitor
EVRGRN 1 115.0 kV	Base Case	P0	Base Case	0.98	1.00	0.94	0.95	1.02	1.02	1.00	1.03	1.02	0.99	1.02	0.99	Continue to monitor
EVERGREN 60.0 kV	Base Case	P0	Base Case	0.98	0.99	0.93	0.94	1.03	1.03	1.01	1.04	1.03	0.99	1.04	0.99	Continue to monitor
ALMADEN 60.0 kV	Base Case	P0	Base Case	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
STONE 115.0 kV	Base Case	P0	Base Case	0.98	0.99	0.94	0.94	1.02	1.02	1.00	1.02	1.02	0.98	1.02	0.98	Continue to monitor
VALLECTS 60.0 kV	Base Case	P0	Base Case	1.00	1.00	0.96	0.94	1.03	1.03	1.01	1.03	1.04	1.01	1.03	0.99	Continue to monitor
SANRAMON 230.0 kV	Base Case	P0	Base Case	0.99	0.99	0.95	0.94	1.01	1.02	1.00	1.02	1.02	1.00	1.02	0.97	Continue to monitor
JEFRSN_D 60.0 kV	Base Case	P0	Base Case	1.01	1.01	0.97	0.95	1.01	1.01	1.00	1.00	1.02	1.02	1.01	1.01	Continue to monitor
MORAGA 230.0 kV	Base Case	P0	Base Case	1.00	0.99	0.96	0.95	1.01	1.02	1.00	1.02	1.01	1.00	1.02	0.97	Continue to monitor
SARATOGA 230.0 kV	Base Case	P0	Base Case	1.02	1.01	0.96	0.94	1.02	1.02	0.99	1.02	1.03	1.02	1.02	1.00	Continue to monitor
VASONA 230.0 kV	Base Case	P0	Base Case	1.02	1.01	0.96	0.95	1.02	1.02	0.99	1.02	1.03	1.02	1.02	1.00	Continue to monitor
SAN PBLO 115.0 kV	Base Case	P0	Base Case	0.99	0.93	0.91	0.91	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.93	System adjustments
MONTAVIS 230.0 kV	Base Case	P0	Base Case	1.02	1.01	0.96	0.95	1.02	1.03	0.99	1.03	1.03	1.02	1.03	1.01	Continue to monitor
E. SHORE 230.0 kV	Base Case	P0	Base Case	1.00	0.99	0.95	0.92	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.98	Continue to monitor
ALMADEN 60.0 kV	AMES-MOUNTAIN VIEW 115 KV	P1	N-1	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
VALLECTS 60.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	1.00	0.96	0.89	NA	1.03	1.00	NA	1.04	NA	NA	0.99	Continue to monitor
ALMADEN 60.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	0.96	0.90	0.85	NA	1.03	0.99	NA	1.03	NA	NA	0.96	Continue to monitor
EVERGREN 60.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	0.99	0.94	0.89	NA	1.03	1.01	NA	1.03	NA	NA	0.99	Continue to monitor
JARVIS 115.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	1.01	0.96	0.89	NA	1.04	1.01	NA	1.05	NA	NA	1.00	Continue to monitor
NORTECH 115.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	1.02	0.96	0.90	NA	1.04	1.01	NA	1.04	NA	NA	1.01	Continue to monitor
E. SHORE 230.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	0.99	0.95	0.87	NA	1.01	0.99	NA	1.01	NA	NA	0.97	Continue to monitor
LOCKHD 1 115.0 kV	Charcot - San Jose B 230KV	P1	N-1	NA	1.00	0.96	0.89	NA	1.00	0.99	NA	1.01	NA	NA	0.99	Continue to monitor
BRITTN 115.0 kV	BRITTON-MONTA VISTA 115KV	P1	N-1	0.98	0.96	0.90	0.90	0.99	0.99	0.96	1.00	1.00	0.98	1.00	0.96	Continue to monitor
APP MAT 115.0 kV	BRITTON-MONTA VISTA 115KV	P1	N-1	0.98	0.96	0.90	0.90	0.99	0.99	0.96	1.00	1.01	0.98	1.00	0.96	Continue to monitor
ALMADEN 60.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	0.96	0.90	0.85	NA	1.03	0.99	NA	1.03	NA	NA	0.96	Continue to monitor
LOCKHD 1 115.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	1.00	0.96	0.89	NA	1.00	0.99	NA	1.01	NA	NA	0.99	Continue to monitor
E. SHORE 230.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	0.99	0.95	0.87	NA	1.01	0.99	NA	1.01	NA	NA	0.97	Continue to monitor
VALLECTS 60.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	1.00	0.96	0.89	NA	1.03	1.00	NA	1.04	NA	NA	0.99	Continue to monitor
JARVIS 115.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	1.01	0.96	0.89	NA	1.04	1.01	NA	1.05	NA	NA	1.00	Continue to monitor
EVERGREN 60.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	0.99	0.94	0.89	NA	1.03	1.01	NA	1.03	NA	NA	0.99	Continue to monitor
NORTECH 115.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	1.02	0.96	0.90	NA	1.04	1.01	NA	1.04	NA	NA	1.01	Continue to monitor
ALMADEN 60.0 kV	DVRaGT1 13.80KV & DVRbGt2 13.80KV & DVRaST3 13.80KV Gen Units	P1	N-1	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
E. SHORE 230.0 kV	EASTSHORE-SAN MATEO 230KV	P1	N-1	0.99	0.97	0.88	0.80	1.00	1.00	0.98	0.95	1.00	0.99	0.95	0.89	Continue to monitor
ALMADEN 60.0 kV	LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV	P1	N-1	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
LIVERMRE 60.0 kV	LS PSTAS 230/60KV TB 4	P1	N-1	0.98	0.98	0.92	0.89	1.03	1.03	1.00	1.03	1.03	0.98	1.03	0.97	Continue to monitor
RADUM 60.0 kV	LS PSTAS 230/60KV TB 4	P1	N-1	0.99	0.98	0.92	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.98	Continue to monitor
LPOSTAS 60.0 kV	LS PSTAS 230/60KV TB 4	P1	N-1	0.98	0.98	0.91	0.89	1.03	1.03	0.99	1.03	1.03	0.98	1.03	0.98	Continue to monitor
ALMADEN 60.0 kV	METCALF SVD=V	P1	N-1	0.94	0.95	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.95	1.03	0.95	Continue to monitor
MILPITAS 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.99	0.89	Diverge	NA	1.02	0.98	NA	1.03	NA	NA	0.97	Continue to monitor
JARVIS 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.99	0.90	Diverge	NA	1.04	1.00	NA	1.05	NA	NA	0.98	Continue to monitor
STONE 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.97	0.87	Diverge	NA	1.02	0.96	NA	1.02	NA	NA	0.95	Continue to monitor
LOCKHD 1 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.99	0.90	Diverge	NA	1.00	0.97	NA	1.01	NA	NA	0.97	Continue to monitor
EVRGRN 1 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.98	0.87	Diverge	NA	1.02	0.97	NA	1.02	NA	NA	0.96	Continue to monitor
MONTAGUE 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	1.00	0.89	Diverge	NA	1.03	0.98	NA	1.03	NA	NA	0.98	Continue to monitor
SAN PBLO 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.93	0.90	Diverge	NA	0.97	0.97	NA	0.99	NA	NA	0.92	Continue to monitor
TRIMBLE 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	1.00	0.88	Diverge	NA	1.03	0.98	NA	1.03	NA	NA	0.98	Continue to monitor
FMC 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.99	0.87	Diverge	NA	1.02	0.97	NA	1.03	NA	NA	0.97	Continue to monitor
TRIMBL&1 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.99	0.88	Diverge	NA	1.02	0.97	NA	1.03	NA	NA	0.97	Continue to monitor
EVERGREN 60.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.97	0.86	Diverge	NA	1.03	0.97	NA	1.03	NA	NA	0.96	Continue to monitor
SN JSE A 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.98	0.88	Diverge	NA	1.02	0.97	NA	1.02	NA	NA	0.96	Continue to monitor
EL PATIO 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.98	0.88	Diverge	NA	1.02	0.97	NA	1.02	NA	NA	0.96	Continue to monitor
NORTECH 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	1.01	0.89	Diverge	NA	1.04	0.99	NA	1.04	NA	NA	0.99	Continue to monitor
ALMADEN 60.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.94	0.82	Diverge	NA	1.03	0.96	NA	1.03	NA	NA	0.93	Continue to monitor
E. SHORE 230.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	0.99	0.90	Diverge	NA	1.01	0.98	NA	1.01	NA	NA	0.96	Continue to monitor
EVERGREN 60.0 kV	MONTA VISTA-LOS GATOS 60KV	P1	N-1	0.95	0.97	0.89	0.89	1.03	1.03	0.99	1.03	1.03	0.97	1.03	0.97	Continue to monitor
ALMADEN 60.0 kV	MONTA VISTA-LOS GATOS 60KV	P1	N-1	0.90	0.91	0.80	0.79	1.02	1.01	0.96	1.01	1.03	0.93	1.01	0.93	Loyola and Los Altos area load modeling under review.
LOS GATS 60.0 kV	MONTA VISTA-LOS GATOS 60KV	P1	N-1	0.87	0.88	0.76	0.75	1.01	1.00	0.93	1.00	1.03	0.90	1.00	0.90	Loyola and Los Altos area load modeling under review.
VALLECTS 60.0 kV	NEWARK D 115/115KV TB 1	P1	N-1	0.98	0.97	0.93	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.96	Continue to monitor
NEWARK 60.0 kV	NEWARK D 115/115KV TB 1	P1	N-1	0.98	0.96	0.94	0.89	1.04	1.03	1.00	1.03	1.03	0.98	1.03	0.96	Continue to monitor
EVERGREN 60.0 kV	NEWARK D-NRS #1 230KV	P1	N-1	NA	0.99	0.89	0.93	NA	1.03	1.00	NA	1.03	NA	NA	0.97	Continue to monitor
STONE 115.0 kV	NEWARK D-NRS #1 230KV	P1	N-1	NA	0.99	0.90	0.93	NA	1.02	0.99	NA	1.02	NA	NA	0.97	Continue to monitor
ALMADEN 60.0 kV	NEWARK D-NRS #1 230KV	P1	N-1	NA	0.96	0.85	0.88	NA	1.03	0.99	NA	1.03	NA	NA	0.95	Continue to monitor
MCKEE 115.0 kV	NEWARK-DIXON LANDING 115KV	P1	N-1	0.94	0.97	0.91	0.90	1.02	1.03	1.01	1.04	1.04	0.97	1.04	0.98	Continue to monitor
DIXON LD 115.0 kV	NEWARK-DIXON LANDING 115KV	P1	N-1	0.93	0.96	0.88	0.86	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
PIERCY 115.0 kV	PIERCY-METCALF 115KV	P1	N-1	0.94	0.91	0.82	0.81	1.01	0.98	0.94	1.03	1.00	0.96	1.03	0.92	Continue to monitor
MCKEE 115.0 kV	PIERCY-METCALF 115KV	P1	N-1	0.95	0.93	0.84	0.83	1.01	0.99	0.95	1.03	1.01	0.97	1.03	0.94	Continue to monitor
ALMADEN 60.0 kV	PIERCY-METCALF 115KV	P1	N-1	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
SANRAMON 230.0 kV	PITTSBURG-SAN RAMON 230KV	P1	N-1	NA	0.96	0.91	0.89	NA	1.02	0.98	NA	1.02	NA	NA	0.96	Continue to monitor
ALMADEN 60.0 kV	POT_SVC SHUNT=C1	P1	N-1	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	POTRERO-TBC_POT1 #1 115KV	P1	N-1	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	RUSCTYECCT1 15/230KV TB 1	P1	N-1	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	0.94	0.96	0.87	0.86	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
E. SHORE 230.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	0.98	0.95	0.88	0.84	1.00	0.99	0.96	1.00	1.00	0.99	1.00	0.93	Continue to monitor
SAN PBLO 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	0.99	0.93	0.90	0.90	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.92	Continue to monitor
E. SHORE 230.0 kV	RUSCTYECST1 18/230KV TB 1	P1	N-1	1.00	0.98	0.93	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.96	Continue to monitor
SN JSE A 115.0 kV	SAN JOSE A-SAN JOSE B 115KV	P1	N-1	1.01	0.96	0.91	0.89	1.04	0.97	0.95	1.04	0.98	1.01	1.04	0.92	Continue to monitor
EVERGREN 60.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	0.98	0.98	0.89	0.88	1.04	1.03	1.00	1.04	1.03	0.99	1.04	0.97	Continue to monitor
ALMADEN 60.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	0.95	0.95	0.85	0.83	1.03	1.03	0.98	1.03	1.03	0.97	1.03	0.95	Continue to monitor
STONE 115.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	0.98	0.98	0.90	0.89	1.02	1.02	0.99	1.02	1.02	0.99	1.02	0.97	Continue to monitor
EVRGRN 1 115.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV	P1	N-1	0.98	0.98	0.91	0.89	1.03	1.02	0.99	1.03	1.02	0.99	1.02	0.98	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 230/115KV TB 3	P1	N-1	NA	NA	0.90	0.91	NA	NA	0.96	NA	0.99	NA	NA	NA	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE-STANDARD OIL SW STA #1 115KV	P1	N-1	NA	1.00	0.96	0.90	NA	0.94	0.94	NA	0.98	NA	NA	0.90	Continue to monitor
ALMADEN 60.0 kV	C.COSTAPPD SECTION 1D & C.COSTAPPE SECTION 1E 230KV	P2	Breaker	0.95	0.96	0.89	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
JARVIS 115.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	1.01	0.96	0.89	NA	1.04	1.01	NA	1.05	NA	NA	1.00	Continue to monitor
VALLECTS 60.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	1.00	0.96	0.89	NA	1.03	1.00	NA	1.04	NA	NA	0.99	Continue to monitor
NORTECH 115.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	1.02	0.96	0.90	NA	1.04	1.01	NA	1.04	NA	NA	1.01	Continue to monitor
E. SHORE 230.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	0.99	0.95	0.87	NA	1.01	0.99	NA	1.01	NA	NA	0.97	Continue to monitor
ALMADEN 60.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	0.96	0.90	0.85	NA	1.03	0.99	NA	1.03	NA	NA	0.96	Continue to monitor
LOCKHD 1 115.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	1.00	0.96	0.89	NA	1.00	0.99	NA	1.01	NA	NA	0.99	Continue to monitor
EVERGREN 60.0 kV	CHARCOTSS 230KV SECTION 1E	P2	Bus	NA	0.99	0.94	0.89	NA	1.03	1.01	NA	1.03	NA	NA	0.99	Continue to monitor
EVERGREN 60.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	0.99	0.94	0.89	NA	1.03	1.01	NA	1.03	NA	NA	0.99	Continue to monitor
E. SHORE 230.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	0.99	0.95	0.87	NA	1.01	0.99	NA	1.01	NA	NA	0.97	Continue to monitor
JARVIS 115.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	1.01	0.96	0.89	NA	1.04	1.01	NA	1.05	NA	NA	1.00	Continue to monitor
NORTECH 115.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	1.02	0.96	0.90	NA	1.04	1.01	NA	1.04	NA	NA	1.01	Continue to monitor
VALLECTS 60.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	1.00	0.96	0.89	NA	1.03	1.00	NA	1.04	NA	NA	0.99	Continue to monitor
ALMADEN 60.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	0.96	0.90	0.85	NA	1.03	0.99	NA	1.03	NA	NA	0.96	Continue to monitor
LOCKHD 1 115.0 kV	CHARCOTSS 230KV SECTION B2	P2	Bus	NA	1.00	0.96	0.89	NA	1.00	0.99	NA	1.01	NA	NA	0.99	Continue to monitor
E. SHORE 230.0 kV	E. SHORE 230KV - MIDDLE BREAKER BAY 4	P2	Breaker	0.99	0.97	0.88	0.80	1.00	1.00	0.98	0.95	1.00	0.99	0.95	0.89	Continue to monitor
GRANT 115.0 kV	EASTSHRE 115KV - SECTION MD & ME	P2	Breaker	0.96	0.73	0.91	0.89	0.99	0.58	0.97	0.99	1.02	0.98	0.98	0.56	Project: Moraga 230/115 kV Transformer Bank
OAKLAND-J 115.0 kV	EASTSHRE 115KV - SECTION MD & ME	P2	Breaker	0.97	0.74	0.92	0.91	1.00	0.60	0.99	0.99	1.03	0.99	0.99	0.58	Project: Moraga 230/115 kV Transformer Bank
EDES 115.0 kV	EASTSHRE 115KV - SECTION MD & ME	P2	Breaker	0.97	0.74	0.92	0.90	0.99	0.60	0.98	0.99	1.03	0.98	0.99	0.57	Project: Moraga 230/115 kV Transformer Bank
ALMADEN 60.0 kV	EDENVALE 115KV - SECTION 1E & 1F	P2	Breaker	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	EL PATIO 115KV - SECTION 1E & 1F	P2	Breaker	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
STONE 115.0 kV	EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN LINE	P2	Breaker	0.95	0.98	0.89	0.87	1.02	1.02	0.98	1.02	1.02	0.97	1.02	0.97	Continue to monitor
EVERGREN 60.0 kV	EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN LINE	P2	Breaker	0.95	0.98	0.88	0.86	1.04	1.03	0.99	1.04	1.03	0.97	1.04	0.98	Continue to monitor
EVRGRN 1 115.0 kV	EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN LINE	P2	Breaker	0.96	0.98	0.89	0.87	1.02	1.02	0.98	1.03	1.02	0.97	1.02	0.98	Continue to monitor
ALMADEN 60.0 kV	EVRGRN 1 - 1D 115KV & SAN JOSE B-STONE-EVERGREEN LINE	P2	Breaker	0.93	0.95	0.84	0.81	1.03	1.03	0.97	1.03	1.03	0.95	1.03	0.95	Continue to monitor
STONE 115.0 kV	EVRGRN 1 115KV SECTION 1D	P2	Bus	0.95	0.98	0.88	0.87	1.02	1.02	0.98	1.02	1.02	0.97	1.02	0.97	Continue to monitor
ALMADEN 60.0 kV	EVRGRN 1 115KV SECTION 1D	P2	Bus	0.93	0.95	0.84	0.81	1.03	1.03	0.97	1.03	1.03	0.95	1.03	0.95	Continue to monitor
EVERGREN 60.0 kV	EVRGRN 1 115KV SECTION 1D	P2	Bus	0.95	0.98	0.88	0.86	1.03	1.03	0.99	1.04	1.03	0.97	1.04	0.98	Continue to monitor
EVRGRN 1 115.0 kV	EVRGRN 1 115KV SECTION 1D	P2	Bus	0.96	0.98	0.89	0.87	1.02	1.02	0.98	1.03	1.02	0.97	1.02	0.98	Continue to monitor
LLAGAS 115.0 kV	GILROY ENERGY TAP 115KV (GILROYTP-GILROYENGJCT)	P2	Line Section w/o Fault	0.97	0.97	0.90	0.91	1.00	1.00	1.00	1.00	1.01	0.98	1.00	0.95	Continue to monitor
ALMADEN 60.0 kV	GILROY F - 1D 115KV & LLAGAS-GILROY F-GILROYENG-GILROYPK LINE	P2	Breaker	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	LLAGAS-GILROY FOODS 115KV (LLAGAS-GILROYTP)	P2	Line Section w/o Fault	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
LIVERMRE 60.0 kV	LS PSTAS 230KV - SECTION 1F & 1G	P2	Breaker	0.98	0.98	0.91	0.89	1.03	1.03	0.99	1.03	1.03	0.98	1.03	0.97	Continue to monitor
LPOSTAS 60.0 kV	LS PSTAS 230KV - SECTION 1F & 1G	P2	Breaker	0.98	0.98	0.91	0.89	1.03	1.03	0.99	1.03	1.03	0.98	1.03	0.97	Continue to monitor
RADUM 60.0 kV	LS PSTAS 230KV - SECTION 1F & 1G	P2	Breaker	0.99	0.98	0.92	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.98	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
RADUM 60.0 kV	LS PSTAS 230KV SECTION 1G	P2	Bus	0.99	0.98	0.92	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.98	Continue to monitor
LPOSTAS 60.0 kV	LS PSTAS 230KV SECTION 1G	P2	Bus	0.98	0.98	0.91	0.89	1.03	1.03	0.99	1.03	1.03	0.98	1.03	0.98	Continue to monitor
LIVERMRE 60.0 kV	LS PSTAS 230KV SECTION 1G	P2	Bus	0.98	0.98	0.92	0.89	1.03	1.03	1.00	1.03	1.03	0.98	1.03	0.97	Continue to monitor
EVRGRN 1 115.0 kV	METCALF 230KV - SECTION 1D & 1E	P2	Breaker	0.95	0.97	0.90	Diverge	1.02	1.02	0.99	1.02	1.02	0.96	1.02	0.95	Continue to monitor
STONE 115.0 kV	METCALF 230KV - SECTION 1D & 1E	P2	Breaker	0.94	0.97	0.89	Diverge	1.02	1.01	0.98	1.02	1.02	0.95	1.02	0.95	Continue to monitor
VASONA 230.0 kV	METCALF 230KV - SECTION 1D & 1E	P2	Breaker	0.99	0.98	0.89	Diverge	1.03	1.03	0.96	1.03	1.04	1.00	1.04	0.96	Continue to monitor
SARATOGA 230.0 kV	METCALF 230KV - SECTION 1D & 1E	P2	Breaker	0.99	0.98	0.90	Diverge	1.03	1.02	0.96	1.03	1.04	1.00	1.04	0.96	Continue to monitor
EVERGREN 60.0 kV	METCALF 230KV - SECTION 1E & 2E	P2	Breaker	0.96	0.98	0.89	0.90	1.03	1.03	1.00	1.03	1.03	0.97	1.04	0.96	Continue to monitor
STONE 115.0 kV	METCALF 230KV - SECTION 1E & 2E	P2	Breaker	0.96	0.98	0.90	0.91	1.02	1.01	0.99	1.02	1.02	0.96	1.02	0.96	Continue to monitor
EVRGRN 1 115.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.95	0.98	0.89	Diverge	1.02	1.01	0.99	1.02	1.02	0.97	1.02	0.96	Continue to monitor
SARATOGA 230.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	1.00	1.00	0.90	Diverge	1.02	1.02	0.97	1.02	1.03	1.01	1.03	0.99	Continue to monitor
SAN PBLO 115.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.99	0.93	0.90	Diverge	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.92	Continue to monitor
STONE 115.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.95	0.97	0.88	Diverge	1.02	1.01	0.99	1.02	1.02	0.96	1.02	0.95	Continue to monitor
EVERGREN 60.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.95	0.98	0.87	Diverge	1.03	1.02	1.00	1.03	1.03	0.96	1.04	0.96	Continue to monitor
HICKS 230.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.99	0.99	0.88	Diverge	1.03	1.03	0.98	1.04	1.04	1.00	1.04	0.98	Continue to monitor
EL PATIO 115.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.96	0.99	0.90	Diverge	1.02	1.02	1.00	1.03	1.02	0.97	1.03	0.97	Continue to monitor
SN JSE A 115.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.96	1.00	0.90	Diverge	1.02	1.02	1.00	1.03	1.02	0.97	1.03	0.97	Continue to monitor
ALMADEN 60.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.92	0.95	0.83	Diverge	1.02	1.02	0.98	1.03	1.03	0.94	1.03	0.93	Continue to monitor
MONTAVIS 230.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	1.00	1.00	0.90	Diverge	1.03	1.03	0.98	1.03	1.03	1.01	1.04	0.99	Continue to monitor
FMC 115.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	0.96	1.00	0.90	Diverge	1.01	1.02	1.00	1.02	1.03	0.97	1.02	0.98	Continue to monitor
CAL MEC 230.0 kV	METCALF 230KV - SECTION 2D & 2E	P2	Breaker	1.01	1.01	0.90	Diverge	1.03	1.02	1.00	1.03	1.04	1.01	1.04	1.01	Continue to monitor
MCKEE 115.0 kV	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	0.95	0.92	0.83	0.82	1.01	0.99	0.95	1.03	1.01	0.96	1.03	0.93	Continue to monitor
PIERCY 115.0 kV	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	0.94	0.91	0.81	0.80	1.01	0.98	0.94	1.03	1.00	0.96	1.03	0.92	Continue to monitor
EVERGREN 60.0 kV	METCALFD SECTION 2D & METCALFE SECTION 2E 115KV	P2	Breaker	0.95	0.99	0.90	0.91	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.98	Continue to monitor
MCKEE 115.0 kV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	0.95	0.92	0.83	0.82	1.01	0.99	0.95	1.03	1.01	0.96	1.03	0.93	Continue to monitor
EVERGREN 60.0 kV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	0.95	0.98	0.90	0.91	1.02	1.02	1.00	1.03	1.02	0.96	1.03	0.97	Continue to monitor
PIERCY 115.0 kV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE	P2	Breaker	0.94	0.91	0.81	0.80	1.01	0.98	0.94	1.03	1.00	0.96	1.03	0.92	Continue to monitor
PIERCY 115.0 kV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	0.94	0.91	0.81	0.80	1.01	0.98	0.94	1.03	1.00	0.96	1.03	0.92	Continue to monitor
EVERGREN 60.0 kV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	0.95	0.98	0.90	0.91	1.02	1.02	1.00	1.03	1.02	0.96	1.03	0.97	Continue to monitor
MCKEE 115.0 kV	METCALFE - 2E 115KV & METCALFE-METCALFE LINE (2)	P2	Breaker	0.95	0.92	0.83	0.82	1.01	0.99	0.95	1.03	1.01	0.96	1.03	0.93	Continue to monitor
EVERGREN 60.0 kV	METCALFE 115KV - SECTION 1E & 2E	P2	Breaker	0.90	NA	NA	NA	1.00	NA	NA	1.01	NA	0.91	1.01	NA	Invalid contingency
STONE 115.0 kV	METCALFE 115KV - SECTION 1E & 2E	P2	Breaker	0.90	NA	NA	NA	0.98	NA	NA	0.99	NA	0.91	0.99	NA	Invalid contingency
ALMADEN 60.0 kV	METCALFE 115KV - SECTION 1E & 2E	P2	Breaker	0.87	NA	NA	NA	0.99	NA	NA	1.00	NA	0.89	1.00	NA	Invalid contingency
PIERCY 115.0 kV	METCALFE 115KV - SECTION 2E & 1E	P2	Breaker	NA	0.90	Diverge	Diverge	NA	0.97	0.92	NA	0.99	NA	NA	0.91	Invalid contingency
PIERCY 115.0 kV	METCALFE 115KV SECTION 2E	P2	Bus	0.94	0.91	0.81	0.80	1.01	0.98	0.94	1.03	1.00	0.96	1.03	0.92	Continue to monitor
MCKEE 115.0 kV	METCALFE 115KV SECTION 2E	P2	Bus	0.95	0.92	0.83	0.82	1.01	0.99	0.95	1.03	1.01	0.96	1.03	0.94	Continue to monitor
BRITTN 115.0 kV	MNTA VSA 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	0.98	0.96	0.89	0.89	0.99	0.99	0.96	1.00	1.01	0.98	1.00	0.96	Continue to monitor
APP MAT 115.0 kV	MNTA VSA 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	0.98	0.96	0.90	0.90	0.99	0.99	0.96	1.00	1.01	0.98	1.00	0.96	Continue to monitor
ALMADEN 60.0 kV	MONTAGUE 115KV - SECTION 1E & 1F	P2	Breaker	NA	NA	0.90	0.90	NA	NA	0.99	NA	1.03	NA	NA	NA	Continue to monitor
E. SHORE 230.0 kV	MONTAVIS 230KV - SECTION 1D & 2D	P2	Breaker	1.00	0.99	0.92	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Continue to monitor
JARVIS 115.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.01	1.01	0.96	0.89	1.03	1.04	1.02	1.03	1.05	1.01	1.03	1.01	Continue to monitor
STONE 115.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	0.98	0.99	0.93	0.90	1.02	1.02	1.00	1.02	1.02	0.98	1.02	0.98	Continue to monitor
VALLECTS 60.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.00	1.00	0.95	0.90	1.03	1.03	1.01	1.03	1.04	1.01	1.03	0.99	Continue to monitor
GRANT 115.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.02	1.01	1.00	0.85	1.02	1.02	1.01	1.03	1.05	1.03	1.03	1.02	Continue to monitor
SN LNDRO 115.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	0.98	0.96	0.95	0.77	1.00	1.01	0.98	1.01	1.04	0.99	1.01	0.98	Continue to monitor
JEFRSN_D 60.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.01	1.01	0.96	0.90	1.01	1.01	0.99	1.00	1.02	1.02	1.01	1.01	Continue to monitor
EDES 115.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.00	0.99	0.98	0.81	1.01	1.02	1.00	1.02	1.05	1.01	1.02	1.00	Continue to monitor
E. SHORE 230.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.00	0.98	0.92	0.82	1.01	1.00	0.97	0.99	1.01	1.01	0.99	0.97	Continue to monitor
OAKLAND-J 115.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	1.00	0.99	0.97	0.79	1.01	1.02	0.99	1.02	1.04	1.01	1.02	1.00	Continue to monitor
EVERGREN 60.0 kV	MORAGA.E 115KV - SECTION 1E & 2E	P2	Breaker	0.98	0.99	0.92	0.89	1.03	1.03	1.01	1.04	1.03	0.99	1.04	0.99	Continue to monitor
NEWARK 60.0 kV	NEWARK D - 2D 115KV & NEWARK-JARVIS #2 LINE	P2	Breaker	0.97	0.96	0.94	0.89	1.04	1.03	1.00	1.03	1.03	0.98	1.03	0.95	Continue to monitor
VALLECTS 60.0 kV	NEWARK D - 2D 115KV & NEWARK-JARVIS #2 LINE	P2	Breaker	0.98	0.97	0.93	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.96	Continue to monitor
NEWARK 60.0 kV	NEWARK D 115KV - SECTION 2D & 1D	P2	Breaker	0.97	0.96	0.94	0.89	1.04	1.03	1.00	1.03	1.03	0.98	1.03	0.96	Continue to monitor
VALLECTS 60.0 kV	NEWARK D 115KV - SECTION 2D & 1D	P2	Breaker	0.98	0.97	0.93	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.96	Continue to monitor
NEWARK 60.0 kV	NEWARK D 115KV SECTION 2D	P2	Bus	0.97	0.96	0.94	0.89	1.04	1.03	1.00	1.03	1.03	0.98	1.03	0.95	Continue to monitor
VALLECTS 60.0 kV	NEWARK D 115KV SECTION 2D	P2	Bus	0.98	0.97	0.93	0.90	1.03	1.03	1.00	1.03	1.03	0.99	1.03	0.96	Continue to monitor
EL PATIO 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.98	0.99	0.87	Diverge	1.02	1.02	0.99	1.03	1.02	0.98	1.03	0.97	Continue to monitor
SN JSE A 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.98	1.00	0.86	Diverge	1.02	1.02	0.99	1.03	1.02	0.98	1.03	0.97	Continue to monitor
MILPITAS 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.00	0.99	0.88	Diverge	1.01	1.02	1.00	1.03	1.03	1.00	1.03	0.98	Continue to monitor
MCKEE 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.99	1.00	0.90	Diverge	1.02	1.03	1.01	1.04	1.04	1.00	1.04	0.98	Continue to monitor
EVRGRN 1 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.97	0.99	0.86	Diverge	1.02	1.02	0.99	1.03	1.02	0.98	1.02	0.96	Continue to monitor
TRIMBL&1 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.97	1.00	0.87	Diverge	1.01	1.02	0.99	1.02	1.02	0.98	1.02	0.98	Continue to monitor
FMC 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.97	1.00	0.86	Diverge	1.01	1.02	0.99	1.02	1.03	0.98	1.02	0.97	Continue to monitor
TRIMBLE 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.99	1.01	0.87	Diverge	1.01	1.03	1.00	1.02	1.03	0.99	1.02	0.98	Continue to monitor
LS ESTRS 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.01	1.02	0.89	Diverge	1.03	1.04	1.01	1.02	1.04	1.00	1.02	1.00	Continue to monitor
NORTECH 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.00	1.02	0.87	Diverge	1.02	1.04	1.01	1.03	1.04	1.00	1.03	1.00	Continue to monitor
MONTAGUE 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.99	1.01	0.88	Diverge	1.01	1.03	1.00	1.02	1.03	0.99	1.02	0.99	Continue to monitor
E. SHORE 230.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.00	0.99	0.90	Diverge	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.96	Continue to monitor
EVERGREN 60.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.97	0.98	0.85	Diverge	1.03	1.03	0.99	1.04	1.03	0.98	1.04	0.96	Continue to monitor
SAN PBLO 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.99	0.93	0.90	Diverge	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.92	Continue to monitor
JARVIS 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.00	1.00	0.89	Diverge	1.03	1.04	1.01	1.03	1.04	1.01	1.03	0.99	Continue to monitor
LOCKHD 1 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.00	0.99	0.89	Diverge	1.01	1.00	0.98	1.02	1.01	1.00	1.02	0.97	Continue to monitor
STONE 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.97	0.98	0.85	Diverge	1.02	1.02	0.98	1.02	1.02	0.97	1.02	0.96	Continue to monitor
DIXON LD 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.99	1.01	0.90	Diverge	1.02	1.03	1.01	1.03	1.04	1.00	1.03	0.99	Continue to monitor
ALMADEN 60.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	0.94	0.95	0.80	Diverge	1.02	1.03	0.98	1.03	1.03	0.96	1.03	0.94	Continue to monitor
LOCKHD 2 115.0 kV	NEWARK D 230KV SECTION 1D	P2	Bus	1.00	1.00	0.90	Diverge	1.00	1.01	1.00	1.01	1.02	1.00	1.01	0.98	Continue to monitor
EVRGRN 1 115.0 kV	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	0.97	0.99	0.90	Diverge	1.01	1.02	0.98	1.03	1.02	0.97	1.02	0.97	Continue to monitor
STONE 115.0 kV	NEWARK D SECTION 2D & NEWARK E SECTION 2E 230KV	P2	Breaker	0.96	0.98	0.89	Diverge	1.01	1.02	0.98	1.02	1.02	0.96	1.02	0.96	Continue to monitor
E. SHORE 230.0 kV	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	1.00	0.99	0.92	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Continue to monitor
EVERGREN 60.0 kV	NEWARK E - 2E 230KV & NEWARK E-TASSAJAR-RESEARCH LINE	P2	Breaker	0.97	0.99	0.90	0.91	1.03	1.03	1.00	1.04	1.03	0.98	1.04	0.98	Continue to monitor
E. SHORE 230.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.98	0.89	Diverge	1.01	1.01	0.98	1.00	1.01	1.00	1.00	0.96	Continue to monitor
FMC 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.96	1.01	0.88	Diverge	1.01	1.02	0.99	1.02	1.03	0.96	1.02	0.98	Continue to monitor
FREMNT 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	1.00	1.01	0.90	Diverge	1.02	1.03	1.00	1.03	1.04	0.99	1.03	0.99	Continue to monitor
SAN PBLO 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.93	0.90	Diverge	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.92	Continue to monitor
EL PATIO 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.97	1.00	0.88	Diverge	1.02	1.02	0.99	1.03	1.02	0.96	1.03	0.98	Continue to monitor
MILPITAS 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.99	0.89	Diverge	1.01	1.01	1.00	1.03	1.03	0.99	1.03	0.98	Continue to monitor
MCKEE 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.98	0.99	0.90	Diverge	1.02	1.03	1.00	1.04	1.04	0.98	1.04	0.98	Continue to monitor
TRIMBLE 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.98	1.01	0.88	Diverge	1.01	1.03	1.00	1.02	1.03	0.97	1.02	0.99	Continue to monitor
EVRGRN 1 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.96	0.99	0.87	Diverge	1.02	1.02	0.99	1.03	1.02	0.96	1.02	0.97	Continue to monitor
MONTAGUE 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.98	1.01	0.89	Diverge	1.01	1.03	1.00	1.02	1.03	0.97	1.02	1.00	Continue to monitor
NORTECH 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	1.02	0.89	Diverge	1.02	1.04	1.01	1.03	1.04	0.97	1.03	1.01	Continue to monitor
SN JSE A 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.96	1.00	0.88	Diverge	1.02	1.02	0.99	1.03	1.02	0.96	1.03	0.98	Continue to monitor
TRIMBL&1 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.96	1.01	0.88	Diverge	1.01	1.02	1.00	1.02	1.02	0.96	1.02	0.99	Continue to monitor
VALLECTS 60.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.99	0.90	Diverge	1.03	1.03	1.00	1.03	1.04	0.99	1.03	0.98	Continue to monitor
STONE 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.96	0.98	0.87	Diverge	1.02	1.02	0.99	1.02	1.02	0.96	1.02	0.97	Continue to monitor
LOCKHD 1 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.99	0.88	Diverge	1.01	1.00	0.97	1.02	1.01	0.99	1.02	0.98	Continue to monitor
LOCKHD 2 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.99	0.89	Diverge	1.00	1.01	0.99	1.01	1.02	0.99	1.01	0.98	Continue to monitor
LAWRENCE 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.99	0.89	Diverge	1.01	1.00	0.98	1.02	1.00	0.99	1.02	0.98	Continue to monitor
ALMADEN 60.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.93	0.96	0.82	Diverge	1.02	1.03	0.98	1.03	1.03	0.94	1.03	0.95	Continue to monitor
APP MAT 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	0.99	0.90	Diverge	1.01	1.01	0.99	1.01	1.02	0.99	1.01	0.99	Continue to monitor
EVERGREN 60.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.96	0.98	0.86	Diverge	1.03	1.03	0.99	1.04	1.03	0.96	1.04	0.97	Continue to monitor
DIXON LD 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.98	1.00	0.89	Diverge	1.02	1.03	1.00	1.03	1.04	0.98	1.03	0.99	Continue to monitor
JARVIS 115.0 kV	NEWARK E 230KV - SECTION 1E & 2E	P2	Breaker	0.99	1.00	0.89	Diverge	1.02	1.04	1.00	1.03	1.05	0.99	1.03	0.99	Continue to monitor
E. SHORE 230.0 kV	NEWARK E 230KV SECTION 2E	P2	Bus	1.00	0.99	0.92	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Continue to monitor
EVERGREN 60.0 kV	NEWARK E 230KV SECTION 2E	P2	Bus	0.97	0.99	0.90	0.91	1.03	1.03	1.00	1.04	1.03	0.98	1.04	0.98	Continue to monitor
MCKEE 115.0 kV	NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Breaker	NA	0.97	0.91	0.90	NA	1.03	1.01	NA	1.04	NA	NA	0.97	Continue to monitor
DIXON LD 115.0 kV	NEWARK F - 2F 115KV & NEWARK F-COMPONENT_SW LINE	P2	Breaker	NA	0.95	0.88	0.86	NA	1.02	1.00	NA	1.04	NA	NA	0.96	Continue to monitor
MCKEE 115.0 kV	NEWARK F - 2F 115KV & NEWARK F-LOCKHD 2-APP MAT LINE	P2	Breaker	0.94	0.97	0.91	0.90	1.02	1.03	1.01	1.04	1.04	0.97	1.04	0.98	Continue to monitor
DIXON LD 115.0 kV	NEWARK F - 2F 115KV & NEWARK F-LOCKHD 2-APP MAT LINE	P2	Breaker	0.93	0.96	0.88	0.87	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
DIXON LD 115.0 kV	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	0.93	0.95	0.88	0.86	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
MCKEE 115.0 kV	NEWARK F - 2F 115KV & NEWARK-NUMMI LINE	P2	Breaker	0.94	0.97	0.91	0.90	1.02	1.03	1.01	1.04	1.04	0.97	1.04	0.97	Continue to monitor
MILPITAS 115.0 kV	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	0.94	0.90	0.94	0.97	0.98	0.95	1.01	0.98	1.03	0.97	0.98	0.89	Continue to monitor
MCKEE 115.0 kV	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	0.93	0.95	0.90	0.89	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
DIXON LD 115.0 kV	NEWARK F 115KV - SECTION 2F & 1F	P2	Breaker	0.92	0.94	0.87	0.86	1.01	1.02	0.99	1.03	1.04	0.95	1.03	0.95	Continue to monitor
DIXON LD 115.0 kV	NEWARK F 115KV SECTION 2F	P2	Bus	0.93	0.95	0.88	0.86	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
MCKEE 115.0 kV	NEWARK F 115KV SECTION 2F	P2	Bus	0.94	0.97	0.91	0.90	1.02	1.03	1.01	1.04	1.04	0.97	1.04	0.97	Continue to monitor
ALMADEN 60.0 kV	NEWARK F 115KV SECTION 2Z	P2	Bus	0.93	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.95	1.03	0.96	Continue to monitor
EVRGRN 1 115.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.86	NA	NA	NA	0.99	NA	NA	1.02	NA	0.86	1.02	NA	Project: NRS rebuild
STONE 115.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.85	NA	NA	NA	0.99	NA	NA	1.01	NA	0.86	1.01	NA	Project: NRS rebuild
SJB DG 115.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.83	NA	NA	NA	0.98	NA	NA	1.01	NA	0.83	1.01	NA	Project: NRS rebuild
FMC 115.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.79	NA	NA	NA	0.96	NA	NA	1.01	NA	0.79	1.01	NA	Project: NRS rebuild

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
EL PATIO 115.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.85	NA	NA	NA	0.99	NA	NA	1.02	NA	0.86	1.02	NA	Project: NRS rebuild
ALMADEN 60.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.82	NA	NA	NA	1.00	NA	NA	1.02	NA	0.84	1.02	NA	Project: NRS rebuild
EVERGREN 60.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.85	NA	NA	NA	1.00	NA	NA	1.03	NA	0.86	1.03	NA	Project: NRS rebuild
SN JSE A 115.0 kV	NRS 400 115 KV bus tie breaker to NRS 300 115 KV bus	P2	Breaker	0.84	NA	NA	NA	0.98	NA	NA	1.02	NA	0.84	1.02	NA	Project: NRS rebuild
SANRAMON 230.0 kV	PITTSBURG-D - 2D 230KV & PITTSBURG-D-TBC_PTB1 #1 LINE	P2	Breaker	0.98	0.96	0.91	0.89	1.01	1.02	0.98	1.02	1.02	0.99	1.03	0.96	Continue to monitor
LAKEWD-C 115.0 kV	PITTSBURG-D 115KV - SECTION 2D & 1D	P2	Breaker	1.00	0.99	0.91	0.90	1.04	1.04	1.02	1.03	1.04	1.01	1.03	0.98	Continue to monitor
SANRAMON 230.0 kV	PITTSBURG-D 230KV - SECTION 2D & 1D	P2	Breaker	0.97	0.96	0.89	0.88	1.01	1.02	0.98	1.02	1.02	0.98	1.02	0.95	Continue to monitor
SAN PBLO 115.0 kV	PITTSBURG-D 230KV - SECTION 2D & 1D	P2	Breaker	0.99	0.93	0.90	0.90	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.93	Continue to monitor
SANRAMON 230.0 kV	PITTSBURG-D 230KV SECTION 2D	P2	Bus	0.98	0.96	0.90	0.89	1.01	1.02	0.98	1.02	1.02	0.99	1.03	0.96	Continue to monitor
SANRAMON 230.0 kV	PITTSBURG-D SECTION 2D & PITTSBURG-E SECTION 2E 230KV	P2	Breaker	0.98	0.96	0.90	0.88	1.01	1.02	0.98	1.02	1.02	0.99	1.02	0.94	Continue to monitor
SAN PBLO 115.0 kV	PITTSBURG-F 230KV - SECTION 2F & 1F	P2	Breaker	NA	0.92	0.89	0.90	NA	0.97	0.96	NA	1.00	NA	NA	0.92	Continue to monitor
E. SHORE 230.0 kV	POTRERO - 1E 115KV & LINE	P2	Breaker	1.00	0.99	0.94	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.98	Continue to monitor
E. SHORE 230.0 kV	POTRERO 115KV SECTION 1E	P2	Bus	1.00	0.99	0.94	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.98	Continue to monitor
ALMADEN 60.0 kV	RAVENSWD 230KV - MIDDLE BREAKER BAY 4	P2	Breaker	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
STONE 115.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (MARKHM J-EVRGRN 1)	P2	Line Section w/o Fault	0.98	0.98	0.90	0.89	1.02	1.02	0.99	1.02	1.02	0.99	1.02	0.97	Continue to monitor
EVERGREN 60.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (MARKHM J-EVRGRN 1)	P2	Line Section w/o Fault	0.98	0.98	0.89	0.88	1.04	1.03	1.00	1.04	1.03	0.99	1.04	0.97	Continue to monitor
ALMADEN 60.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (MARKHM J-EVRGRN 1)	P2	Line Section w/o Fault	0.95	0.95	0.85	0.83	1.03	1.03	0.98	1.03	1.03	0.97	1.03	0.95	Continue to monitor
EVRGRN 1 115.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (MARKHM J-EVRGRN 1)	P2	Line Section w/o Fault	0.98	0.98	0.91	0.89	1.03	1.02	0.99	1.03	1.02	0.99	1.02	0.98	Continue to monitor
ALMADEN 60.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (SANJOSEB-MARKHM J)	P2	Line Section w/o Fault	NA	0.95	0.85	0.83	NA	1.03	0.98	NA	1.03	NA	NA	0.95	Continue to monitor
STONE 115.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (SANJOSEB-MARKHM J)	P2	Line Section w/o Fault	NA	0.97	0.90	0.88	NA	1.02	0.99	NA	1.02	NA	NA	0.97	Continue to monitor
EVERGREN 60.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (SANJOSEB-MARKHM J)	P2	Line Section w/o Fault	NA	0.97	0.89	0.87	NA	1.03	0.99	NA	1.03	NA	NA	0.97	Continue to monitor
EVRGRN 1 115.0 kV	SAN JOSE B-STONE-EVERGREEN 115KV (SANJOSEB-MARKHM J)	P2	Line Section w/o Fault	NA	0.98	0.90	0.89	NA	1.02	0.99	NA	1.02	NA	NA	0.97	Continue to monitor
EVRGRN 1 115.0 kV	SANJOSEB 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	0.98	0.91	0.89	NA	1.02	0.99	NA	1.02	NA	NA	0.98	Continue to monitor
STONE 115.0 kV	SANJOSEB 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	0.98	0.90	0.89	NA	1.02	0.99	NA	1.02	NA	NA	0.97	Continue to monitor
ALMADEN 60.0 kV	SANJOSEB 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	0.95	0.85	0.83	NA	1.03	0.98	NA	1.03	NA	NA	0.95	Continue to monitor
EVERGREN 60.0 kV	SANJOSEB 115KV - MIDDLE BREAKER BAY 2	P2	Breaker	NA	0.98	0.89	0.88	NA	1.03	1.00	NA	1.03	NA	NA	0.97	Continue to monitor
SN JSE A 115.0 kV	SANJOSEB 115KV - MIDDLE BREAKER BAY 4	P2	Breaker	NA	0.96	0.91	0.90	NA	0.97	0.95	NA	0.98	NA	NA	0.92	Continue to monitor
E. SHORE 230.0 kV	SANMATEO 230KV SECTION 2D	P2	Bus	0.99	0.97	0.88	0.80	1.00	1.00	0.98	0.95	1.00	0.99	0.95	0.89	Continue to monitor
SANRAMON 230.0 kV	SANRAMON 230KV SECTION 2D	P2	Bus	0.98	0.96	0.91	0.89	1.01	1.02	0.98	1.02	1.02	0.98	1.02	0.96	Continue to monitor
SN JSE A 115.0 kV	SN JSE A 115KV SECTION 1F	P2	Bus	1.01	0.96	0.91	0.89	1.04	0.97	0.95	1.04	0.98	1.01	1.04	0.92	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE - 1D 115KV & SOBRANTE-G #1 LINE	P2	Breaker	0.97	NA	NA	0.87	0.97	NA	0.92	0.97	0.96	0.97	0.97	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE - 1D 115KV & SOBRANTE-GRIZZLY-CLAREMONT #1 LINE	P2	Breaker	0.97	NA	NA	0.87	0.97	NA	0.92	0.97	0.96	0.97	0.97	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE - 1D 115KV & SOBRANTE-NRTH TWR LINE	P2	Breaker	NA	NA	NA	0.87	NA	NA	0.92	NA	0.96	NA	NA	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE - 1D 115KV & SOBRANTE-OAKLAND-D LINE	P2	Breaker	NA	NA	NA	0.87	NA	NA	0.92	NA	0.96	NA	NA	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE - 1D 115KV & SOBRANTE-R #1 LINE	P2	Breaker	0.97	NA	NA	0.87	0.97	NA	0.92	0.97	0.96	0.97	0.97	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE - 2D 115KV & SOBRANTE-STANDARD OIL SW STA #1 LINE	P2	Breaker	0.97	0.99	0.87	0.89	0.98	0.93	0.94	0.98	0.98	0.98	0.98	0.90	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 115KV - SECTION 1E & 1D	P2	Breaker	NA	NA	NA	0.87	NA	NA	0.92	NA	0.96	NA	NA	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 115KV - SECTION 2E & 2D	P2	Breaker	0.97	0.98	0.94	0.88	0.98	1.02	0.93	0.98	0.98	0.98	0.98	0.89	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 115KV SECTION 1D	P2	Bus	0.97	NA	NA	0.87	0.97	NA	0.92	0.97	0.96	0.97	0.97	0.88	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 115KV SECTION 2D	P2	Bus	0.98	0.99	0.94	0.89	0.98	1.03	0.93	0.98	0.98	0.98	0.98	0.90	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 230KV - SECTION 1D & 1E	P2	Breaker	NA	0.92	0.90	0.91	NA	0.97	0.97	NA	0.99	NA	NA	0.92	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 230KV - SECTION 1E & 2E	P2	Breaker	NA	0.92	0.89	0.90	NA	0.97	0.95	NA	1.00	NA	NA	0.92	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 230KV - SECTION 2D & 1D	P2	Breaker	0.97	0.92	0.90	0.90	0.99	0.96	0.97	0.98	0.99	0.98	0.99	0.91	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 230KV - SECTION 2D & 2E	P2	Breaker	NA	0.92	0.89	0.90	NA	0.96	0.95	NA	1.00	NA	NA	0.92	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE-STANDARD OIL SW STA #1 115KV (PTPNLTAP-SNPBLTP2)	P2	Line Section w/o Fault	0.98	1.00	0.96	0.89	0.98	1.03	0.94	0.98	0.98	0.98	0.98	0.90	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE-STANDARD OIL SW STA #1 115KV (STD. OIL-PTPNLTAP)	P2	Line Section w/o Fault	0.98	1.00	0.96	0.90	0.98	0.94	0.94	0.98	0.98	0.98	0.98	0.90	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE-STANDARD OIL SW STA #2 115KV (SNPBLTP1-SOBRANTE)	P2	Line Section w/o Fault	0.97	NA	NA	0.87	0.97	NA	0.92	0.97	0.97	0.97	0.97	0.89	Continue to monitor
SAN PBLO 115.0 kV	STD. OIL 115KV - MIDDLE BREAKER BAY 1	P2	Breaker	0.98	1.00	0.96	0.90	0.98	0.94	0.94	0.98	0.98	0.98	0.98	0.90	Continue to monitor
FREMNT 115.0 kV	Metcalf - San Jose B HVDC Gen and BRITTON-MONTA VISTA 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LLAGAS 115.0 kV	Metcalf - San Jose B HVDC Gen and LLAGAS-GILROY F-GILROYENG-GILROYPK 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LOS GATS 60.0 kV	Metcalf - San Jose B HVDC Gen and MONTA VISTA-LOS GATOS 60KV	P3	G-1/N-1	> 0.9	0.85	0.64	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	0.90	Operating solution
POTRERO 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MARTIN C 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SANMATEO 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
RAVENSWD 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
JEFFERSN 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
METCALFD 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EDENVALE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SARATOGA 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MT VIEW 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MONTAVIS 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EGBERTSWSTA 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
WHISMAN 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MORGN J1 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NWK DIST 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NEWARK D 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LS PSTAS 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LS ESTRS 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.73	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CASTROVL 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NORTECH 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.70	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EVERGREN 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.67	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ALMADEN 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.61	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EVRGRN 1 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.70	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
STONE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EMBRCDRD 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
HICKS 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LIVERMRE 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
METCALF 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
FMC 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.67	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TRIMBLE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
JEFRSN_D 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
GLENWOOD 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MENLO 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MONTAGUE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.71	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
DIXON LD 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
APP MAT 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
VASONA 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BRITTN 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.80	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NEWARK D 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LAWRENCE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.79	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LOCKHD 2 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
RADUM 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LOCKHD 1 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
VALLECTS 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MNTA VSA 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NEWARK 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
VINEYARD 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
WOLFE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
AMES DST 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
STELLING 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
AMES BS1 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BAIR 60.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BURLNGME 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
JARVIS 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BELMONT 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EL PATIO 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.70	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MILLBRAE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SFIA 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MILPITAS 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.72	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BAY MDWS 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CAL MEC 230.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SN JSE A 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SANMATEO 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SWIFT 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BAIR 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CLY LND 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MCKEE 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
RVNSWD D 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ST TRESA 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TRIMBL&1 115.0 kV	Metcalf - San Jose B HVDC Gen and NEWARK D-NRS #1 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.69	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
SANRAMON 230.0 kV	Metcalf - San Jose B HVDC Gen and PITTSBURG-SAN RAMON 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TASSAJAR 230.0 kV	Metcalf - San Jose B HVDC Gen and PITTSBURG-TASSAJARA 230KV	P3	G-1/N-1	> 0.9	> 0.9	0.90	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SAN RAMN 60.0 kV	Metcalf - San Jose B HVDC Gen and SANRAMON 230/60KV TB 1	P3	G-1/N-1	> 0.9	> 0.9	0.87	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SAN PBLO 115.0 kV	Metcalf - San Jose B HVDC Gen and SOBRANTE-STANDARD OIL SW STA #1 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.87	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.93	Continue to monitor
HLF MNBY 60.0 kV	OX_MTN 4.16KV & OX_MTN 4.16KV & OX_MTN 4.16KV & OX_MTN 4.16KV & OX_MTN 4.16KV & OX_MTN 4.16KV and SAN MATEO-HILLSDALE JCT 60KV MOAS OPENED ON SAN MATO_BERESFRD	P3	G-1/N-1	> 0.9	> 0.9	0.90	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
E. SHORE 230.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	0.87	0.80	0.80	0.60	> 0.9	0.86	0.86	> 0.9	> 0.9	0.91	> 0.9	0.84	Continue to monitor
MT EDEN 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.73	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
DUMBARTN 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.78	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MORAGA 230.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
OAKLAND-C 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
OAKLAND-X 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EDES 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MORAGA.C 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
OAKLAND-J 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.79	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EASTSHRE 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.73	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SN LNDRO 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
GRANT 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and EASTSHORE-SAN MATEO 230KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.74	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LPOSTAS 60.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and LS PSTAS 230/60KV TB 4	P3	G-1/N-1	> 0.9	> 0.9	0.89	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EST GRND 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MARTIN-EAST GRAND 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.89	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SNTH LNE 60.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MARTIN-SNEATH LANE 60KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
PACIFICA 60.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and MARTIN-SNEATH LANE 60KV	P3	G-1/N-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
PIERCY 115.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS and PIERCY-METCALF 115KV	P3	G-1/N-1	> 0.9	> 0.9	0.76	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ALMADEN 60.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.96	0.86	0.86	1.02	1.03	0.98	1.03	1.03	0.96	1.03	0.95	Install redundant relay/battery supply
ROSSMOOR 230.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.92	0.90	1.01	1.02	0.99	1.02	1.01	0.98	1.02	0.94	Install redundant relay/battery supply
MORAGA 230.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.92	0.90	1.01	1.02	0.99	1.02	1.01	0.99	1.02	0.94	Install redundant relay/battery supply
E. SHORE 230.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.92	0.89	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.96	Install redundant relay/battery supply
EVERGREN 60.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.99	0.90	0.90	1.03	1.03	1.00	1.04	1.03	0.98	1.04	0.98	Install redundant relay/battery supply
SAN PBLO 115.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.93	0.89	0.89	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.91	Install redundant relay/battery supply
VALLECTS 60.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.99	0.93	0.90	1.03	1.03	1.01	1.03	1.04	1.00	1.03	0.98	Install redundant relay/battery supply
RADUM 60.0 kV	C.COSTAPP 230KV BUS 1&2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.92	0.90	1.04	1.04	1.01	1.04	1.04	1.01	1.04	0.98	Install redundant relay/battery supply
SAN PBLO 115.0 kV	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.93	0.90	0.90	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.92	Install redundant relay/battery supply
E. SHORE 230.0 kV	CONTRA COSTA PP 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.92	0.90	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Install redundant relay/battery supply
OAKLAND-J 115.0 kV	EAST SHORE 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.74	0.92	0.91	1.01	1.00	1.00	1.00	1.04	0.99	1.00	0.94	Install redundant relay/battery supply
GRANT 115.0 kV	EAST SHORE 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.96	0.73	0.91	0.89	1.00	1.00	1.00	1.00	1.04	0.98	1.00	0.94	Install redundant relay/battery supply
EDES 115.0 kV	EAST SHORE 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.73	0.92	0.90	1.00	1.00	1.00	1.00	1.05	0.98	1.00	0.94	Install redundant relay/battery supply
OAKLAND-J 115.0 kV	EASTSHORE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.74	0.92	0.91	1.01	1.00	1.00	1.00	1.04	0.99	1.00	0.94	Install redundant relay/battery supply
GRANT 115.0 kV	EASTSHORE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.73	0.91	0.89	1.00	1.00	1.00	1.00	1.04	0.98	1.00	0.94	Install redundant relay/battery supply
EDES 115.0 kV	EASTSHORE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.73	0.92	0.90	1.00	1.00	1.00	1.00	1.05	0.98	1.00	0.94	Install redundant relay/battery supply
EVERGREN 60.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.98	0.89	0.91	1.03	1.03	1.00	1.04	1.03	0.98	1.04	0.96	Install redundant relay/battery supply
MT EDEN 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.79	0.80	0.78	0.98	0.90	0.91	0.99	0.99	0.96	0.99	0.77	Install redundant relay/battery supply
DUMBARTN 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.85	0.84	0.83	1.00	0.93	0.94	1.00	1.01	0.97	1.00	0.82	Install redundant relay/battery supply
JARVIS 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.95	0.89	0.90	1.02	1.01	0.99	1.02	1.04	0.99	1.02	0.94	Install redundant relay/battery supply
EDES 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.79	0.83	0.81	0.99	0.90	0.94	0.99	1.01	0.96	0.99	0.77	Install redundant relay/battery supply
VALLECTS 60.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.91	0.90	1.03	1.02	0.99	1.03	1.03	0.99	1.03	0.95	Install redundant relay/battery supply
EASTSHRE 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.79	0.80	0.79	0.98	0.90	0.92	0.99	0.99	0.96	0.99	0.77	Install redundant relay/battery supply
ALMADEN 60.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.95	0.85	0.87	1.02	1.03	0.98	1.03	1.03	0.96	1.03	0.94	Install redundant relay/battery supply
SAN PBLO 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.92	0.88	0.89	1.00	0.97	0.96	1.00	0.99	0.99	1.00	0.91	Install redundant relay/battery supply
SN LNDRO 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.95	0.89	0.87	1.00	1.01	0.98	1.00	1.02	0.98	1.00	0.93	Install redundant relay/battery supply
OAKLAND-J 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.79	0.84	0.83	0.99	0.90	0.95	0.99	1.01	0.97	0.99	0.77	Install redundant relay/battery supply
GRANT 115.0 kV	EASTSHORE 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.79	0.81	0.79	0.99	0.90	0.92	0.99	1.00	0.96	0.99	0.77	Install redundant relay/battery supply
ALMADEN 60.0 kV	EDENVALE 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
ALMADEN 60.0 kV	FMC 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.90	0.90	1.03	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
ALMADEN 60.0 kV	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
JEFRSN_D 60.0 kV	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.61	0.59	0.54	0.50	0.66	0.80	0.56	0.64	0.89	0.69	0.64	0.64	Install redundant relay/battery supply
HLF MNBY 60.0 kV	JEFFERSON 230 KV BAAH BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.80	0.79	0.71	0.66	0.84	0.91	0.72	0.83	0.98	0.86	0.83	0.82	Install redundant relay/battery supply
NORTECH 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.93	1.00	0.90	Diverge	0.98	1.04	1.00	1.02	1.04	0.93	1.02	0.98	Install redundant relay/battery supply
STONE 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.98	0.89	Diverge	0.99	1.02	0.98	1.01	1.02	0.93	1.01	0.95	Install redundant relay/battery supply
ALMADEN 60.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.89	0.95	0.84	Diverge	1.00	1.03	0.97	1.02	1.03	0.92	1.02	0.94	Install redundant relay/battery supply
LS ESTRS 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.93	1.00	0.90	Diverge	0.98	1.04	1.00	1.02	1.05	0.93	1.02	0.98	Install redundant relay/battery supply
EVERGREN 60.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.98	0.88	Diverge	1.00	1.03	0.99	1.02	1.03	0.94	1.02	0.96	Install redundant relay/battery supply
MONTAGUE 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.89	0.99	0.90	Diverge	0.96	1.02	0.99	1.00	1.02	0.91	1.00	0.97	Install redundant relay/battery supply
SN JSE A 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.99	0.90	Diverge	0.98	1.02	0.98	1.01	1.02	0.93	1.01	0.96	Install redundant relay/battery supply
TRIMBL&1 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.99	0.90	Diverge	0.98	1.02	0.99	1.01	1.02	0.93	1.01	0.97	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.98	0.89	Diverge	0.99	1.02	0.98	1.01	1.02	0.94	1.01	0.96	Install redundant relay/battery supply
TRIMBLE 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.99	0.90	Diverge	0.96	1.02	0.99	1.00	1.02	0.92	1.00	0.97	Install redundant relay/battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
FMC 115.0 kV	LOS ESTEROS 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.99	0.90	Diverge	0.97	1.02	0.99	1.01	1.03	0.93	1.01	0.97	Install redundant relay/battery supply
EST GRND 115.0 kV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	Diverge	0.85	0.99	0.99	Diverge	0.99	0.98	0.99	0.99	0.97	Install redundant relay/battery supply
MILLBRAE 115.0 kV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.00	1.00	Diverge	0.90	1.01	1.01	Diverge	1.01	1.02	1.00	1.01	1.00	Install redundant relay/battery supply
E. SHORE 230.0 kV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	Diverge	0.88	1.01	1.01	Diverge	1.00	1.01	1.01	1.00	0.98	Install redundant relay/battery supply
SNTH LNE 60.0 kV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	Diverge	0.86	1.00	1.01	Diverge	1.02	1.02	0.99	1.02	0.98	Install redundant relay/battery supply
PACIFICA 60.0 kV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.98	Diverge	0.85	1.00	1.00	Diverge	1.01	1.02	0.99	1.02	0.98	Install redundant relay/battery supply
HLF MNBY 60.0 kV	MARTIN (SF H) 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	Diverge	0.90	1.03	1.03	Diverge	1.02	1.04	1.03	1.03	1.03	Install redundant relay/battery supply
LARKIN D 115.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.03	1.04	1.12	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.04	Install redundant relay/battery supply
MISSON 115.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.03	1.04	1.12	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.04	Install redundant relay/battery supply
HNTRS PT 115.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.03	1.04	1.12	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.04	Install redundant relay/battery supply
E. SHORE 230.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.92	0.89	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.98	Install redundant relay/battery supply
POTRERO 115.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.03	1.04	1.12	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.04	Install redundant relay/battery supply
SNTH LNE 60.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.90	0.86	1.00	1.00	0.96	1.02	1.01	1.00	1.02	0.98	Install redundant relay/battery supply
EST GRND 115.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.88	0.85	0.99	0.98	0.94	0.99	0.98	0.99	0.99	0.97	Install redundant relay/battery supply
PACIFICA 60.0 kV	MARTIN 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.89	0.85	1.00	0.99	0.96	1.02	1.01	1.00	1.01	0.98	Install redundant relay/battery supply
ALMADEN 60.0 kV	MCKEE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
EL PATIO 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.88	0.98	0.84	Diverge	0.99	1.01	0.96	1.00	1.01	0.89	1.00	0.96	Install redundant relay/battery supply
ALMADEN 60.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.82	0.92	0.71	Diverge	0.99	1.00	0.91	1.00	1.00	0.85	1.00	0.91	Install redundant relay/battery supply
STONE 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.85	0.95	0.77	Diverge	0.98	1.00	0.92	0.99	0.99	0.87	0.99	0.93	Install redundant relay/battery supply
TRIMBLE 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	1.00	0.87	Diverge	1.00	1.03	0.97	1.01	1.02	0.94	1.01	0.98	Install redundant relay/battery supply
SN JSE A 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.88	0.98	0.85	Diverge	0.99	1.01	0.96	1.00	1.01	0.90	1.00	0.96	Install redundant relay/battery supply
MILPITAS 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.87	Diverge	1.01	1.00	0.97	1.02	1.02	0.98	1.02	0.96	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.86	0.96	0.78	Diverge	0.99	1.00	0.92	0.99	0.99	0.87	0.99	0.94	Install redundant relay/battery supply
SJB DG 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.89	1.00	0.86	Diverge	0.99	1.02	0.97	1.00	1.02	0.90	1.00	0.98	Install redundant relay/battery supply
FMC 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.99	0.86	Diverge	0.99	1.02	0.96	1.00	1.02	0.91	1.00	0.97	Install redundant relay/battery supply
PIERCY 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.90	0.76	Diverge	1.01	0.97	0.91	1.02	0.99	0.94	1.02	0.90	Install redundant relay/battery supply
EVERGREN 60.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.85	0.95	0.76	Diverge	1.00	1.01	0.93	1.01	1.00	0.87	1.01	0.93	Install redundant relay/battery supply
NORTECH 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	1.01	0.89	Diverge	1.01	1.04	0.99	1.02	1.04	0.96	1.02	1.00	Install redundant relay/battery supply
SWIFT 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.94	0.84	Diverge	1.01	1.00	0.96	1.02	1.02	0.96	1.02	0.94	Install redundant relay/battery supply
DIXON LD 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.97	0.87	Diverge	1.01	1.01	0.97	1.02	1.03	0.97	1.02	0.97	Install redundant relay/battery supply
MCKEE 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.91	0.78	Diverge	1.01	0.98	0.92	1.02	1.00	0.94	1.02	0.92	Install redundant relay/battery supply
MONTAGUE 115.0 kV	METCALF 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	1.00	0.88	Diverge	1.00	1.03	0.98	1.01	1.02	0.95	1.01	0.99	Install redundant relay/battery supply
LOCKHD 2 115.0 kV	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.89	0.89	1.00	1.00	0.97	1.01	1.02	0.98	1.01	0.96	Install redundant relay/battery supply
LAWRENCE 115.0 kV	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.89	0.89	1.00	1.00	0.96	1.02	1.01	0.98	1.02	0.95	Install redundant relay/battery supply
BRITTN 115.0 kV	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.95	0.87	0.87	0.99	0.99	0.95	1.01	1.01	0.97	1.01	0.95	Install redundant relay/battery supply
LOCKHD 1 115.0 kV	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.89	0.90	1.01	1.00	0.97	1.02	1.01	0.98	1.02	0.96	Install redundant relay/battery supply
ALMADEN 60.0 kV	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
APP MAT 115.0 kV	MONTA VISTA 115KV BAAH (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.95	0.87	0.88	0.99	0.99	0.95	1.01	1.01	0.97	1.01	0.95	Install redundant relay/battery supply
APP MAT 115.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.95	0.84	Diverge	0.99	0.99	0.93	1.01	1.01	0.97	1.01	0.94	Install redundant relay/battery supply
LAWRENCE 115.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.86	Diverge	1.00	1.00	0.94	1.02	1.00	0.98	1.02	0.94	Install redundant relay/battery supply
LOCKHD 1 115.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.87	Diverge	1.00	1.00	0.95	1.02	1.01	0.98	1.02	0.94	Install redundant relay/battery supply
EVERGREN 60.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.98	0.89	Diverge	1.02	1.03	0.99	1.04	1.03	0.97	1.04	0.96	Install redundant relay/battery supply
LOCKHD 2 115.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.86	Diverge	0.99	1.00	0.95	1.01	1.01	0.98	1.01	0.95	Install redundant relay/battery supply
BRITTN 115.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.95	0.84	Diverge	0.99	0.99	0.93	1.01	1.01	0.97	1.01	0.94	Install redundant relay/battery supply
STONE 115.0 kV	MONTA VISTA 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.98	0.90	Diverge	1.02	1.02	0.98	1.02	1.02	0.97	1.02	0.96	Install redundant relay/battery supply
ALMADEN 60.0 kV	MONTAGUE 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
SN LNDRO 115.0 kV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.95	0.89	0.90	1.02	1.03	1.00	1.02	1.04	0.99	1.02	0.94	Install redundant relay/battery supply
MORAGA 230.0 kV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.85	0.86	NA	NA	0.96	NA	1.00	NA	NA	NA	Install redundant relay/battery supply
E. SHORE 230.0 kV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.98	0.90	0.89	1.01	1.01	0.98	1.00	1.01	1.01	1.00	0.96	Install redundant relay/battery supply
SAN PBLO 115.0 kV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.92	0.88	0.89	1.00	0.97	0.96	1.00	0.99	0.99	1.00	0.90	Install redundant relay/battery supply
OAKLAND-X 115.0 kV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.95	0.89	0.90	1.03	1.03	1.00	1.02	1.04	1.00	1.02	0.94	Install redundant relay/battery supply
OAKLAND-C 115.0 kV	MORAGA 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.95	0.89	0.90	1.03	1.03	1.00	1.02	1.04	1.00	1.02	0.93	Install redundant relay/battery supply
ALMADEN 60.0 kV	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
SAN PBLO 115.0 kV	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.92	0.89	0.90	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.91	Install redundant relay/battery supply
MORAGA 230.0 kV	MORAGA 230KV BUS #1 &2(FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NA	NA	0.90	0.90	NA	NA	0.98	NA	0.99	NA	NA	NA	Install redundant relay/battery supply
ALMADEN 60.0 kV	MOUNTAIN VIEW 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
MCKEE 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.91	0.90	0.78	Diverge	1.00	0.98	0.92	1.02	1.00	0.94	1.02	0.91	Install redundant relay/battery supply
ALMADEN 60.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.78	0.88	0.72	Diverge	0.97	0.98	0.91	0.99	1.00	0.82	0.99	0.86	Install redundant relay/battery supply
SJB DG 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.87	0.98	0.87	Diverge	0.98	1.01	0.97	0.99	1.02	0.88	1.00	0.96	Install redundant relay/battery supply
STONE 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.82	0.91	0.78	Diverge	0.96	0.98	0.92	0.98	0.99	0.84	0.98	0.88	Install redundant relay/battery supply
EVERGREN 60.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.81	0.91	0.77	Diverge	0.98	0.99	0.93	0.99	1.00	0.84	0.99	0.88	Install redundant relay/battery supply
FMC 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.87	0.97	0.86	Diverge	0.98	1.01	0.96	1.00	1.02	0.89	1.00	0.95	Install redundant relay/battery supply
MILPITAS 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.96	0.96	0.88	Diverge	1.01	1.00	0.97	1.02	1.02	0.97	1.02	0.95	Install redundant relay/battery supply
NORTECH 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.96	1.00	0.90	Diverge	1.01	1.04	0.99	1.02	1.04	0.96	1.02	0.99	Install redundant relay/battery supply
SWIFT 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.93	0.84	Diverge	1.01	1.00	0.96	1.02	1.02	0.96	1.02	0.93	Install redundant relay/battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
SN JSE A 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.86	0.96	0.85	Diverge	0.98	1.00	0.96	0.99	1.01	0.88	0.99	0.94	Install redundant relay/battery supply
DIXON LD 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.96	0.87	Diverge	1.01	1.01	0.97	1.02	1.03	0.96	1.02	0.96	Install redundant relay/battery supply
PIERCY 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.90	0.89	0.76	Diverge	1.00	0.97	0.91	1.02	0.99	0.93	1.02	0.89	Install redundant relay/battery supply
TRIMBLE 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.99	0.88	Diverge	0.99	1.02	0.97	1.01	1.02	0.93	1.01	0.97	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.82	0.92	0.79	Diverge	0.97	0.98	0.92	0.98	0.99	0.85	0.98	0.89	Install redundant relay/battery supply
EL PATIO 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.85	0.96	0.85	Diverge	0.98	1.00	0.96	0.99	1.01	0.87	0.99	0.93	Install redundant relay/battery supply
MONTAGUE 115.0 kV	MTCALF 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.99	0.88	Diverge	1.00	1.03	0.98	1.01	1.02	0.94	1.01	0.97	Install redundant relay/battery supply
MORGN J1 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.87	Diverge	Diverge	0.99	0.98	Diverge	0.99	0.99	Diverge	0.99	Diverge	Install redundant relay/battery supply
STONE 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.86	Diverge	Diverge	0.97	0.99	Diverge	0.98	1.00	Diverge	0.98	Diverge	Install redundant relay/battery supply
LLAGAS 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.89	Diverge	Diverge	0.99	0.99	Diverge	1.00	1.00	Diverge	1.00	Diverge	Install redundant relay/battery supply
ALMADEN 60.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.82	Diverge	Diverge	0.98	0.99	Diverge	0.99	1.01	Diverge	0.99	Diverge	Install redundant relay/battery supply
PIERCY 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.86	Diverge	Diverge	0.99	0.98	Diverge	0.99	1.00	Diverge	1.00	Diverge	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.87	Diverge	Diverge	0.98	0.99	Diverge	0.98	1.00	Diverge	0.98	Diverge	Install redundant relay/battery supply
EVERGREN 60.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.86	Diverge	Diverge	0.99	1.00	Diverge	1.00	1.01	Diverge	1.00	Diverge	Install redundant relay/battery supply
EDENVALE 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.85	Diverge	Diverge	0.98	0.99	Diverge	0.99	1.00	Diverge	0.99	Diverge	Install redundant relay/battery supply
MCKEE 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.87	Diverge	Diverge	0.99	0.99	Diverge	1.00	1.01	Diverge	1.00	Diverge	Install redundant relay/battery supply
EL PATIO 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.89	Diverge	Diverge	0.98	1.00	Diverge	0.99	1.01	Diverge	0.99	Diverge	Install redundant relay/battery supply
ST TRESA 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.85	Diverge	Diverge	0.98	0.98	Diverge	0.99	1.00	Diverge	0.99	Diverge	Install redundant relay/battery supply
SWIFT 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.87	Diverge	Diverge	0.99	0.99	Diverge	1.00	1.00	Diverge	1.00	Diverge	Install redundant relay/battery supply
METCALFD 115.0 kV	MTCALF 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	Diverge	0.86	Diverge	Diverge	0.98	0.98	Diverge	0.99	1.00	Diverge	0.99	Diverge	Install redundant relay/battery supply
DIXON LD 115.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.91	0.95	0.86	0.84	1.01	1.02	0.99	1.03	1.03	0.94	1.03	0.96	Install redundant relay/battery supply
ALMADEN 60.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.95	0.88	0.88	1.02	1.03	0.99	1.03	1.03	0.93	1.03	0.96	Install redundant relay/battery supply
MCKEE 115.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.96	0.89	0.87	1.01	1.03	1.00	1.03	1.04	0.95	1.04	0.97	Install redundant relay/battery supply
LOCKHD 1 115.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.95	0.93	0.89	0.98	0.93	0.90	0.99	0.93	0.98	1.00	0.95	Install redundant relay/battery supply
MILPITAS 115.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.94	0.85	0.83	1.01	1.00	0.96	1.01	1.01	0.96	1.01	0.95	Install redundant relay/battery supply
SWIFT 115.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.98	0.91	0.89	1.02	1.02	1.00	1.03	1.03	0.98	1.03	0.98	Install redundant relay/battery supply
NEWARK 60.0 kV	NEWARK 115 KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.94	0.90	1.04	1.03	1.00	1.03	1.03	0.98	1.03	0.96	Install redundant relay/battery supply
LPOSTAS 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.86	Diverge	1.04	1.03	Diverge	1.04	1.04	1.00	1.04	Diverge	Install redundant relay/battery supply
METCALFD 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.72	Diverge	1.04	1.03	Diverge	1.04	1.04	0.99	1.04	Diverge	Install redundant relay/battery supply
EL PATIO 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.96	0.59	Diverge	1.01	1.01	Diverge	1.03	1.02	0.93	1.03	Diverge	Install redundant relay/battery supply
NEWARK 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.93	0.66	Diverge	1.01	0.99	Diverge	1.02	1.01	0.95	1.02	Diverge	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.95	0.58	Diverge	1.01	1.01	Diverge	1.03	1.02	0.93	1.02	Diverge	Install redundant relay/battery supply
AMES BS1 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.99	0.69	Diverge	1.02	1.02	Diverge	1.02	1.02	0.99	1.02	Diverge	Install redundant relay/battery supply
VALLECTS 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.95	0.74	Diverge	1.02	1.00	Diverge	1.02	1.02	0.97	1.03	Diverge	Install redundant relay/battery supply
WHISMAN 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.70	Diverge	1.02	1.02	Diverge	1.02	1.02	1.00	1.02	Diverge	Install redundant relay/battery supply
ST TRESA 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.98	0.71	Diverge	1.04	1.03	Diverge	1.04	1.04	0.98	1.04	Diverge	Install redundant relay/battery supply
MCKEE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.63	Diverge	1.01	1.02	Diverge	1.03	1.03	0.95	1.03	Diverge	Install redundant relay/battery supply
MT VIEW 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.70	Diverge	1.02	1.02	Diverge	1.02	1.02	1.00	1.02	Diverge	Install redundant relay/battery supply
AMES DST 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.99	0.69	Diverge	1.02	1.02	Diverge	1.02	1.02	0.99	1.02	Diverge	Install redundant relay/battery supply
STELLING 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.72	Diverge	1.02	1.01	Diverge	1.02	1.01	1.02	1.02	Diverge	Install redundant relay/battery supply
LOCKHD 1 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.60	Diverge	1.00	0.99	Diverge	1.02	0.99	0.97	1.02	Diverge	Install redundant relay/battery supply
MILPITAS 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.95	0.58	Diverge	1.00	1.00	Diverge	1.02	1.02	0.96	1.02	Diverge	Install redundant relay/battery supply
PIERCY 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.97	0.68	Diverge	1.03	1.02	Diverge	1.04	1.03	0.97	1.04	Diverge	Install redundant relay/battery supply
MONTAGUE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.99	0.58	Diverge	1.01	1.03	Diverge	1.02	1.02	0.93	1.02	Diverge	Install redundant relay/battery supply
BRITTN 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.64	Diverge	1.00	1.00	Diverge	1.01	1.01	0.99	1.01	Diverge	Install redundant relay/battery supply
APP MAT 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.64	Diverge	1.00	1.00	Diverge	1.01	1.01	0.99	1.01	Diverge	Install redundant relay/battery supply
LAWRENCE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.62	Diverge	1.00	0.98	Diverge	1.02	0.99	0.98	1.02	Diverge	Install redundant relay/battery supply
MORGN J1 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.74	Diverge	1.03	1.02	Diverge	1.04	1.03	0.99	1.03	Diverge	Install redundant relay/battery supply
LLAGAS 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.99	0.76	Diverge	1.02	1.02	Diverge	1.02	1.02	0.99	1.02	Diverge	Install redundant relay/battery supply
LOCKHD 2 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.62	Diverge	1.00	1.00	Diverge	1.01	1.01	0.97	1.01	Diverge	Install redundant relay/battery supply
DIXON LD 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.96	0.61	Diverge	1.01	1.01	Diverge	1.02	1.02	0.96	1.02	Diverge	Install redundant relay/battery supply
FMC 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.97	0.56	Diverge	1.00	1.02	Diverge	1.02	1.02	0.93	1.02	Diverge	Install redundant relay/battery supply
SWIFT 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.97	0.65	Diverge	1.02	1.02	Diverge	1.03	1.04	0.96	1.03	Diverge	Install redundant relay/battery supply
SN JSE A 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.97	0.57	Diverge	1.01	1.01	Diverge	1.03	1.02	0.93	1.03	Diverge	Install redundant relay/battery supply
EDENVALE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.98	0.71	Diverge	1.04	1.03	Diverge	1.04	1.04	0.98	1.04	Diverge	Install redundant relay/battery supply
NORTECH 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	1.00	0.56	Diverge	1.01	1.04	Diverge	1.03	1.04	0.94	1.03	Diverge	Install redundant relay/battery supply
TRIMBL&1 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.98	0.57	Diverge	1.01	1.02	Diverge	1.02	1.02	0.93	1.02	Diverge	Install redundant relay/battery supply
LS ESTRS 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	1.00	0.59	Diverge	1.03	1.04	Diverge	1.02	1.04	0.95	1.02	Diverge	Install redundant relay/battery supply
MNTA VSA 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.73	Diverge	1.02	1.02	Diverge	1.02	1.02	1.02	1.02	Diverge	Install redundant relay/battery supply
WOLFE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.72	Diverge	1.02	1.01	Diverge	1.02	1.01	1.02	1.02	Diverge	Install redundant relay/battery supply
LOS GATS 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.78	Diverge	1.04	1.02	Diverge	1.04	1.04	1.01	1.04	Diverge	Install redundant relay/battery supply
MNTA VSA 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.04	1.04	0.79	Diverge	1.06	1.04	Diverge	1.06	1.05	1.04	1.06	Diverge	Install redundant relay/battery supply
TRIMBLE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.99	0.57	Diverge	1.01	1.03	Diverge	1.02	1.02	0.94	1.02	Diverge	Install redundant relay/battery supply
SAN RAMN 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.87	Diverge	1.04	1.04	Diverge	1.04	1.04	1.01	1.04	Diverge	Install redundant relay/battery supply
MILLBRAE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.01	0.80	Diverge	1.03	1.03	Diverge	1.02	1.03	1.03	1.02	Diverge	Install redundant relay/battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
SFIA 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.01	0.81	Diverge	1.03	1.03	Diverge	1.02	1.02	1.03	1.03	Diverge	Install redundant relay/battery supply
EST GRND 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.00	0.81	Diverge	1.02	1.02	Diverge	1.02	1.02	1.02	1.02	Diverge	Install redundant relay/battery supply
MARTIN C 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.83	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
BAYSHOR1 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.03	0.83	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
HNTRS PT 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.83	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
POTRERO 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.03	0.83	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
LARKIN D 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.83	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
EDES 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.84	Diverge	1.03	1.02	Diverge	1.02	1.04	1.02	1.03	Diverge	Install redundant relay/battery supply
OAKLAND-J 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.85	Diverge	1.03	1.02	Diverge	1.02	1.04	1.02	1.02	Diverge	Install redundant relay/battery supply
SAN PBLO 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.92	0.87	Diverge	1.00	0.97	Diverge	1.00	0.99	0.99	1.00	Diverge	Install redundant relay/battery supply
CAL MEC 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.81	Diverge	1.01	1.01	Diverge	1.01	1.02	0.98	1.01	Diverge	Install redundant relay/battery supply
SANMATEO 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.00	0.79	Diverge	1.03	1.03	Diverge	1.02	1.03	1.03	1.02	Diverge	Install redundant relay/battery supply
VASONA 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.76	Diverge	1.02	1.01	Diverge	1.02	1.02	0.97	1.02	Diverge	Install redundant relay/battery supply
SARATOGA 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.95	0.75	Diverge	1.02	1.01	Diverge	1.02	1.03	0.97	1.02	Diverge	Install redundant relay/battery supply
JEFFERSN 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.75	Diverge	1.02	1.01	Diverge	1.02	1.02	0.99	1.02	Diverge	Install redundant relay/battery supply
MONTAVIS 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.74	Diverge	1.02	1.01	Diverge	1.03	1.03	0.97	1.03	Diverge	Install redundant relay/battery supply
RAVENSWD 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.98	0.77	Diverge	1.02	1.02	Diverge	1.01	1.01	1.01	1.01	Diverge	Install redundant relay/battery supply
SANMATEO 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.99	0.79	Diverge	1.02	1.02	Diverge	1.01	1.01	1.02	1.02	Diverge	Install redundant relay/battery supply
POTRERO 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.00	0.80	Diverge	1.02	1.01	Diverge	1.02	1.00	1.02	1.02	Diverge	Install redundant relay/battery supply
MARTIN C 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.00	0.81	Diverge	1.02	1.01	Diverge	1.02	1.00	1.02	1.02	Diverge	Install redundant relay/battery supply
EGBERTSWSTA 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	1.00	0.80	Diverge	NA	1.01	Diverge	NA	1.00	NA	NA	Diverge	Install redundant relay/battery supply
EMBRCDRD 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.00	0.80	Diverge	1.02	1.01	Diverge	1.02	1.00	1.02	1.02	Diverge	Install redundant relay/battery supply
NWK DIST 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.99	0.61	Diverge	1.02	1.03	Diverge	1.03	1.03	0.95	1.03	Diverge	Install redundant relay/battery supply
E. SHORE 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.95	0.76	Diverge	1.01	1.00	Diverge	0.99	1.00	0.99	0.99	Diverge	Install redundant relay/battery supply
CASTROVL 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.90	Diverge	1.01	1.01	Diverge	1.01	1.01	0.98	1.02	Diverge	Install redundant relay/battery supply
HICKS 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.77	Diverge	1.02	1.01	Diverge	1.02	1.02	0.97	1.02	Diverge	Install redundant relay/battery supply
BELMONT 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.99	0.76	Diverge	1.02	1.03	Diverge	1.02	1.02	1.01	1.02	Diverge	Install redundant relay/battery supply
METCALF 230.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.82	Diverge	1.01	1.01	Diverge	1.01	1.02	0.98	1.01	Diverge	Install redundant relay/battery supply
CLY LND 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.73	Diverge	1.03	1.04	Diverge	1.03	1.03	1.02	1.03	Diverge	Install redundant relay/battery supply
RADUM 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.81	Diverge	1.04	1.02	Diverge	1.04	1.03	0.99	1.04	Diverge	Install redundant relay/battery supply
BAIR 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.99	0.75	Diverge	1.02	1.03	Diverge	1.02	1.03	1.01	1.02	Diverge	Install redundant relay/battery supply
EVERGREN 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.95	0.55	Diverge	1.02	1.02	Diverge	1.04	1.03	0.93	1.04	Diverge	Install redundant relay/battery supply
LIVERMRE 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.82	Diverge	1.04	1.02	Diverge	1.04	1.03	0.99	1.04	Diverge	Install redundant relay/battery supply
NEWARK D 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.99	0.63	Diverge	1.02	1.03	Diverge	1.03	1.04	0.98	1.03	Diverge	Install redundant relay/battery supply
JARVIS 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.96	0.58	Diverge	1.01	1.02	Diverge	1.02	1.03	0.96	1.02	Diverge	Install redundant relay/battery supply
DUMBARTN 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.02	0.74	Diverge	1.03	1.03	Diverge	1.04	1.04	1.02	1.04	Diverge	Install redundant relay/battery supply
MT EDEN 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.05	1.05	0.82	Diverge	1.04	1.04	Diverge	1.05	1.04	1.05	1.04	Diverge	Install redundant relay/battery supply
EASTSHRE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.05	1.05	0.83	Diverge	1.04	1.04	Diverge	1.05	1.04	1.05	1.04	Diverge	Install redundant relay/battery supply
GRANT 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.04	1.03	0.83	Diverge	1.04	1.03	Diverge	1.04	1.04	1.04	1.03	Diverge	Install redundant relay/battery supply
SN LNDRO 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.97	0.89	Diverge	1.03	1.02	Diverge	1.02	1.03	1.00	1.02	Diverge	Install redundant relay/battery supply
ALMADEN 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.90	0.92	0.50	Diverge	1.02	1.02	Diverge	1.03	1.03	0.91	1.03	Diverge	Install redundant relay/battery supply
MENLO 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.02	0.75	Diverge	1.02	1.02	Diverge	1.02	1.02	1.03	1.02	Diverge	Install redundant relay/battery supply
MISSON 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.83	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
STONE 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.95	0.57	Diverge	1.01	1.01	Diverge	1.02	1.02	0.93	1.02	Diverge	Install redundant relay/battery supply
RVNSWD D 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.75	Diverge	1.04	1.04	Diverge	1.03	1.04	1.02	1.03	Diverge	Install redundant relay/battery supply
BURLNGME 115.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.80	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
HLF MNBY 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.00	0.75	Diverge	1.03	1.03	Diverge	1.04	1.04	1.03	1.03	Diverge	Install redundant relay/battery supply
BAIR 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.76	Diverge	1.03	1.02	Diverge	1.03	1.03	1.02	1.03	Diverge	Install redundant relay/battery supply
PACIFICA 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.82	Diverge	1.03	1.03	Diverge	1.03	1.03	1.03	1.03	Diverge	Install redundant relay/battery supply
CLY LNDG 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.04	0.79	Diverge	1.03	1.03	Diverge	1.03	1.02	1.04	1.03	Diverge	Install redundant relay/battery supply
SNTH LNE 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.82	Diverge	1.03	1.03	Diverge	1.03	1.04	1.03	1.03	Diverge	Install redundant relay/battery supply
GLENWOOD 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.02	0.75	Diverge	1.02	1.02	Diverge	1.02	1.02	1.03	1.02	Diverge	Install redundant relay/battery supply
JEFRSN_D 60.0 kV	NEWARK 230KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.74	Diverge	1.02	1.01	Diverge	1.02	1.03	0.99	1.02	Diverge	Install redundant relay/battery supply
MCKEE 115.0 kV	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.96	0.91	0.90	1.01	1.02	1.01	1.03	1.04	0.96	1.03	0.97	Install redundant relay/battery supply
DIXON LD 115.0 kV	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.92	0.94	0.88	0.87	1.01	1.02	1.00	1.03	1.04	0.95	1.03	0.95	Install redundant relay/battery supply
MILPITAS 115.0 kV	NEWARK E&F 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.90	0.96	0.97	0.98	0.95	1.01	0.98	1.03	0.97	0.98	0.90	Install redundant relay/battery supply
MARTNZ D 115.0 kV	PITTSBURG PP 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.02	0.92	Diverge	Diverge	1.04	1.03	1.02	1.04	1.04	1.03	1.04	0.90	Install redundant relay/battery supply
TRIMBL&1 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	1.01	0.89	Diverge	1.01	1.02	1.00	1.02	1.02	0.98	1.02	1.00	Install redundant relay/battery supply
EL PATIO 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	1.00	0.89	Diverge	1.02	1.02	0.99	1.03	1.02	0.99	1.03	0.99	Install redundant relay/battery supply
SN JSE A 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	1.00	0.89	Diverge	1.02	1.02	0.99	1.03	1.02	0.99	1.03	0.99	Install redundant relay/battery supply
VALLECTS 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.87	Diverge	1.03	1.03	0.99	1.03	1.04	1.00	1.03	0.98	Install redundant relay/battery supply
TESORO 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.97	0.90	Diverge	1.02	1.01	0.97	1.01	1.04	0.99	1.01	0.95	Install redundant relay/battery supply
CHRISTIE 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	0.96	0.89	Diverge	1.03	1.02	1.01	1.03	1.03	1.00	1.03	0.94	Install redundant relay/battery supply
SAN PBLO 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.92	0.86	Diverge	1.00	0.97	0.95	1.00	0.99	0.98	1.00	0.91	Install redundant relay/battery supply
TASSAJAR 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	1.00	0.88	Diverge	1.03	1.02	0.99	1.04	1.03	1.01	1.04	1.00	Install redundant relay/battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
EL CRRTO 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	0.97	0.89	Diverge	1.03	1.02	1.00	1.03	1.04	1.01	1.03	0.95	Install redundant relay/battery supply
FMC 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	1.01	0.88	Diverge	1.01	1.02	1.00	1.02	1.03	0.98	1.02	1.00	Install redundant relay/battery supply
RICHMOND 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	0.97	0.90	Diverge	1.03	1.02	1.00	1.03	1.04	1.01	1.03	0.95	Install redundant relay/battery supply
OAKLAND-C 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	0.98	0.90	Diverge	1.03	1.03	1.01	1.02	1.04	1.00	1.02	0.97	Install redundant relay/battery supply
TIDEWATR 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.97	0.90	Diverge	1.02	1.02	0.98	1.02	1.04	1.00	1.02	0.95	Install redundant relay/battery supply
OAKLAND-X 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	0.98	0.90	Diverge	1.03	1.02	1.00	1.02	1.04	1.00	1.02	0.97	Install redundant relay/battery supply
SANRAMON 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.97	0.95	0.84	Diverge	1.01	1.02	0.96	1.02	1.02	0.97	1.02	0.94	Install redundant relay/battery supply
CASTROVL 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.89	Diverge	1.01	1.02	0.98	1.02	1.02	0.99	1.02	0.97	Install redundant relay/battery supply
MORAGA 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.97	0.89	Diverge	1.01	1.02	0.97	1.02	1.01	0.99	1.02	0.96	Install redundant relay/battery supply
ROSSMOOR 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.97	0.90	Diverge	1.01	1.02	0.98	1.02	1.01	0.99	1.02	0.96	Install redundant relay/battery supply
SOBRANTE 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.97	0.90	Diverge	1.02	1.01	0.97	1.01	1.04	0.99	1.01	0.95	Install redundant relay/battery supply
TRIMBLE 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	1.01	0.89	Diverge	1.01	1.03	1.00	1.02	1.03	0.99	1.02	1.01	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	1.00	0.88	Diverge	1.02	1.02	0.99	1.03	1.02	0.99	1.02	0.99	Install redundant relay/battery supply
E. SHORE 230.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.87	Diverge	1.01	1.01	0.99	0.99	1.01	1.01	0.99	0.98	Install redundant relay/battery supply
MONTAGUE 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	1.01	0.89	Diverge	1.01	1.03	1.00	1.02	1.03	0.99	1.02	1.01	Install redundant relay/battery supply
DIXON LD 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.01	0.90	Diverge	1.02	1.03	1.01	1.03	1.04	1.01	1.03	1.01	Install redundant relay/battery supply
OLEUM 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.02	0.96	0.89	Diverge	1.04	1.02	1.02	1.03	1.04	1.01	1.03	0.94	Install redundant relay/battery supply
NORTECH 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.02	0.89	Diverge	1.02	1.04	1.01	1.03	1.04	1.00	1.03	1.02	Install redundant relay/battery supply
STONE 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.99	0.87	Diverge	1.02	1.02	0.99	1.02	1.02	0.98	1.02	0.98	Install redundant relay/battery supply
LOCKHD 1 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.89	Diverge	1.01	1.00	0.98	1.02	1.01	1.01	1.02	1.00	Install redundant relay/battery supply
ALMADEN 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.82	Diverge	1.02	1.03	0.98	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
LPOSTAS 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.90	Diverge	1.04	1.04	1.00	1.04	1.04	1.01	1.04	1.00	Install redundant relay/battery supply
NEWARK 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.90	Diverge	1.04	1.04	1.01	1.04	1.04	1.02	1.04	1.00	Install redundant relay/battery supply
JARVIS 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.89	Diverge	1.03	1.04	1.01	1.03	1.05	1.01	1.03	1.01	Install redundant relay/battery supply
RADUM 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.99	0.98	0.87	Diverge	1.04	1.04	0.99	1.04	1.04	1.00	1.04	0.98	Install redundant relay/battery supply
LOCKHD 2 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.90	Diverge	1.01	1.01	1.00	1.01	1.02	1.01	1.01	1.00	Install redundant relay/battery supply
EVERGREN 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.99	0.86	Diverge	1.03	1.03	1.00	1.04	1.03	0.99	1.04	0.99	Install redundant relay/battery supply
LIVERMRE 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.88	Diverge	1.04	1.04	1.00	1.04	1.04	1.01	1.04	0.99	Install redundant relay/battery supply
LAWRENCE 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.90	Diverge	1.01	1.00	0.98	1.02	1.00	1.01	1.02	1.00	Install redundant relay/battery supply
MILPITAS 115.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.01	1.00	0.89	Diverge	1.02	1.02	1.00	1.03	1.03	1.01	1.03	1.00	Install redundant relay/battery supply
SAN RAMN 60.0 kV	PITTSBURG PP 230KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.98	0.87	Diverge	1.03	1.04	0.99	1.04	1.04	1.00	1.04	0.97	Install redundant relay/battery supply
SAN PBLO 115.0 kV	POINT PINOLE 115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.98	1.00	0.96	0.90	0.98	0.94	0.94	0.98	0.98	0.98	0.98	0.90	Install redundant relay/battery supply
MISSON 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.88	1.02	1.03	1.02	1.03	1.03	1.02	1.03	1.01	Install redundant relay/battery supply
MARTIN C 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.96	0.89	1.03	1.03	1.02	1.03	1.03	1.03	1.03	1.02	Install redundant relay/battery supply
HNTRS PT 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.89	1.03	1.03	1.02	1.03	1.03	1.03	1.03	1.02	Install redundant relay/battery supply
SERRMNTE 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.89	1.02	1.03	1.02	1.03	1.03	1.03	1.03	1.02	Install redundant relay/battery supply
POTRERO 230.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.89	1.03	1.01	0.99	1.03	1.00	1.03	1.03	1.02	Install redundant relay/battery supply
EMBRCDRD 230.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.89	1.03	1.01	0.99	1.03	1.00	1.03	1.03	1.02	Install redundant relay/battery supply
MARTIN C 230.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.89	1.02	1.01	0.99	1.03	1.00	1.02	1.03	1.02	Install redundant relay/battery supply
EVERGREN 60.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.99	0.91	0.90	1.03	1.03	1.01	1.04	1.03	0.99	1.04	0.98	Install redundant relay/battery supply
EGBERTSWSTA 230.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	1.02	0.95	0.89	NA	1.01	0.99	NA	1.00	NA	NA	1.02	Install redundant relay/battery supply
JEFRSN_D 60.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.01	1.01	0.93	0.89	1.01	1.02	0.99	1.01	1.02	1.02	1.01	1.00	Install redundant relay/battery supply
E. SHORE 230.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.91	0.86	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Install redundant relay/battery supply
LARKIN D 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.91	0.81	0.68	0.95	1.02	0.93	1.00	1.00	0.94	1.01	0.92	Install redundant relay/battery supply
EST GRND 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.93	0.87	1.02	1.02	1.01	1.02	1.01	1.02	1.02	1.01	Install redundant relay/battery supply
SFIA 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.01	0.95	0.89	1.02	1.03	1.01	1.02	1.02	1.03	1.03	1.01	Install redundant relay/battery supply
ALMADEN 60.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.87	0.86	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
MILLBRAE 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.89	1.03	1.03	1.01	1.02	1.03	1.03	1.02	1.01	Install redundant relay/battery supply
SANMATEO 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.90	1.03	1.03	1.02	1.02	1.03	1.03	1.02	1.01	Install redundant relay/battery supply
BAY MDWS 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.94	0.89	1.02	1.02	1.01	1.02	1.03	1.02	1.02	1.01	Install redundant relay/battery supply
HLF MNBY 60.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.04	1.03	0.94	0.88	1.03	1.03	1.01	1.04	1.04	1.04	1.03	1.03	Install redundant relay/battery supply
BELMONT 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.01	0.94	0.90	1.02	1.03	1.01	1.02	1.03	1.02	1.02	1.01	Install redundant relay/battery supply
PACIFICA 60.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.02	0.96	0.89	1.03	1.03	1.02	1.04	1.03	1.03	1.04	1.03	Install redundant relay/battery supply
JEFFERSN 230.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.02	1.02	0.94	0.90	1.02	1.02	0.99	1.02	1.01	1.02	1.02	1.01	Install redundant relay/battery supply
BURLNGME 115.0 kV	POTRERO (SF A) 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.03	1.02	0.95	0.90	1.03	1.03	1.02	1.03	1.03	1.03	1.03	1.01	Install redundant relay/battery supply
ALMADEN 60.0 kV	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.95	0.96	0.87	0.87	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
E. SHORE 230.0 kV	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	1.00	0.99	0.92	0.88	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Install redundant relay/battery supply
LARKIN D 115.0 kV	POTRERO 115KV (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.98	0.98	0.91	0.86	0.99	1.03	1.00	1.02	1.02	0.99	1.02	0.98	Install redundant relay/battery supply
CLY LNDG 60.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.47	0.45	0.99	0.97	0.55	0.53	1.01	0.54	1.01	0.51	0.54	0.49	Install redundant relay/battery supply
BAIR 115.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.78	0.79	0.95	0.93	0.82	0.85	0.99	0.82	1.00	0.81	0.81	0.81	Install redundant relay/battery supply
CLY LND 115.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.40	0.38	0.90	0.89	0.47	0.45	0.95	0.46	0.98	0.44	0.46	0.42	Install redundant relay/battery supply
MENLO 60.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.45	0.43	0.96	0.94	0.54	0.53	0.99	0.53	1.01	0.50	0.53	0.48	Install redundant relay/battery supply
BELMONT 115.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.84	0.85	0.96	0.94	0.87	0.90	1.00	0.87	1.01	0.86	0.87	0.87	Install redundant relay/battery supply
GLENWOOD 60.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.45	0.43	0.97	0.94	0.55	0.53	1.00	0.53	1.01	0.50	0.53	0.48	Install redundant relay/battery supply
BAIR 60.0 kV	RAVENSWOOD 115 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.60	0.59	0.96	0.94	0.68	0.68	1.00	0.67	1.01	0.64	0.67	0.63	Install redundant relay/battery supply

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
GLENWOOD 60.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.44	0.42	0.92	Diverge	0.55	0.52	1.01	0.52	1.01	0.49	0.52	0.44	Install redundant relay/battery supply
EVERGREN 60.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.99	0.89	Diverge	1.03	1.03	1.01	1.04	1.03	0.98	1.04	0.98	Install redundant relay/battery supply
MENLO 60.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.43	0.41	0.91	Diverge	0.55	0.52	1.01	0.52	1.01	0.49	0.52	0.44	Install redundant relay/battery supply
BAIR 60.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.58	0.57	0.92	Diverge	0.68	0.67	1.01	0.66	1.01	0.63	0.66	0.58	Install redundant relay/battery supply
CLY LND 115.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.38	0.37	0.86	Diverge	0.48	0.45	0.94	0.45	0.98	0.43	0.46	0.38	Install redundant relay/battery supply
STONE 115.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.99	0.90	Diverge	1.02	1.02	1.00	1.02	1.02	0.97	1.02	0.98	Install redundant relay/battery supply
BAIR 115.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.75	0.77	0.91	Diverge	0.82	0.84	0.99	0.80	1.01	0.79	0.81	0.75	Install redundant relay/battery supply
CLY LNDG 60.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.45	0.43	0.95	Diverge	0.56	0.53	1.03	0.53	1.01	0.50	0.53	0.45	Install redundant relay/battery supply
BELMONT 115.0 kV	RAVENSWOOD 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.81	0.83	0.92	Diverge	0.87	0.89	1.00	0.86	1.01	0.84	0.86	0.80	Install redundant relay/battery supply
EL PATIO 115.0 kV	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.96	0.90	0.88	1.04	0.98	0.95	1.04	0.99	1.01	1.04	0.92	Install redundant relay/battery supply
SN JSE A 115.0 kV	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.95	0.89	0.87	1.04	0.97	0.94	1.04	0.98	1.01	1.04	0.91	Install redundant relay/battery supply
ALMADEN 60.0 kV	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.94	0.84	0.80	1.04	1.02	0.97	1.04	1.03	0.98	1.04	0.93	Install redundant relay/battery supply
STONE 115.0 kV	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.96	0.89	0.86	1.03	1.01	0.98	1.03	1.02	0.99	1.03	0.95	Install redundant relay/battery supply
EVRGRN 1 115.0 kV	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.97	0.89	0.87	1.03	1.02	0.98	1.03	1.02	1.00	1.03	0.96	Install redundant relay/battery supply
EVERGREN 60.0 kV	SAN JOSE B 115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	0.88	0.85	1.04	1.03	0.99	1.05	1.03	1.00	1.04	0.96	Install redundant relay/battery supply
JEFRSN_D 60.0 kV	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	0.97	0.92	0.87	1.01	1.01	Diverge	1.00	Diverge	1.00	1.01	0.98	Install redundant relay/battery supply
JEFFERSN 230.0 kV	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	0.98	0.94	0.89	1.02	1.00	Diverge	1.01	Diverge	1.00	1.01	0.98	Install redundant relay/battery supply
E. SHORE 230.0 kV	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	0.97	0.87	0.79	1.00	1.00	Diverge	0.95	Diverge	0.99	0.95	0.88	Install redundant relay/battery supply
HLF MNBY 60.0 kV	SAN MATEO 230-115-60KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	Diverge	0.98	0.91	0.83	1.04	1.03	Diverge	1.03	Diverge	1.02	1.03	1.00	Install redundant relay/battery supply
ALMADEN 60.0 kV	Single DC Supply Failure at Duane 115KV bus	P5	Non-Redundant Battery/Relay	0.94	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Install redundant relay/battery supply
MARTNZ D 115.0 kV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.81	0.77	0.85	1.02	1.00	0.93	1.02	1.04	1.03	1.02	0.85	Install redundant relay/battery supply
CHRISTIE 60.0 kV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.62	0.55	0.67	1.01	0.93	0.83	1.01	1.03	1.02	1.01	0.75	Install redundant relay/battery supply
EL CRRTO 115.0 kV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.91	0.55	0.48	0.56	0.95	0.86	0.70	0.95	1.02	0.97	0.95	0.69	Install redundant relay/battery supply
CHRISTIE 115.0 kV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.61	0.55	0.67	0.98	0.90	0.80	0.98	1.03	1.00	0.98	0.73	Install redundant relay/battery supply
OLEUM 115.0 kV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.63	0.57	0.70	0.98	0.91	0.81	0.99	1.04	1.01	0.99	0.74	Install redundant relay/battery supply
ALHAMBRA 115.0 kV	SOBRANTE 230-115KV BATT(FAILURE OF NON-REDUNDANT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.76	0.84	NA	NA	0.93	NA	1.04	NA	NA	NA	Install redundant relay/battery supply
APP MAT 115.0 kV	230KV and BRITTON-MONTA VISTA 115KV	P6	N-1-1	> 0.9	> 0.9	0.89	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
FREMNT 115.0 kV	230KV and BRITTON-MONTA VISTA 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LOCKHD 1 115.0 kV	230KV and LAWRENCE-MONTA VISTA 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LAWRENCE 115.0 kV	230KV and LAWRENCE-MONTA VISTA 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TRIMBL&1 115.0 kV	230KV and SANJOSEB230 230/115KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LARKIN D 115.0 kV	A-Y #1 (UNDERGROUND IDLE) 115KV and X-Y #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.89	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BRITTN 115.0 kV	CHARCOT-SANJOSEB 230KV and BRITTON-MONTA VISTA 115KV	P6	N-1-1	> 0.9	> 0.9	0.89	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LOCKHD 2 115.0 kV	CHARCOT-SANJOSEB 230KV and BRITTON-MONTA VISTA 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EST GRND 115.0 kV	CHARCOT-SANJOSEB 230KV and MARTIN-EAST GRAND 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
DIXON LD 115.0 kV	CHARCOT-SANJOSEB 230KV and NEWARK-DIXON LANDING 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
JARVIS 115.0 kV	CHARCOT-SANJOSEB 230KV and NEWARK-JARVIS #2 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BELMONT 115.0 kV	CHARCOT-SANJOSEB 230KV and SAN MATEO-BELMONT 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
FMC 115.0 kV	CHARCOT-SANJOSEB 230KV and SANJOSEB230 230/115KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SARATOGA 230.0 kV	CHARCOT-SANJOSEB 230KV and SARATOGA-VASONA 230KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CHRISTIE 60.0 kV	CHRISTIE-SOBRANTE 115KV and OLEUM-MARTINEZ 115KV	P6	N-1-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
OLEUM 115.0 kV	CHRISTIE-SOBRANTE 115KV and OLEUM-MARTINEZ 115KV	P6	N-1-1	> 0.9	> 0.9	0.88	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CHRISTIE 115.0 kV	CHRISTIE-SOBRANTE 115KV and OLEUM-MARTINEZ 115KV	P6	N-1-1	> 0.9	> 0.9	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
CLY LNDG 60.0 kV	CLY LND2 115/60KV TB 2 and CLY LND 115/60KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.85	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MENLO 60.0 kV	CLY LND2 115/60KV TB 2 and CLY LND 115/60KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.81	0.76	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
GLENWOOD 60.0 kV	CLY LND2 115/60KV TB 2 and CLY LND 115/60KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.82	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
BAIR 60.0 kV	CLY LND2 115/60KV TB 2 and CLY LND 115/60KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.90	0.86	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LS PSTAS 230.0 kV	CONTRA COSTA-LAS POSITAS 230KV and LAS POSITAS-NEWARK 230KV	P6	N-1-1	> 0.9	0.48	> 0.9	0.33	> 0.9	> 0.9	0.47	> 0.9	> 0.9	> 0.9	> 0.9	0.81	Operating solution
LIVERMRE 60.0 kV	CONTRA COSTA-LAS POSITAS 230KV and LAS POSITAS-NEWARK 230KV	P6	N-1-1	> 0.9	0.63	> 0.9	0.54	> 0.9	> 0.9	0.61	> 0.9	> 0.9	> 0.9	> 0.9	0.87	Operating solution
E. SHORE 230.0 kV	DUMBARTON-NEWARK 115KV and EASTSHORE-SAN MATEO 230KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.70	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SN LNDRO 115.0 kV	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EASTSHRE 115.0 kV	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	> 0.9	> 0.9	0.83	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MT EDEN 115.0 kV	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	> 0.9	> 0.9	0.82	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
OAKLAND-J 115.0 kV	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	> 0.9	> 0.9	0.86	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
GRANT 115.0 kV	E. SHORE 230/115KV TB 1 and E. SHORE 230/115KV TB 2	P6	N-1-1	> 0.9	> 0.9	0.83	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EDES 115.0 kV	E. SHORE 230/115KV TB 2 and E. SHORE 230/115KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.85	0.83	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
DUMBARTN 115.0 kV	EASTSHORE-SAN MATEO 230KV and DUMBARTON-NEWARK 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LLAGAS 115.0 kV	GREENVALLEY-MRGN HIL #1 115KV and METCALF-MORGAN HILL 115KV	P6	N-1-1	> 0.9	> 0.9	0.55	0.57	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MORGN J1 115.0 kV	GREENVALLEY-MRGN HIL #1 115KV and METCALF-MORGAN HILL 115KV	P6	N-1-1	> 0.9	> 0.9	0.73	0.75	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
HLF MNBY 60.0 kV	JEFFERSN 230/60KV TB 1 and JEFFERSN 230/60KV TB 2	P6	N-1-1	> 0.9	> 0.9	0.72	0.67	> 0.9	> 0.9	0.72	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
JEFRSN_D 60.0 kV	JEFFERSN 230/60KV TB 2 and JEFFERSN 230/60KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.55	0.51	> 0.9	> 0.9	0.56	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
JEFFERSN 230.0 kV	JEFFERSN-EGBERTSWSTA 230KV and TESLA-NEWARK #2 230KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LPOSTAS 60.0 kV	LAS POSITAS-NEWARK 230KV and CONTRA COSTA-LAS POSITAS 230KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.45	> 0.9	> 0.9	0.53	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
VALLECTS 60.0 kV	LS PSTAS 230/60KV TB 4 and SANRAMON 230/60KV TB 1	P6	N-1-1	> 0.9	> 0.9	0.67	0.65	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
PACIFICA 60.0 kV	MARTIN-MILLBRAE #1 115KV and MILLBRAE-SAN MATEO #1 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SNTH LNE 60.0 kV	MARTIN-MILLBRAE #1 115KV and MILLBRAE-SAN MATEO #1 115KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MILLBRAE 115.0 kV	MARTIN-MILLBRAE #1 115KV and MILLBRAE-SAN MATEO #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.87	0.83	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EL PATIO 115.0 kV	METCALF-EL PATIO #1 115KV and SAN JOSE A-SAN JOSE B 115KV	P6	N-1-1	> 0.9	> 0.9	0.79	0.76	> 0.9	> 0.9	0.82	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NEWARK 60.0 kV	NEWARK D 115/115KV TB 1 and LS PSTAS 230/60KV TB 4	P6	N-1-1	> 0.9	> 0.9	0.82	0.65	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MCKEE 115.0 kV	NEWARK D-NRS #1 230KV and PIERCY-METCALF 115KV	P6	N-1-1	> 0.9	> 0.9	0.78	0.75	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
PIERCY 115.0 kV	NEWARK D-NRS #1 230KV and PIERCY-METCALF 115KV	P6	N-1-1	> 0.9	> 0.9	0.76	0.72	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MARTNZ D 115.0 kV	PITTSBURG-MARTINEZ #1 115KV MOAS OPENED ON PITTSBURG-E_W.P.BART and PITTSBURG-MARTINEZ #2 115KV	P6	N-1-1	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SAN RAMN 60.0 kV	PITTSBURG-SAN RAMON 230KV and SAN RAMON-MORAGA 230KV	P6	N-1-1	> 0.9	0.38	0.34	0.33	> 0.9	0.49	0.37	> 0.9	0.83	> 0.9	> 0.9	0.46	Operating solution
SN JSE A 115.0 kV	SAN JOSE A-SAN JOSE B 115KV and METCALF-EL PATIO #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.78	0.75	> 0.9	> 0.9	0.81	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SANRAMON 230.0 kV	SAN RAMON-MORAGA 230KV and PITTSBURG-SAN RAMON 230KV	P6	N-1-1	> 0.9	0.27	0.22	0.20	> 0.9	0.45	0.28	> 0.9	0.82	> 0.9	> 0.9	0.36	Operating solution
RADUM 60.0 kV	SAN RAMON-MORAGA 230KV and PITTSBURG-SAN RAMON 230KV	P6	N-1-1	> 0.9	0.61	0.56	0.55	> 0.9	0.68	0.60	> 0.9	0.89	> 0.9	> 0.9	0.67	Operating solution
EVERGREN 60.0 kV	SILVERCRKSS-METCALFE #1 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	> 0.9	> 0.9	0.78	0.74	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EVRGRN 1 115.0 kV	SILVERCRKSS-METCALFE #1 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	> 0.9	> 0.9	0.80	0.77	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
STONE 115.0 kV	SILVERCRKSS-METCALFE #1 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	> 0.9	> 0.9	0.80	0.76	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
ALMADEN 60.0 kV	SILVERCRKSS-METCALFE #1 115KV and SAN JOSE B-STONE-EVERGREEN 115KV	P6	N-1-1	> 0.9	> 0.9	0.74	0.69	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SAN PBLO 115.0 kV	SOBRANTE 230/115KV TB 3 and SOBRANTE-STANDARD OIL SW STA #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
EL CRRTO 115.0 kV	SOBRANTE-G #1 115KV and SOBRANTE-G #2 115KV	P6	N-1-1	> 0.9	0.88	0.81	0.85	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	0.93	Operating solution
MILPITAS 115.0 kV	SWIFT-METCALF 115KV and RINGWOODSWST-MILPITAS #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.86	0.84	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
SWIFT 115.0 kV	SWIFT-METCALF 115KV and RINGWOODSWST-MILPITAS #1 115KV	P6	N-1-1	> 0.9	> 0.9	0.82	0.80	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
HICKS 230.0 kV	TESLA-NEWARK #2 230KV and HICKS-METCALF 230KV	P6	N-1-1	> 0.9	> 0.9	> 0.9	0.90	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
TRIMBLE 115.0 kV	TESLA-NEWARK #2 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
LS ESTRS 115.0 kV	TESLA-NEWARK #2 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	> 0.9	> 0.9	0.89	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
NORTECH 115.0 kV	TESLA-NEWARK #2 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
MONTAGUE 115.0 kV	TESLA-NEWARK #2 230KV and NEWARK D-NRS #1 230KV	P6	N-1-1	> 0.9	> 0.9	0.87	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9	Continue to monitor
APP MAT 115.0 kV	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	0.98	0.96	0.89	0.89	0.99	0.99	0.96	1.00	1.01	0.98	1.00	0.96	Continue to monitor
BRITTN 115.0 kV	Britton-Monta Vista & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	0.98	0.96	0.89	0.89	0.99	0.99	0.96	1.00	1.01	0.98	1.00	0.95	Continue to monitor
ALMADEN 60.0 kV	Contra Costa - Las Positas 230 KV and Contra Costa-Lonetree 230 KV lines	P7	DCTL	0.95	0.96	0.89	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	Contra Costa - Las Positas 230 KV and Lonetree - Cayetano 230 KV lines	P7	DCTL	0.95	0.96	0.89	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	Contra Costa-Las Positas 230 KV and North Dublin-Vineyard 230 KV lines	P7	DCTL	0.95	0.96	0.88	0.88	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	Contra Costa-Moraga Nos. 1 & 2 230 KV lines	P7	DCTL	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
E. SHORE 230.0 kV	Eastshore-San Mateo 230 KV and Pittsburg-San Mateo 230 KV lines	P7	DCTL	0.99	0.97	0.88	0.80	1.00	1.00	0.98	0.95	1.00	0.99	0.95	0.88	Continue to monitor
OAKLAND-J 115.0 kV	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	0.97	0.74	0.92	0.90	1.01	1.00	1.00	1.00	1.04	0.98	1.00	0.94	Project: South Oakland reinforcement

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)									Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
EDES 115.0 kV	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	0.97	0.73	0.91	0.90	1.00	1.00	1.00	1.00	1.05	0.98	1.00	0.93	Project: South Oakland reinforcement
GRANT 115.0 kV	Grant-Eastshore Nos. 1 & 2 115 KV lines	P7	DCTL	0.96	0.73	0.91	0.89	1.00	1.00	1.00	1.00	1.04	0.98	1.00	0.93	Project: South Oakland reinforcement
ALMADEN 60.0 kV	Los Esteros - Trimble & Montague - Trimble 115 KV Line	P7	DCTL	0.94	0.96	0.88	0.88	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.95	Continue to monitor
ALMADEN 60.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines	P7	DCTL	0.90	NA	NA	NA	1.01	NA	NA	1.02	NA	0.92	1.02	NA	Continue to monitor
STONE 115.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	0.96	0.85	0.88	NA	1.00	0.96	NA	0.99	NA	NA	0.95	Continue to monitor
ALMADEN 60.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	0.94	0.80	0.83	NA	1.00	0.95	NA	1.00	NA	NA	0.93	Continue to monitor
EVERGREN 60.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	0.97	0.84	0.87	NA	1.01	0.96	NA	1.00	NA	NA	0.95	Continue to monitor
EVRGRN 1 115.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Evergreen Direction	P7	DCTL	NA	0.97	0.86	0.89	NA	1.00	0.96	NA	0.99	NA	NA	0.95	Continue to monitor
STONE 115.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	0.96	0.85	0.88	NA	1.00	0.96	NA	0.99	NA	NA	0.95	Continue to monitor
ALMADEN 60.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	0.94	0.80	0.83	NA	1.00	0.95	NA	1.00	NA	NA	0.93	Continue to monitor
EVRGRN 1 115.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	0.97	0.86	0.89	NA	1.00	0.96	NA	0.99	NA	NA	0.95	Continue to monitor
EVERGREN 60.0 kV	Metcalf - Evergreen #1 and #2 115 KV Lines Metcalf Direction	P7	DCTL	NA	0.97	0.84	0.87	NA	1.01	0.96	NA	1.00	NA	NA	0.95	Continue to monitor
ALMADEN 60.0 kV	Metcalf - Hicks & Metcalf - Vasona 230 KV Lines	P7	DCTL	0.95	0.96	0.88	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	Metcalf-Monta Vista No. 3 & Monta Vista-Coyote Sw. Sta. 230 KV Line	P7	DCTL	0.95	0.96	0.87	0.89	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.95	Continue to monitor
ALMADEN 60.0 kV	Monta Vista-Jefferson 230 KV Lines No. 1 & 2	P7	DCTL	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	Monta Vista-Jefferson Nos. 1 & 2 230 KV lines	P7	DCTL	0.95	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
MCKEE 115.0 kV	Newark - Dixon Landing & Newark - Milpitas #1 115 KV Lines	P7	DCTL	0.94	0.97	0.91	0.90	1.02	1.03	1.01	1.04	1.04	0.97	1.04	0.97	Continue to monitor
DIXON LD 115.0 kV	Newark - Dixon Landing & Newark - Milpitas #1 115 KV Lines	P7	DCTL	0.93	0.96	0.88	0.86	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
ALMADEN 60.0 kV	Newark - Los Esteros & Los Esteros - Metcalf 230 KV Lines	P7	DCTL	0.93	0.96	0.89	0.90	1.02	1.03	0.99	1.03	1.03	0.94	1.03	0.96	Continue to monitor
LAWRENCE 115.0 kV	Newark-Applied Materials & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	0.98	0.96	0.90	0.89	0.99	1.00	0.96	1.01	1.00	0.98	1.01	0.95	Continue to monitor
LOCKHD 2 115.0 kV	Newark-Applied Materials & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	0.98	0.96	0.90	0.90	0.99	0.99	0.96	1.00	1.00	0.98	1.00	0.95	Continue to monitor
LOCKHD 1 115.0 kV	Newark-Applied Materials & Lawrence-Monta Vista 115 KV Lines	P7	DCTL	0.98	0.96	0.90	0.90	0.99	0.99	0.96	1.00	1.01	0.98	1.00	0.95	Continue to monitor
DIXON LD 115.0 kV	Newark-Dixon Landing 115 KV and Newark-Milpitas No. 1 115 KV lines	P7	DCTL	0.93	0.96	0.88	0.86	1.01	1.02	1.00	1.03	1.04	0.96	1.03	0.96	Continue to monitor
MCKEE 115.0 kV	Newark-Dixon Landing 115 KV and Newark-Milpitas No. 1 115 KV lines	P7	DCTL	0.94	0.97	0.91	0.90	1.02	1.03	1.01	1.04	1.04	0.97	1.04	0.97	Continue to monitor
ALMADEN 60.0 kV	Newark-Fremont Nos. 1 & 2 115 KV lines	P7	DCTL	0.95	0.96	0.90	0.90	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
SANRAMON 230.0 kV	Pittsburg-San Ramon 230 KV and Pittsburg-Tassajara 230 KV lines	P7	DCTL	0.98	0.96	0.90	0.89	1.01	1.02	0.98	1.02	1.02	0.98	1.02	0.96	Continue to monitor
SAN PBLO 115.0 kV	Pittsburg-Tidewater 230 KV and Pittsburg-Tesoro SW STA 230 KV lines	P7	DCTL	0.99	0.93	0.89	0.90	1.00	0.97	0.96	1.00	0.99	0.99	1.00	0.92	Continue to monitor
SAN PBLO 115.0 kV	Pittsburg-Tidewater 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	0.99	0.93	0.89	0.90	1.00	0.97	0.96	1.00	1.00	0.99	1.00	0.92	Continue to monitor
OLEUM 115.0 kV	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	1.00	0.94	0.89	0.94	1.02	1.00	1.00	1.02	1.04	1.02	1.02	0.94	Continue to monitor
EL CRRTO 115.0 kV	Sobrante-G Nos. 1 & 2 115 KV lines	P7	DCTL	0.96	0.88	0.81	0.85	0.99	0.95	0.92	0.99	1.02	0.99	0.99	0.90	Operating solution: Shell units dispatch
PIERCY 115.0 kV	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	0.94	0.90	0.80	0.79	1.01	0.97	0.94	1.03	1.00	0.96	1.03	0.92	Continue to monitor
DIXON LD 115.0 kV	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	0.98	0.98	0.90	0.90	1.02	1.02	0.99	1.02	1.03	0.99	1.03	0.98	Continue to monitor
MCKEE 115.0 kV	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	0.94	0.92	0.82	0.81	1.01	0.99	0.95	1.02	1.01	0.96	1.03	0.93	Continue to monitor
ALMADEN 60.0 kV	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	0.95	0.96	0.87	0.88	1.02	1.03	0.99	1.03	1.03	0.96	1.03	0.96	Continue to monitor
SWIFT 115.0 kV	Swift - Metcalf & Piercy - Metcalf 115 KV Lines	P7	DCTL	0.97	0.95	0.89	0.90	1.02	1.00	0.99	1.02	1.02	0.98	1.02	0.95	Continue to monitor
EVERGREN 60.0 kV	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	0.97	0.99	0.90	0.90	1.03	1.03	1.00	1.04	1.03	0.98	1.04	0.97	Continue to monitor
ALMADEN 60.0 kV	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	0.94	0.96	0.86	0.86	1.02	1.03	0.98	1.03	1.03	0.96	1.03	0.95	Continue to monitor
E. SHORE 230.0 kV	Tesla - Newark No.2 and Metcalf - Los Esteros 230 KV lines	P7	DCTL	1.00	0.99	0.92	0.89	1.01	1.01	0.99	1.00	1.01	1.01	1.00	0.97	Continue to monitor
ALMADEN 60.0 kV	Tesla - Newark No.2 and Newark - Los Esteros 230 KV Lines	P7	DCTL	0.94	0.96	0.87	0.88	1.02	1.03	0.99	1.03	1.03	0.95	1.03	0.96	Continue to monitor
EVERGREN 60.0 kV	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	0.97	0.99	0.88	Diverge	1.03	1.03	0.99	1.04	1.03	0.97	1.04	0.96	Continue to monitor
ALMADEN 60.0 kV	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	0.94	0.96	0.84	Diverge	1.02	1.03	0.98	1.03	1.03	0.95	1.03	0.94	Continue to monitor
SAN PBLO 115.0 kV	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	0.99	0.93	0.90	Diverge	1.00	0.97	0.97	1.00	0.99	0.99	1.00	0.92	Continue to monitor
EVRGRN 1 115.0 kV	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	0.97	0.99	0.90	Diverge	1.02	1.02	0.99	1.03	1.02	0.98	1.02	0.97	Continue to monitor
STONE 115.0 kV	Tesla-Newark No.1 and Tesla-Ravenswood 230 KV lines	P7	DCTL	0.97	0.98	0.89	Diverge	1.02	1.02	0.99	1.02	1.02	0.97	1.02	0.96	Continue to monitor
SAN PBLO 115.0 kV	Tidewater-Sobrante 230 KV and Tesoro SW STA-Sobrante 230 KV lines	P7	DCTL	0.99	0.92	0.89	0.90	1.00	0.97	0.96	1.00	0.99	0.99	1.00	0.93	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Voltage Deviation

California ISO

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)									Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	
NORTECH 115.0 kV	CHARCOT-SANJOSEB 230KV	P1	N-1	NA	< 8	< 8	9	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
E. SHORE 230.0 kV	EASTSHORE-SAN MATEO 230KV	P1	N-1	< 8	< 8	< 8	12	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9	Continue to monitor
E. SHORE 230.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
SAN PBLO 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
JARVIS 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
LOCKHD 1 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
MONTAGUE 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
TRIMBLE 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	NA	NA	NA	< 8	Continue to monitor
FMC 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	8	Diverge	NA	< 8	< 8	NA	NA	NA	NA	< 8	Continue to monitor
TRIMBL&1 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	NA	NA	NA	< 8	Continue to monitor
SN JSE A 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
EL PATIO 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
MILPITAS 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
EVRGRN 1 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
NORTECH 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
EVERGREN 60.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
ALMADEN 60.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
STONE 115.0 kV	Metcalf - San Jose B HVDC Gen	P1	N-1	NA	< 8	< 8	Diverge	NA	< 8	< 8	NA	< 8	NA	NA	< 8	Continue to monitor
LOS GATS 60.0 kV	MONTA VISTA-LOS GATOS 60KV	P1	N-1	13	12	24	25	< 8	< 8	9	< 8	< 8	10	< 8	10	Disable automatic reclosing
ALMADEN 60.0 kV	MONTA VISTA-LOS GATOS 60KV	P1	N-1	< 8	< 8	9	10	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Continue to monitor
DIXON LD 115.0 kV	NEWARK-DIXON LANDING 115KV	P1	N-1	< 8	< 8	9	10	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Continue to monitor
MCKEE 115.0 kV	PIERCY-METCALF 115KV	P1	N-1	< 8	8	12	13	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Potential voltage support project
PIERCY 115.0 kV	PIERCY-METCALF 115KV	P1	N-1	< 8	10	15	16	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8	Potential voltage support project
E. SHORE 230.0 kV	RUSCTYECST1 18.00KV & RUSCTYECCT2 15.00KV & RUSCTYECCT1 15.00KV GEN UNITS	P1	N-1	< 8	< 8	< 8	8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Bay Area
Transient Stability

California ISO

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
P1-1 - Gen DEC PTSG (4 units)	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P1-2 - Line E. SHORE to SANMATEO 230 kV ckt 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P1-3 - Tran METCALF 500-230 kV bk 13	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P1-4 - SVD RAVENSWD 230 kV id v	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P1-5 - DC line TransBay Cable (Pittsburg-Potrero) fault at TBC_PTB1 230	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P2-1 - Line METCALF to CAL MEC 230 kV ckt 4	P2	Line Section w/o Fault	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P2-2 - Bus Fault at MTCALF D 115 kV (Sec 1D)	P2	Bus	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P2-3 - Internal fault at non-Bus-tie Breaker 940 at NWK DIST 230 kV (Newark-Los Esteros)	P2	Non-Bus-Tie Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P2-4 - Internal fault at Bus-tie Breaker 202 at MONTAVIS 230 kV	P2	Bus-Tie Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P3-1 - Gen CAL MEC (3 units) and LECEFST1 13.8 kV unit 1 (fault at LECEFST1)	P3	G-1/N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P3-2 - Gen RUSELCTY (4 units) and Line E. SHORE to SANMATEO 230 kV ckt 1	P3	G-1/N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P3-3 - Gen DEC PTSG (4 units) and Tran SOBRANTE 230 / 115 kV bk 2	P3	G-1/N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P3-4 - Gen LMEC (3 units) and SVD MONTAVIS 230 kV id v	P3	G-1/N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P3-5 - Gen OX_MTN (7 units) and DC line TransBay Cable (Pittsburg-Potrero)	P3	G-1/N-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P4-1 - Stuck Breaker 2230 protecting Gen DEC CTG1 18 kV unit 1	P4	Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P4-2 - Stuck Breaker Ravenswood CB 282 protecting Line RAVENSWD to SANMATEO 230 kV ckt 1 (special)	P4	Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P4-3 - Stuck Breaker Los Esteros CB 262 protecting Tran LS ESTERS 230/115 kV bk 4 (special)	P4	Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P4-4 - Stuck Breaker 890 protecting NEWARK E 230 kV SVC id v	P4	Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P4-5 - Stuck non-Bus-tie Breaker 222 protecting Substation Bus SANMATEO 230 kV Section D	P4	Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P4-6 - Stuck Bus-tie Breaker 202 protecting Substation Bus SANMATEO 230 kV Section 1D	P4	Breaker	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P5-1d - Failure of Pittsburg 230 kV CB 412 control circuits due to non-redundant DC panel with fault for Gens at DEC (ALL 230 kV clears remotely)	P5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P5-2 - Failure of non-redundant relay on Metcalf CB 232 protecting Line METCALF to MOSSLNSW 230 kV	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Under review
P5-2c - Failure of non-redundant DC battery supplying Metcalf 230 kV Bus for remote SLG fault on Metcalf to Hicks 230 kV CKT 1 (All Metcalf 230 kV elements clear remotely)	P5	Non-Redundant Battery/Relay	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P5-2d - Failure of Ravenswood 230 kV CB 202 control circuits due to non-redundant DC panel with fault (not close in) for Line RAVENSWD to TESLA E 230 kV ckt 1 (ALL 230 kV clears remotely)	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Under review
P5-3 - Failure of non-redundant relay on CB 362 protecting Tran METCALF 500 / 230 kV bk 13	P5	Non-Redundant Battery/Relay	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P5-4d - Failure of Potrero 115 kV CB 352 control circuits due to non-redundant DC panel with fault for SHUNT POTRERO 115 kV id c1, c2, & c3 (ALL 115 kV clears remotely)	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Under review
P5-5a - Failure of non-redundant relay protecting Substation Bus EAST SHORE 230 KV BAAH BUS #1 (ALL 230 kV elements clear remotely)	P5	Non-Redundant Battery/Relay	Potential WECC/NERC criteria violation	No issues	No issues	No issues	Potential WECC/NERC criteria violation	No issues	Under review
P5-5c - Failure of non-redundant Station DC Battery Supplying Moraga 230kV and 115kV Buses	P5	Non-Redundant Battery/Relay	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P6-1 - Fault on Line Tesla - Metcalf 500 kV ckt 1 with Loss of Line Moss Landing - Los Banos 500 kV	P6	Non-Redundant Battery/Relay	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P6-2 - Fault on Tran Ravenswood 230-115 kV bk 1 with Loss of Tran Ravenswood 230-115 kV bk 2	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P6-3 - Fault on SVD LS ESTRS 230 kV id r with Loss of Line NWK DIST - LS ESTRS 230 kV ckt 1	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P6-4 - Fault on Line East Shore - San Mateo 230 kV ckt 1 with Loss of HVDC Line TransBay Cable	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P7-1_RF - Fault on Line Tesla - Newark* 230 kV ckt 2 and Line Newark Dist* - Los Esteros 230 kV ckt 1 (HSR Failure)	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required
P7-1_RS - Fault on Line Tesla-Ravenswood* 230 kV ckt 1 and Line Newark-Ravenswood* 230 kV ckt 1 (HSR Success)	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No mitigation required

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Greater Bay Area**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)													Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Greater Bay Area**
Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)													Potential Mitigation Solutions
	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Thermal Overloads

California ISO

				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
ATWATER-LIVINGSTON-MERCED 115KV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	47	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	47	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	46	44	24	48	NConv	22	NConv	Add redundant battery
	P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510] & P1-2:A13:49:_WILSON-ATWATER #2 115KV [4160]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	126	Continue to monitor
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	41	41	18	44	NConv	25	NConv	Add redundant battery
	P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510] & P1-2:A13:49:_WILSON-ATWATER #2 115KV [4160]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	115	Continue to monitor
Auberry Tap-Auberry 70 kV line	P1-3:A14:47:_REEDLEY 115/70KV TB 4 & P1-3:A14:46:_REEDLEY 115/70KV TB 2	P6	N-1-1	<100	<100	104	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
BARTON-AIRWAYS-SANGER 115KV	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	4	14	6	35	102	73	15	101	15	36	Generation re-dispatch
	P2-3:A14:65:_HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE	P2	Bus/Breaker	5	14	6	35	102	73	15	101	15	36	Generation re-dispatch
	P2-3:A14:66:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	4	14	6	36	103	73	15	102	15	36	Generation re-dispatch
BORDEN 230/70KV TB 1	P1-3:A13:11:_BORDEN 230/70KV TB 4 & P1-1:A14:101:_AGRICO 13.80KV & AGRICO 13.80KV GEN UNITS	P3	G-1/N-1	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project:Borden transformer upgrade project
	P1-3:A13:11:_BORDEN 230/70KV TB 4 & P1-2:A13:17:_PANOCHE-PANOCHE ENERGY CENTER 230KV [2293]	P6	N-1-1	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project:Borden transformer upgrade project
BORDEN-COPPERMINE 70KV	P2-4:A14:19:_HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	71	68	86	4	44	54	53	44	53	108	Continue to monitor
	P1-2:A14:118:_TIVY VALLEY-REEDLEY 70KV [9260] & P1-1:A14:93:_FRIANTDAM 6.60KV GEN UNIT 2	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
	P5-5a:A14:2:_HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	71	68	86	4	44	55	53	44	53	107	Sensitivity only
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	64	60	75	5	17	3	51	17	51	113	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	64	60	75	5	17	3	51	17	51	113	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY & P1-1:A14:94:_FRIANTDAM 6.60KV GEN UNIT 3	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	107	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY & P1-1:A14:94:_FRIANTDAM 6.60KV GEN UNIT 3	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	106	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	73	NA	NA	3	NA	NA	NA	114	Sensitivity only
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	73	NA	NA	3	NA	NA	NA	113	Add redundant battery
CANTUA-EXCELSIORSS 115KV	P1-2:A14:46:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-3:A14:41:_SCHINDLR 115/12.47KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	126	Continue to monitor
	P1-2:A14:46:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-3:A14:41:_SCHINDLR 115/12.47KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	123	Continue to monitor
	P1-2:A14:46:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-3:A14:41:_SCHINDLR 115/12.47KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	126	Continue to monitor
CHOWCHILLA-KERCKHOFF 115KV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	74	21	10	36	NConv	38	NConv	Add redundant battery
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	74	21	10	36	NConv	38	NConv	Add redundant battery
	P1-2:A14:52:_KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & P1-2:A14:50:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Continue to monitor
	P1-2:A14:52:_KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & P1-2:A14:50:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Continue to monitor
	P2-3:A14:1:_GREGG 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	39	56	23	101	15	15	54	14	56	47	Generation re-dispatch
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	64	20	56	4	NConv	4	NConv	Add redundant battery
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	83	26	73	5	NConv	5	NConv	Add redundant battery
	P5-5c:A14:21:_Sanger 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	16	16	25	65	25	114	92	18	92	31	Generation re-dispatch
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	87	29	25	2	NConv	2	NConv	Add redundant battery
	P5-5c:A13:9:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	20	34	NA	103	22	NA	46	22	47	NA	Off-peak only
	P5-5c:A14:21:_Sanger 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	17	16	22	68	28	117	95	21	95	28	Off-peak only
	P1-2:A14:52:_KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & P1-2:A14:50:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	114	Continue to monitor
	P1-2:A14:52:_KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & P1-2:A14:50:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	118	Continue to monitor
	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115KV [1900]	P7	DCTL	16	16	25	65	24	114	91	18	91	31	Generation re-dispatch
	P7-1:A13:13:_BORDEN-GREGG 230KV #1 & #2 [4400]	P7	DCTL	39	56	23	101	15	15	54	14	56	47	Generation re-dispatch
	P7-1:A13:1:_WILSON-BORDEN 230KV #1 & #2 [9001]	P7	DCTL	36	51	7	100	13	40	65	13	66	55	Generation re-dispatch
	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115KV [1900]	P7	DCTL	17	16	22	68	28	117	95	21	95	28	Generation re-dispatch
COALINGA #1-SAN MIGUEL 70KV	P2-4:A14:8:_GATES D 230KV - SECTION 2D & 1D	P2	Bus/Breaker	56	30	26	45	54	83	42	60	43	112	Continue to monitor
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	70	34	24	20	46	38	84	54	85	120	Sensitivity only
	P1-2:A14:28:_TEMPLETON-GATES 230KV [5934] & P1-2:A14:25:_CALIFORNIA FLATS SW STA-GATES 230KV [5281]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
	P7-1:A14:14:_TEMPLETON-GATES 230KV [5934] & GATES-CALFLATSSS #1 230KV [0]	P7	DCTL	53	30	25	48	53	88	8	59	8	113	Continue to monitor
COLNGA 1-COLNGA 2 70KV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	108	78	72	43	49	75	67	56	67	147	Project:Gates additional bank project
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	102	72	66	48	43	81	61	50	61	141	Project:Gates additional bank project
COPPERMINE-TIVY VALLEY 70KV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	75	81	106	12	6	18	61	6	61	154	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY & P1-1:A14:98:_CHV.COAL 9.11KV GEN UNIT 2	P3	G-1/N-1	<100	<100	106	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	103	NA	NA	18	NA	NA	NA	154	Continue to monitor
	P1-3:A13:11:_BORDEN 230/70KV TB 4 & P1-3:A13:10:_BORDEN 230/70KV TB 1	P6	N-1-1	0	0	<100	134	125	<100	<100	125	<100	<100	Generation re-dispatch
Corsgold-Oakhurst 115 kV line	Base Case	P0	Basecase	81	90	99	69	28	5	64	28	64	107	Continue to monitor
	Base Case & P1-1:A14:80:_KERCKHOFFPH2 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	109	Continue to monitor
CRESCENTSS-SCHLNDLR #1 70KV	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	64	100	112	100	90	51	100	92	100	288	Continue to monitor
	P2-3:A13:7:_TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	36	62	46	73	58	69	98	58	95	101	Continue to monitor
	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	55	65	50	23	17	11	118	18	123	84	Sensitivity only
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	17	21	20	96	71	144	21	71	17	65	Generation re-dispatch
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	61	NA	NA	NA	21	NA	241	27	NA	NA	Project: Manning project
	P2-4:A14:40:_HELM 230KV - SECTION 1D & 2D	P2	Bus/Breaker	NA	NA	112	NA	NA	51	NA	NA	NA	74	Continue to monitor
	P1-2:A14:12:_TRANQUILLITY SW STA-HELM 230KV [5370] & P1-1:A14:123:_EXCELSIO1-25 25.00KV GEN UNIT VS	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Continue to monitor
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	63	56	47	76	34	121	190	24	85	9	Off-peak only
	P5-5c:A13:5:_Tranquillity SW STA 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	36	72	54	90	50	104	122	50	121	131	Off-peak only
	P1-3:A14:84:_Q1709 70/34.5KV TB 1 & P1-2:A14:12:_TRANQUILLITY SW STA-HELM 230KV [5370]	P6	N-1-1	<100	<100	<100	<100	<100	114	<100	<100	<100	<100	Generation re-dispatch
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	53	NA	NA	NA	21	NA	246	20	NA	NA	Project: Manning project
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	62	59	54	68	20	112	17	19	16	11	Generation re-dispatch
	P7-1:A14:23:_TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	33	63	48	79	52	103	108	51	108	118	Continue to monitor
	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	56	69	55	26	16	11	122	17	127	93	Sensitivity only
DOS AMIGOS PUMPING PLANT-PANOCHE 230KV	P2-3:A14:24:_GATES E 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	46	NA	NA	NA	21	NA	104	27	104	NA	Project:Losbanos Area reinforcement project
	P2-4:A13:14:_LOSBANOS 230KV - SECTION 2D & 1D	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	119	NA	Project:Losbanos Area reinforcement project
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	62	NA	NA	NA	29	NA	131	34	131	NA	Off-peak only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0	NA	NA	NA	0	NA	0	0	211	NA	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	62	NA	NA	NA	26	NA	133	32	134	NA	Sensitivity only
	P5-5c:A14:1:_Gates 500kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	46	NA	NA	NA	32	NA	115	41	116	NA	Sensitivity only
	P1-2:A13:8:_LOS BANOS-PADRE FLAT SW STA 230KV [1092] & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	101	<100	101	<100	Sensitivity only
EL CAPITAN-WILSON 115KV	P1-2:A13:41:_ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & P1-2:A13:49:_WILSON-ATWATER #2 115KV [4160]	P6	N-1-1	<100	<100	114	<100	<100	<100	<100	<100	<100	126	Continue to monitor
EXCHEQUER-LE GRAND 115KV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	36	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	36	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	116	67	56	34	NConv	38	NConv	Add redundant battery

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Thermal Overloads

California ISO

				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
EXCHEQUR 70/115KV TB 1	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	39	21	21	28	NConv	28	NConv	Add redundant battery
FIVEPOINTSSS-CALFLAX #1 70KV	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	40	34	36	29	6	29	71	6	71	121	Continue to monitor
	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	43	34	29	22	35	27	102	34	102	90	Sensitivity only
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	47	48	41	84	23	81	131	23	115	125	Continue to monitor
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	24	20	14	58	39	53	201	14	151	109	Sensitivity only
	P1-3:A13:59:_PANOCHE1 115/230KV TB 1 & P1-3:A13:6:_PANOCHE 230/115KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
	P7-1:A13:14:_EXCELSIORSS-PANOCHE1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	21	20	13	52	15	48	100	15	103	107	Continue to monitor
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	23	21	14	62	12	57	108	11	110	106	Continue to monitor
	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	43	35	29	23	37	27	103	35	103	92	Sensitivity only
Gates bank 500/230 KV bank 11	P1-3:A14:1:_GATES 500/230KV TB 12 & P1-3:A13:57:_MANNING 230/500KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
	P1-3:A14:1:_GATES 500/230KV TB 12 & P1-3:A13:57:_MANNING 230/500KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
Gates bank 500/230 KV bank 12	P1-3:A14:2:_GATES 500/230KV TB 11	P1	N-1	28	57	44	64	52	46	100	45	100	100	Continue to monitor
	P1-3:A14:2:_GATES 500/230KV TB 11 & P1-2:A13:2:_MOSS LANDING-LAS AGUILAS SW STA - 230 KV 230KV [5340]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Continue to monitor
	P1-3:A14:2:_GATES 500/230KV TB 11 & P1-2:A13:2:_MOSS LANDING-LAS AGUILAS SW STA - 230 KV 230KV [5340]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Continue to monitor
GATES F-Q1593SWSTA #1 230KV	P2-3:A14:29:_GATES F 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	14	9	3	35	58	69	130	58	130	48	Sensitivity only
	P5-5c:A14:1:_Gates 500kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	20	11	3	8	103	50	136	103	136	45	Off-peak only
GATES-ARCO 230KV	P2-3:A14:29:_GATES F 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	28	53	46	13	37	13	54	31	54	101	Continue to monitor
GATES-HURON-CALFLAX 70KV	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	14	15	7	65	32	81	110	32	93	92	Sensitivity only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	16	25	31	37	54	51	187	41	132	74	Add redundant battery
GATES-MUSTANG SW STA #1 230KV	P2-3:A14:27:_GATES F 230KV - MIDDLE BREAKER BAY 4	P2	Bus/Breaker	23	36	27	47	27	50	101	23	101	97	Sensitivity only
GATES-MUSTANG SW STA #2 230KV	P2-3:A14:25:_GATES F 230KV - MIDDLE BREAKER BAY 5	P2	Bus/Breaker	23	39	29	45	26	46	98	22	98	100	Continue to monitor
GATES-PANOCHE #1 230KV	P2-3:A14:24:_GATES E 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	17	25	25	107	11	92	53	7	52	33	Generation re-dispatch
	P5-5c:A14:1:_Gates 500kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	20	44	45	127	20	77	38	29	37	67	Off-peak only
GATES-PANOCHE #2 230KV	P2-3:A14:24:_GATES E 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	18	26	26	114	11	98	57	8	55	35	Generation re-dispatch
	P5-5c:A14:1:_Gates 500kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	22	47	48	135	21	82	41	30	39	71	Off-peak only
GATES-TULARE LAKE 70KV	Base Case & P1-1:A14:31:_2484-WD 21.00KV GEN UNIT FW	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	100	<100	100	<100	Generation re-dispatch
GREGG-ASHLAN 230KV	P1-2:A14:9:_GREGG-HERNDON #1 230KV [4830] & P1-2:A14:10:_GREGG-HERNDON #2 230KV [4840]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Continue to monitor
GWF-KINGSBURG 115KV	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	52	105	48	75	23	7	77	19	75	76	Project:Kingsburg-condania reconductoring project
	P1-2:A14:20:_MUSTANG SW STA-GREGG 230KV [4700] & P1-1:A14:107:_HANFORDHBES 0.69KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	101	<100	Continue to monitor
	P1-3:A14:59:_HANFORDHC1 34.5/115KV TB 1 & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	100	<100	Sensitivity only
HELM-CRESCENT SW STA 70KV	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	42	54	61	100	56	61	24	58	19	274	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	37	45	71	114	102	135	97	101	71	66	Generation re-dispatch
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	34	NA	NA	NA	85	NA	161	17	NA	NA	Project: Manning project
	P1-2:A14:25:_HELM-MCCALL 230KV [4860] & P1-1:A14:103:_Q1709BESS 0.63KV GEN UNIT 2	P3	G-1/N-1	<100	<100	<100	<100	<100	110	<100	<100	<100	<100	Generation re-dispatch
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	38	17	38	97	62	112	111	50	16	41	Off-peak only
	P5-5c:A13:5:_Tranquillity SW STA 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	15	14	18	91	15	110	43	15	41	115	Off-peak only
	P1-3:A14:84:_Q1709 70/34.5KV TB 1 & P1-2:A14:25:_HELM-MCCALL 230KV [4860]	P6	N-1-1	<100	<100	<100	<100	<100	113	<100	<100	<100	<100	Generation re-dispatch
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	29	NA	NA	NA	42	NA	166	81	NA	NA	Project: Manning project
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	36	16	32	93	47	106	87	46	84	42	Generation re-dispatch
	P7-1:A14:23:_TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	14	6	23	81	18	109	29	16	28	103	Continue to monitor
HENRIETTA-LEPRINO SW STA 115KV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	9	20	11	103	14	44	66	9	66	10	Off-peak only
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	8	21	NConv	104	13	44	67	7	66	10	Add redundant battery
	P1-2:A14:92:_LEPRINO FOODS-LEPRINO SW STA 115KV [1741] & P1-2:A14:80:_GWF-KINGSBURG 115KV [1743]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Continue to monitor
	P7-1:A14:13:_MCCALL-KINGSBURG #1 115KV [2290] & MCCALL-KINGSBURG #2 115KV [2301]	P7	DCTL	9	20	11	103	14	44	66	9	66	10	Generation re-dispatch
Herdon 230/115 kV Bank 1	P1-3:A14:4:_HERNDON 230/115KV TB 2 & P1-3:A14:10:_HERNDON 230/115KV TB 3	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	116	Continue to monitor
	P1-3:A14:4:_HERNDON 230/115KV TB 2 & P1-3:A14:10:_HERNDON 230/115KV TB 3	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	116	Continue to monitor
Herdon 230/115 kV Bank 2	P1-3:A14:3:_HERNDON 230/115KV TB 1 & P1-3:A14:10:_HERNDON 230/115KV TB 3	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	117	Continue to monitor
	P1-3:A14:3:_HERNDON 230/115KV TB 1 & P1-3:A14:10:_HERNDON 230/115KV TB 3	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	116	Continue to monitor
HERNDON 230/115KV TB 3	P1-3:A14:4:_HERNDON 230/115KV TB 2 & P1-3:A14:3:_HERNDON 230/115KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	118	Continue to monitor
HERNDON-BARTON 115KV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	78	75	100	31	5	38	37	5	37	76	Add redundant relay
	P1-2:A14:75:_HERNDON-MANCHESTER 115KV [1780] & P1-2:A14:77:_HERNDON-WOODWARD 115KV [1790]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
HERNDON-BULLARD #2 115KV	P2-1:A14:91:_HERNDON-BULLARD #1 115KV [1760] (HERNDON-PNDLJ1)	P2	Bus/Breaker	103	62	75	19	37	11	61	37	61	75	Project:Herndon-Bullard reconductoring project
	P2-2:A14:46:_HERNDON 115KV SECTION 1D	P2	Bus/Breaker	103	61	75	19	37	11	61	37	61	75	Project:Herndon-Bullard reconductoring project
HERNDON-KEARNEY 230KV	P2-1:A13:6:_TRANQUILLITY SW STA-KEARNEY 230KV [5380] (TRANQLTYSS-MCMULLN1)	P2	Bus/Breaker	11	12	16	1	4	4	2	4	2	102	Continue to monitor
	P2-1:A14:4:_TRANQUILLITY SW STA-KEARNEY 230KV [5380] (TRANQLTYSS-MCMULLN1)	P2	Bus/Breaker	11	12	16	1	4	4	2	4	2	102	Continue to monitor
HERNDON-MANCHESTER 115KV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	81	79	105	37	1	32	43	2	43	82	Add redundant relay
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	63	87	NConv	38	3	30	45	3	47	91	Add redundant battery
	P1-2:A14:77:_HERNDON-WOODWARD 115KV [1790] & P1-2:A14:73:_HERNDON-BARTON 115KV [1750]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Continue to monitor
HERNDON-WOODWARD 115KV	P1-2:A14:73:_HERNDON-BARTON 115KV [1750] & P1-3:A14:42:_KERCKHOFFPH2 115/13.8KV TB 1	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Continue to monitor
	P1-2:A14:75:_HERNDON-MANCHESTER 115KV [1780] & P1-2:A14:73:_HERNDON-BARTON 115KV [1750]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	103	Continue to monitor
	P7-1:A14:16:_HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780]	P7	DCTL	66	60	84	14	75	92	37	73	37	107	Continue to monitor
	P7-1:A14:16:_HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780]	P7	DCTL	63	58	81	16	78	94	35	75	35	105	Continue to monitor
HWTap-RBTap 115kV line	P7-1:A13:19:_COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	72	41	47	56	54	59	101	57	104	56	Sensitivity only
	P7-1:A13:5:_BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	70	39	46	56	53	59	100	56	103	55	Sensitivity only
KERCKHOFF-CLOVIS-SANGER #1 115KV	P1-2:A14:49:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT & P1-2:A14:56:_KERCKHOFF-CLOVIS-SANGER #2 115KV [1900]	P6	N-1-1	<100	<100	<100	<100	101	<100	<100	<100	<100	<100	Generation re-dispatch
	P7-1:A14:16:_HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780]	P7	DCTL	3	10	13	22	102	77	9	100	8	28	Generation re-dispatch
	P7-1:A14:25:_HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	12	19	10	30	108	76	5	106	5	12	Generation re-dispatch
	P7-1:A14:7:_BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	27	34	26	36	115	71	11	112	11	8	Generation re-dispatch
KERCKHOFF-CLOVIS-SANGER #2 115KV	P1-2:A14:54:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & P1-2:A14:49:_CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON OAKH_JCT_K1-JCT	P6	N-1-1	<100	<100	<100	<100	101	<100	<100	<100	<100	<100	Generation re-dispatch
KINGS RIVER-SANGER-REEDLEY 115KV	P1-2:A14:64:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:63:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	<100	<100	142	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	P1-2:A14:64:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:63:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	100	<100	134	<100	<100	<100	<100	<100	<100	<100	Operating solution
	P1-2:A14:64:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:63:_SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY	P6	N-1-1	<100	<100	120	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
LAS AGUILAS SW STA-PANOCHE #2 230KV	P2-4:A13:2:_PANOCHE 230KV - SECTION 2E & 1E	P2	Bus/Breaker	23	NA	NA	NA	49	NA	104	57	NA	NA	Project: Manning project
LE GRAND-CHOWCHILLA 115KV	P2-4:A14:19:_HERNDON 115KV - SECTION 1D & 2D	P2	Bus/Breaker	27	24	31	33	105	46	19	102	20	29	Generation re-dispatch
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	31	NConv	NConv	47	26	48	21	NConv	21	NConv	Add redundant battery
	P5-5a:A14:2:_HERNDON #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	26	23	38	34	106	47	20	103	20	28	Add redundant relay
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	42	69	60	33	NConv	33	NConv	Add redundant battery
	P5-5c:A13:6:_Storey 230kV Batt #1(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	58	NA	NA	9	NA	NA	NA	105	Add redundant battery
	P5-5c:A14:21:_Sanger 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	27	23	33	33	75	75	125	68	125	35	Add redundant battery
	P5-5c:A14:5:_Herndon 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	33	22	39	33	100	35	26	97	27	21	Add redundant battery
	P1-2:A14:56:_KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & P1-2:A14:54:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890]	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	100	<100	Sensitivity only
	P7-1:A13:1:_WILSON-BORDEN 230KV #1 & #2 [9001]	P7	DCTL	47	59	56	64	41	9	96	41	97	104	Continue to monitor
	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115KV [1900]	P7	DCTL	28	23	33	33	76	75	125	68	125	35	Sensitivity only
LEPRINO SW STA-GWF HANFORD SW STA 115KV	P7-1:A14:28:_GWF-KINGSBURG 115KV [1743] & GWF-HENRIETTA 70KV [8774]	P7	DCTL	53	85	86	38	42	40	10	51	11	100	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Thermal Overloads

California ISO

				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
LOS BANOS-DOS AMIGOS 230KV	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	28	NA	NA	NA	28	NA	28	28	171	NA	Add redundant battery
LOS BANOS-PANOCHE #2 230KV	P2-2:A13:2:_LOSBANOS 230KV SECTION 2D	P2	Bus/Breaker	42	31	23	101	33	57	106	41	82	47	Generation re-dispatch
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	47	24	19	59	17	41	111	22	112	43	Add redundant relay
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	47	24	19	58	15	40	113	20	113	43	Add redundant battery
MANNING 230/500KV TB 1	P1-3:A13:53:_MANNING 500/230KV TB 2 & P1-2:A14:18:_MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Continue to monitor
MANNING 500/230KV TB 2	P1-3:A13:57:_MANNING 230/500KV TB 1 & P1-2:A14:18:_MUSTANG SW STA-MCCALL 230KV [4710]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	Continue to monitor
MCCALL-KINGSBURG #1 115KV	P1-2:A14:86:_MCCALL-KINGSBURG #2 115KV [2300] & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	103	<100	<100	<100	<100	<100	<100	Generation re-dispatch
	P1-2:A14:86:_MCCALL-KINGSBURG #2 115KV [2300] & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	122	<100	<100	<100	<100	<100	<100	Generation re-dispatch
	P1-2:A14:86:_MCCALL-KINGSBURG #2 115KV [2300] & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	103	<100	<100	<100	<100	<100	<100	Generation re-dispatch
MCCALL-KINGSBURG #2 115KV	P1-2:A14:83:_MCCALL-KINGSBURG #1 115KV [2290] MOAS OPENED ON KINGS J1_KINGS J2 & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	103	<100	<100	<100	<100	<100	<100	Generation re-dispatch
	P1-2:A14:80:_GWF-KINGSBURG 115KV [1743] & P1-2:A14:79:_MCCALL-KINGSBURG #1 115KV [2290] MOAS OPENED ON KINGS J1_KINGS J2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	116	Continue to monitor
MCCALL-REEDLEY 115KV	P5-5c:A14:21:_Sanger 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	78	76	97	50	47	12	46	47	46	102	Add redundant battery
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY & P1-1:A14:91:_KINGSRIVERPH 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Continue to monitor
	P5-5c:A14:21:_Sanger 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	98	92	122	72	66	17	62	67	62	130	Add redundant battery
MCSWAIN-MERCEDFALLS-EXCHEQUR 70KV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	151	NConv	NA	NA	Project: Manning project
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	150	NConv	NA	NA	Project: Manning project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	151	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	167	132	109	149	NConv	151	NConv	Add redundant battery
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	150	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	172	121	131	146	NConv	149	NConv	Add redundant battery
MENDOTA 115/70KV TB 5	P1-2:A13:61:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON ADERASLRICT_DAIRYLND & P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	<100	0	0	<100	<100	<100	<100	<100	<100	116	Continue to monitor
MENDOTA-ADAMSEAST-GIFFEN-HELM 70KV	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	39	NA	NA	NA	31	NA	115	43	NA	NA	Project: Manning project
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	29	NA	NA	NA	8	NA	115	33	NA	NA	Project: Manning project
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	26	NA	NA	NA	8	NA	116	33	NA	NA	Project: Manning project
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	35	NA	NA	NA	31	NA	124	42	NA	NA	Project: Manning project
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	24	NA	NA	NA	16	NA	139	28	NA	NA	Project: Manning project
	P1-2:A13:44:_LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON LE GRAND_ADERASLRICT & P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	110	<100	<100	<100	<100	<100	<100	<100	<100	<100	Project:Wilson Area reinforcement project
	P1-3:A14:32:_HELM 230/70KV TB 1 & P1-3:A14:40:_SCHINDLR 115/12.47KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	100	<100	<100	Generation re-dispatch
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	35	NA	NA	NA	15	NA	120	26	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	25	NA	NA	NA	5	NA	120	16	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	22	NA	NA	NA	5	NA	120	16	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	31	NA	NA	NA	15	NA	129	26	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	21	NA	NA	NA	2	NA	144	11	NA	NA	Project: Manning project
Merced 115/70 kV bank2	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	82	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	47	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	48	56	91	49	NConv	49	NConv	Add redundant battery
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	82	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	52	72	90	83	NConv	83	NConv	Add redundant battery
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	47	NConv	NA	NA	Project:Wilson Area reinforcement project
MERCED-MERCED FALLS 70KV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	154	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	154	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	152	137	108	152	NConv	154	NConv	Add redundant battery
MERCY SPRINGS SW STA-CANAL-ORO LOMA 70KV	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	127	46	48	15	29	17	76	29	76	40	Project: Losbanos area reinforcement project
	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	127	46	45	4	29	32	76	29	76	34	Project: Losbanos area reinforcement project
MOSS LANDING-LAS AGUILAS SW STA - 230 KV 230KV	P2-4:A13:1:_LOSBANOS 230KV - SECTION 1D & 2D	P2	Bus/Breaker	30	NA	NA	NA	48	NA	103	55	NA	NA	Project:Mosslanding-LasAguilas series reactor project
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	32	NA	NA	NA	37	NA	106	42	107	NA	Sensitivity only
	P5-5c:A13:1:_Los Banos 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	30	NA	NA	NA	48	NA	103	55	103	NA	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	32	NA	NA	NA	36	NA	107	40	108	NA	Sensitivity only
MUSTANG SW STA-GREGG 230KV	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	21	8	16	1	31	14	103	28	77	58	Sensitivity only
ORO LOMA-MENDOTA 70KV	P1-3:A13:38:_MENDOTA 115/70KV TB 5	P1	N-1	30	76	82	79	19	32	25	19	24	111	Continue to monitor
	P2-1:A13:46:_PANOCHE-MENDOTA 115KV [3230] (PANOCHET-PANOCHE1)	P2	Bus/Breaker	54	86	94	83	44	103	99	45	99	82	Generation re-dispatch
	P2-2:A13:24:_PANOCHE1 115KV SECTION 1D	P2	Bus/Breaker	47	81	89	86	38	105	100	39	99	77	Generation re-dispatch
	P2-3:A13:34:_PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	47	81	89	86	38	105	100	39	99	77	Generation re-dispatch
	P2-3:A13:35:_PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	47	81	89	86	38	105	100	39	99	77	Generation re-dispatch
	P2-3:A13:37:_MENDOTA 115KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	31	76	82	79	19	32	25	19	24	111	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	8	63	71	95	22	104	79	23	77	63	Generation re-dispatch
	P2-2:A13:24:_PANOCHE1 115KV SECTION 1D	P2	Bus/Breaker	28	39	41	105	11	88	99	11	99	44	Generation re-dispatch
	P2-3:A13:34:_PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	28	39	41	105	11	88	99	11	99	44	Generation re-dispatch
	P2-3:A13:35:_PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	28	39	41	105	11	88	99	11	99	44	Generation re-dispatch
	P2-3:A13:36:_PANOCHE1 - 1D 115KV & PANOCHE-MENDOTA LINE	P2	Bus/Breaker	28	39	41	103	11	86	99	11	99	44	Generation re-dispatch
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	55	39	8	112	35	88	86	36	85	52	Generation re-dispatch
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-1:A13:75:_CHWCHLLA1-25 25.00KV GEN UNIT V8	P3	G-1/N-1	<100	<100	<100	<100	<100	101	<100	<100	<100	<100	Generation re-dispatch
	P5-5c:A13:22:_Mendota 115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	82	NA	NA	32	NA	NA	NA	111	Sensitivity only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	27	67	76	100	20	118	88	18	69	64	Off-peak only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	20	25	31	103	6	84	76	3	63	28	Off-peak only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	35	39	3	117	22	97	91	24	79	51	Off-peak only
	P1-2:A13:60:_MENDOTA-NORTH STAR SOLAR 115KV [2113] & P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230]	P6	N-1-1	<100	<100	<100	101	<100	<100	<100	<100	<100	<100	Generation re-dispatch
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A13:43:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<100	<100	<100	<100	<100	126	<100	<100	<100	<100	Generation re-dispatch
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A13:43:_WILSON-LE GRAND 115KV [4170]	P6	N-1-1	<100	<100	<100	<100	<100	126	<100	<100	<100	<100	Generation re-dispatch
	P1-2:A13:57:_PANOCHE-MENDOTA 115KV [3230] & P1-2:A14:30:_GATES-MUSTANG SW STA #2 230KV [2605]	P6	N-1-1	<100	<100	<100	<100	<100	101	<100	<100	<100	<100	Generation re-dispatch
Panoche 230/115kV Bank 1	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	33	NA	NA	NA	48	NA	109	51	NA	NA	Project: Manning project
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	32	NA	NA	NA	47	NA	102	50	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	10	NA	NA	NA	8	NA	106	9	NA	NA	Project: Manning project
PANOCHE-EXCELSIOR SW STA #1 115KV	P1-2:A14:46:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-3:A14:41:_SCHINDLR 115/12.47KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	128	Continue to monitor
PANOCHE-EXCELSIOR SW STA #2 115KV	P2-1:A14:34:_PANOCHE-EXCELSIOR SW STA #1 115KV [3250] (KAMM_JCT-CANTUA_JCT)	P2	Bus/Breaker	34	42	42	102	66	102	86	66	61	91	Generation re-dispatch
	P2-2:A13:24:_PANOCHE1 115KV SECTION 1D	P2	Bus/Breaker	38	46	44	108	69	104	87	69	63	91	Generation re-dispatch
	P2-3:A13:34:_PANOCHE1 - 1D 115KV & PANOCHE-CAL PEAK-STARWOOD LINE	P2	Bus/Breaker	38	46	44	108	69	104	87	69	63	91	Generation re-dispatch
	P2-3:A13:35:_PANOCHE1 - 1D 115KV & PANOCHE-EXCELSIOR SW STA #1 LINE	P2	Bus/Breaker	38	46	44	108	69	104	87	69	63	91	Generation re-dispatch
	P2-3:A13:36:_PANOCHE1 - 1D 115KV & PANOCHE-MENDOTA LINE	P2	Bus/Breaker	38	46	44	108	69	104	87	69	63	91	Generation re-dispatch
	P2-3:A14:59:_EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	56	55	53	93	50	88	86	50	59	157	Continue to monitor
	P2-3:A14:59:_EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	8	5	7	61	2	46	57	2	57	124	Continue to monitor
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	38	45	42	93	57	102	81	57	57	67	Off-peak only
	P1-3:A14:14:_GATES D 230/70KV TB 5 & P1-2:A14:51:_PANOCHE-EXCELSIOR SW STA #1 115KV [3250] MOAS OPENED ON PANOCHE1_KAMM_JCT	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	Sensitivity only
	P1-2:A14:47:_PANOCHE-EXCELSIOR SW STA #1 115KV [3250] MOAS OPENED ON PANOCHE1_KAMM_JCT & P1-3:A14:41:_SCHINDLR 115/12.47KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	121	Continue to monitor
	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	25	NA	NA	NA	15	NA	104	13	NA	NA	Project: Manning project

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Thermal Overloads

California ISO

				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
PANOCHE-MENDOTA 115KV	P2-4:A13:5:_PANOCHE 230KV - SECTION 1D & 2D	P2	Bus/Breaker	26	NA	NA	NA	15	NA	105	13	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	26	NA	NA	NA	25	NA	105	23	NA	NA	Project: Manning project
	P7-1:A13:6:_PANOCHE-TRANQLTYSS #1 230KV [0] & PANOCHE-TRANQLTYSS #2 230KV [0]	P7	DCTL	26	NA	NA	NA	25	NA	106	23	NA	NA	Project: Manning project
PANOCHE-TRANQUILLITY SW STA #1 230KV	P1-2:A13:16:_PANOCHE-TRANQUILLITY SW STA #2 230KV [5481] & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	102	<100	<100	<100	Sensitivity only
PANOCHE-TRANQUILLITY SW STA #2 230KV	P1-2:A13:15:_PANOCHE-TRANQUILLITY SW STA #1 230KV [5000] & P1-2:A14:28:_HENRIETTA_E-HENRIETTA_F #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	102	<100	<100	<100	Sensitivity only
Q1378-LOS BANS #1 70KV	P2-4:A14:33:_HELMS PP2 SECTION 1E & HELMS PP3 SECTION 1F 230KV	P2	Bus/Breaker	84	100	102	68	73	35	40	78	58	102	Continue to monitor
	P5-5c:A13:1:_Los Banos 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0	97	101	68	0	35	0	0	0	100	Add redundant battery
	P5-5c:A13:5:_Tranquillity SW STA 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	82	97	99	68	76	35	38	80	55	102	Sensitivity only
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	84	100	102	68	73	35	40	78	58	102	Add redundant battery
	P7-1:A14:8:_HELMS-GREGG #1 230KV [4870] & HELMS-GREGG #2 230KV [4880]	P7	DCTL	84	100	102	68	73	35	40	78	58	102	Continue to monitor
RIOBRVOFSNO-MALAGA-MC CALL 115KV	P2-2:A14:32:_MALAGA 115KV SECTION 1F	P2	Bus/Breaker	62	105	94	49	66	60	22	76	22	90	Generation re-dispatch
	P2-4:A14:11:_MALAGA 115KV - SECTION 1F & 1E	P2	Bus/Breaker	74	117	106	67	71	61	29	80	29	102	Generation re-dispatch
SANGER-CALIFORNIA AVE 115KV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	95	101	103	62	30	12	67	30	67	113	Add redundant relay
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0	103	NConv	62	31	13	0	31	67	116	Add redundant battery
	P1-2:A14:72:_MCCALL-WEST FRESNO #2 115KV [2370] & P1-2:A14:66:_CALIFORNIA AVE-MCCALL 115KV [2360]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Continue to monitor
	P7-1:A14:11:_CALIFORNIA AVE-MCCALL 115KV [2360] & MCCALL-WEST FRESNO #2 115KV [2370]	P7	DCTL	86	93	91	63	29	6	63	29	63	106	Continue to monitor
SANGER-REEDLEY 115KV	P1-2:A14:64:_MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & P1-2:A14:61:_KINGS RIVER-SANGER-REEDLEY 115KV [2030]	P6	N-1-1	<100	<100	111	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
SCHINDLER-COALINGA #2 70KV	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	51	43	45	40	24	42	82	25	82	121	Continue to monitor
	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	54	43	38	34	7	41	106	6	106	99	Sensitivity only
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	57	54	48	83	37	83	128	38	117	126	Continue to monitor
	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	53	45	47	18	24	14	52	25	49	126	Continue to monitor
	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	55	43	38	3	7	3	75	5	73	101	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	57	54	50	57	38	53	96	38	82	128	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	30	27	21	58	10	57	102	11	90	99	Sensitivity only
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	53	39	40	24	8	45	45	9	45	107	Sensitivity only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	37	30	23	63	20	62	184	21	144	114	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	119	90	82	7	42	37	108	49	109	196	Project:Gates additional bank project
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	55	38	40	54	4	69	19	7	18	107	Sensitivity only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	38	28	23	38	17	30	152	20	111	116	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	119	91	83	35	43	58	77	50	75	193	Project:Gates additional bank project
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	10	1	7	38	17	34	158	12	119	87	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	92	64	54	28	2	56	82	25	83	165	Sensitivity only
	P1-2:A14:50:_PANOCHE-EXCELSIOR SW STA #2 115KV [3260] & P1-2:A14:51:_PANOCHE-EXCELSIOR SW STA #1 115KV [3250] MOAS OPENED ON PANOCHE1_KAMM_JCT	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	Generation re-dispatch
	P1-2:A14:4:_TRANQUILLITY SW STA-HELM 230KV [5370] & P1-2:A14:17:_HELM-MCCALL 230KV [4860]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	Continue to monitor
	P7-1:A13:14:_EXCELSIORSS-PANOCHE1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	35	29	23	58	13	58	104	14	107	113	Continue to monitor
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	37	31	25	66	21	65	111	21	112	112	Continue to monitor
	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	54	44	39	35	8	41	107	6	107	101	Continue to monitor
	P7-1:A13:14:_EXCELSIORSS-PANOCHE1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	35	28	24	34	14	27	73	14	73	115	Continue to monitor
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	37	29	26	40	19	34	79	20	78	114	Continue to monitor
	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	55	44	39	4	8	3	76	6	74	103	Continue to monitor
SCHINDLER-FIVE POINTS SW STA 70KV	P2-2:A14:13:_HELM 230KV SECTION 1D	P2	Bus/Breaker	38	32	35	9	6	5	37	6	37	124	Continue to monitor
	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	43	44	39	56	23	52	96	23	81	125	Continue to monitor
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	32	18	24	81	28	107	25	27	24	79	Off-peak only
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	19	10	7	30	39	16	167	10	117	109	Sensitivity only
	P1-3:A13:59:_PANOCHE1 115/230KV TB 1 & P1-3:A13:6:_PANOCHE 230/115KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	Continue to monitor
	P7-1:A13:14:_EXCELSIORSS-PANOCHE1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	15	10	8	18	12	18	65	12	68	108	Continue to monitor
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	18	12	10	34	8	28	73	8	75	106	Continue to monitor
SCHINDLR 115/12.47KV TB 2	P2-4:A13:13:_PANOCHE1 SECTION 1D & PANOCHE2 SECTION 2D 115KV	P2	Bus/Breaker	51	45	46	106	64	128	110	64	81	158	Continue to monitor
	P5-5c:A13:4:_Panoche 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	11	9	17	72	12	87	80	12	80	129	Sensitivity only
	P1-3:A13:5:_PANOCHE 230/115KV TB 1 & P1-3:A13:6:_PANOCHE 230/115KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	100	<100	<100	<100	Generation re-dispatch
	P7-1:A13:14:_EXCELSIORSS-PANOCHE1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	11	13	19	58	2	72	71	2	71	130	Continue to monitor
	P7-1:A14:10:_PANOCHE-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHE2 115KV [3231]	P7	DCTL	10	9	17	72	12	87	83	12	82	128	Continue to monitor
TIVY VALLEY-REEDLEY 70KV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	92	99	130	38	5	19	71	5	71	185	Continue to monitor
	P2-3:A14:1:_GREGG 230KV - MIDDLE BREAKER BAY 1	P2	Bus/Breaker	62	82	67	106	22	13	72	25	73	76	Generation re-dispatch
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY & P1-1:A14:98:_CHV.COAL 9.11KV GEN UNIT 2	P3	G-1/N-1	<100	<100	130	<100	<100	<100	<100	<100	<100	<100	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	126	NA	NA	19	NA	NA	NA	185	Add redundant battery
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	29	52	33	101	38	17	51	41	52	51	Off-peak only
	P1-2:A14:14:_BORDEN-GREGG #2 230KV [4400] & P1-2:A14:13:_BORDEN-GREGG #1 230KV [1082]	P6	N-1-1	<100	<100	<100	105	<100	<100	<100	<100	<100	<100	Generation re-dispatch
	P7-1:A13:13:_BORDEN-GREGG 230KV #1 & #2 [4400]	P7	DCTL	62	82	67	106	22	13	72	25	73	76	Generation re-dispatch
TRANQUILLITY SW STA-KEARNEY 230KV	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	9	20	19	22	27	35	56	27	54	113	Continue to monitor
	P2-4:A14:2:_HERNDON 230KV - SECTION 1E & 1D	P2	Bus/Breaker	10	11	15	1	4	4	2	4	2	100	Continue to monitor
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0	17	16	19	23	35	49	23	48	106	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0	19	17	21	23	35	51	23	50	109	Sensitivity only
	P5-5c:A14:5:_Herndon 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	10	11	15	1	4	4	2	4	2	100	Sensitivity only
	P1-2:A14:22:_GATES-MUSTANG SW STA #2 230KV [2605] & P1-2:A14:21:_GATES-MUSTANG SW STA #1 230KV [2604]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	Continue to monitor
	P7-1:A14:22:_HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900]	P7	DCTL	10	11	15	1	4	4	2	4	2	100	Continue to monitor
	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	9	18	16	19	25	34	52	25	50	107	Continue to monitor
Warnerville-HW_Tap 11kV	P7-1:A13:19:_COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	72	41	47	56	54	59	101	57	104	56	Sensitivity only
	P7-1:A13:5:_BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	70	39	46	56	53	59	100	56	103	55	Sensitivity only
Warnerville-Standiford line 7 115 kV	P7-1:A13:19:_COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	70	37	44	53	52	56	99	55	101	53	Sensitivity only
	P7-1:A13:5:_BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380]	P7	DCTL	67	36	42	53	51	56	98	54	101	51	Sensitivity only
WARNERVILLE-WILSON 230KV	P2-2:A14:2:_HELMS PP2 230KV SECTION 1E	P2	Bus/Breaker	37	24	3	51	27	100	26	33	26	20	Generation re-dispatch
	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	26	29	46	70	12	106	81	7	81	68	Generation re-dispatch
	P2-4:A14:32:_HELMS PP1 SECTION 1D & HELMS PP2 SECTION 1E 230KV	P2	Bus/Breaker	37	24	3	51	27	100	26	33	26	20	Generation re-dispatch
	P1-2:A14:21:_HERNDON-KEARNEY 230KV [4900] & P1-1:A14:124:_GREGG 2-25 25.00KV GEN UNIT VP	P3	G-1/N-1	<100	<100	<100	<100	<100	100	<100	<100	<100	<100	Generation re-dispatch
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	33	27	44	67	16	105	89	10	89	67	Off-peak only
	P5-5c:A13:5:_Tranquillity SW STA 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	6	15	34	61	9	104	54	12	54	47	Off-peak only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	33	27	44	66	17	105	90	11	90	67	Off-peak only
	P1-3:A14:16:_HELMS PP2 230/18KV TB 1 & P1-2:A14:25:_HELM-MCCALL 230KV [4860]	P6	N-1-1	<100	<100	<100	<100	<100	103	<100	<100	<100	<100	Generation re-dispatch
	P7-1:A14:15:_HELM-MCCALL 230KV [4860] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	6	17	34	63	7	105	56	10	55	45	Generation re-dispatch
	P7-1:A14:23:_TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0]	P7	DCTL	7	18	34	63	8	104	56	11	55	47	Generation re-dispatch
	P7-1:A14:3:_MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0]	P7	DCTL	26	27	44	68	10	105	80	7	79	65	Generation re-dispatch
WILSON-ATWATER #2 115KV	P1-2:A13:41:_ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & P1-2:A13:51:_EL CAPITAN-WILSON 115KV [1510]	P6	N-1-1	<100	104	126	<100	<100	<100	<100	<100	<100	136	Operating solution

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Thermal Overloads

				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
WILSON-BORDEN #1 230KV	P2-3:A14:18:_MUSTANGSS 230KV - MIDDLE BREAKER BAY 2	P2	Bus/Breaker	39	51	39	78	25	45	97	19	97	102	Continue to monitor
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	42	48	35	75	25	44	100	20	101	95	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	42	48	36	75	26	44	101	20	102	96	Sensitivity only
	P5-5a:A14:1:_GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	51	33	13	38	21	11	103	16	103	28	Sensitivity only
	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	51	33	13	38	22	11	104	17	105	28	Sensitivity only
WILSON-MERCED #1 115KV	P1-2:A13:52:_WILSON-MERCED #2 115KV [4190] & P1-1:A13:51:_EXCHQUER 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	101	Continue to monitor
	P1-2:A13:52:_WILSON-MERCED #2 115KV [4190] & P1-2:A13:38:_ATWATER-EL CAPITAN 115KV [1020]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	102	Continue to monitor
	P7-1:A13:10:_ATWATER-EL CAPITAN 115KV [1020] & WILSON-ATWATER #2 115KV [4160]	P7	DCTL	64	70	84	22	17	28	29	17	29	101	Continue to monitor
	P7-1:A13:12:_EL CAPITAN-WILSON 115KV [1510] & WILSON-ATWATER #2 115KV [4160]	P7	DCTL	63	70	84	37	28	36	44	28	19	101	Continue to monitor
WILSON-MERCED #2 115KV	P1-2:A13:50:_WILSON-MERCED #1 115KV [4180] & P1-1:A13:51:_EXCHQUER 13.80KV GEN UNIT 1	P3	G-1/N-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	104	Continue to monitor
WOODWARD-SHEPHERD 115KV	P7-1:A14:25:_HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	20	13	17	34	102	80	20	99	20	36	Generation re-dispatch
	P7-1:A14:7:_BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180]	P7	DCTL	20	23	19	40	108	75	18	105	18	22	Generation re-dispatch

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
ANGIOLA 70 kV	CORCORAN 115KV [8773]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Continue to monitor
ARBURUA 70 kV	CANAL 70KV [8940]	P3	N-1/G-1	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project:Losbanos 70 kV area reinforcement project
ASHLAN 230kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Battery/Relay	0.94	0.91	0.83	1.06	1.06	1.08	1.00	1.06	1.00	0.92	Continue to monitor
ATWATER 115kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Battery/Relay	NConv	NConv	NConv	0.42	0.40	1.13	0.32	NConv	0.33	NConv	Add redundant battery
AUBERRY 70 kV	70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.56	Continue to monitor
	70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.54	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.50	Continue to monitor
	BORDEN_CASSIDY	P1	N-1	0.99	1.00	0.79	1.03	1.02	1.05	1.02	1.02	1.02	0.56	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Battery/Relay	NA	NA	0.81	NA	NA	1.05	NA	NA	NA	0.56	Continue to monitor
AUBRYTP 70kV	BORDEN_CASSIDY	P1	N-1	1.00	1.00	0.80	1.03	1.02	1.05	1.02	1.02	1.02	0.58	Continue to monitor
BARTON 115kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.89	1.05	1.08	1.08	1.02	1.08	1.02	0.96	Continue to monitor
BER VLLY 70 kV	P1-1:A13:53:_MCSWAIN 4.16KV GEN UNIT 1 & P1-2:A13:42:_EXCHEQUER-LE GRAND 115KV [1560]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Continue to monitor
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.73	0.82	1.00	0.92	NConv	0.91	NConv	Add redundant battery
BOSWELL 70 kV	P1-1:A14:91:_KINGSRIVERPH 13.80KV GEN UNIT 1 & P1-2:A14:89:_WAUKENA SW STA-CORCORAN 115KV [8773]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Continue to monitor
BULLARD 115kV	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	0.96	0.95	0.91	1.06	1.03	1.06	0.99	1.03	0.99	0.90	Continue to monitor
	P2-3:A14:66:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	0.96	0.95	0.91	1.06	1.03	1.06	0.99	1.03	0.99	0.90	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.94	0.84	1.07	1.08	1.10	1.01	1.08	1.01	0.94	Continue to monitor
CAL AVE 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.88	0.90	0.88	1.06	1.02	1.05	0.94	1.02	0.94	0.93	Add redundant relay
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	0.88	NConv	1.06	NA	1.05	NA	NA	0.93	0.90	Add redundant battery
CANAL 70 kV	P1-1:A13:43:_VEGA 0.36KV GEN UNIT 1 & P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	N-1/G-1	0.84	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project:Losbanos 70 kV area reinforcement project
	P1-1:A13:46:_WRIGHT D 12.47KV GEN UNIT QF & P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	N-1/G-1	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project:Losbanos 70 kV area reinforcement project
	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	0.87	0.98	0.98	1.01	0.98	1.03	0.94	0.98	0.94	0.97	Project: Losbanos area reinforcement project
CASSIDY 70 kV	P1-1:A13:26:_TRNQ8VRDSPV 0.55KV GEN UNIT 4 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.57	Continue to monitor
	P1-1:A14:93:_FRIANTDAM 6.60KV GEN UNIT 2 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.55	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.51	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	1.00	1.01	0.80	1.03	1.02	1.05	1.02	1.02	1.02	0.57	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.83	NA	NA	1.05	NA	NA	NA	0.57	Continue to monitor
CHEVPLIN 70 kV	P1-1:A14:29:_AVENALSPV2 0.38KV GEN UNIT 2 & P1-2:A14:134:_ARCO-TULARE LAKE 70KV [8460]	P3	N-1/G-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
	P1-1:A14:30:_AVENALSPV1 0.38KV GEN UNIT 1 & P1-2:A14:134:_ARCO-TULARE LAKE 70KV [8460]	P3	N-1/G-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
CHLDHOSP 115kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.96	0.88	1.07	1.08	1.09	1.01	1.08	1.01	0.96	Continue to monitor
CHWCHLLA 115 kV	P1-1:A13:75:_CHWCHLLA1-25 25.00KV GEN UNIT V8 & P1-2:A13:36:_LE GRAND-CHOWCHILLA 115KV [2110]	P3	N-1/G-1	>0.9	>0.9	0.87	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Continue to monitor
CLOVIS-1 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.94	0.89	1.06	1.03	1.06	0.97	1.03	0.97	0.94	Continue to monitor
CLOVIS-2 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.91	0.93	0.88	1.06	1.03	1.05	0.97	1.03	0.97	0.93	Continue to monitor
COLNGA 1 70kV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	1.00	0.99	1.02	1.03	1.02	0.99	1.03	0.99	0.89	Sensitivity only
COLNGA 2 70kV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	1.01	1.00	1.02	1.03	1.03	1.00	1.03	1.00	0.89	Sensitivity only
COPPRMNE 70 kV	P1-1:A13:26:_TRNQ8VRDSPV 0.55KV GEN UNIT 4 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.64	Continue to monitor
	P1-1:A14:91:_KINGSRIVERPH 13.80KV GEN UNIT 1 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.63	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	1.02	1.02	0.85	1.04	1.03	1.05	1.03	1.03	1.03	0.64	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.87	NA	NA	1.05	NA	NA	NA	0.64	Continue to monitor
CORCORAN 115 kV	P1-1:A14:91:_KINGSRIVERPH 13.80KV GEN UNIT 1 & P1-2:A14:89:_WAUKENA SW STA-CORCORAN 115KV [8773]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Continue to monitor
	P1-1:A14:91:_KINGSRIVERPH 13.80KV GEN UNIT 1 & P1-2:A14:89:_WAUKENA SW STA-CORCORAN 115KV [8773]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Continue to monitor
CRESSEY 115kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.42	0.40	1.13	0.32	NConv	0.32	NConv	Add redundant battery
DERRICK 70kV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	1.02	1.00	1.03	1.04	1.03	1.00	1.03	1.00	0.89	Sensitivity only
DINUBA 70kV	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.99	NConv	1.04	1.04	1.04	1.03	1.03	1.00	0.90	Continue to monitor
DUNLAP 70kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.99	0.88	1.03	1.02	1.04	1.00	1.02	1.00	0.92	Continue to monitor
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	NConv	1.03	1.03	1.04	1.01	1.03	0.99	0.87	Continue to monitor
EL CAPTN 115kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.30	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.30	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.42	0.40	1.13	0.31	NConv	0.33	NConv	Add redundant battery
ELNIDOBM 70kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.59	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.59	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.46	0.55	1.10	0.60	NConv	0.59	NConv	Add redundant battery
EXCHEQUR 115kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.82	0.87	1.03	0.98	NConv	0.98	NConv	Add redundant battery
EXCHEQUR 70kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.77	0.82	1.00	0.92	NConv	0.92	NConv	Add redundant battery
FIGRDN 1 230kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.91	0.83	1.05	1.06	1.08	1.00	1.06	1.00	0.92	Continue to monitor
FIGRDN 2 230kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.93	0.90	0.83	1.05	1.06	1.08	1.00	1.06	1.00	0.92	Continue to monitor
FIREBAGH 70 kV	P1-1:A13:62:_CALRENEW 12.50KV GEN UNIT 1 & P1-3:A13:38:_MENDOTA 115/70KV TB 5	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Continue to monitor
FRIANTDAM 70kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	1.02	1.03	0.87	1.04	1.03	1.04	1.03	1.03	1.03	0.67	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.90	NA	NA	1.04	NA	NA	NA	0.67	Continue to monitor
GALLO 115kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.42	0.40	1.13	0.32	NConv	0.32	NConv	Add redundant battery
HERNDON 115kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.96	0.87	1.07	1.08	1.09	1.02	1.08	1.02	0.97	Continue to monitor
HERNDON 230kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.96	0.92	0.86	1.01	1.03	1.04	0.99	1.03	0.99	0.92	Continue to monitor
HERNDON 230kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.91	0.83	1.04	1.05	1.07	0.99	1.05	0.99	0.92	Continue to monitor
INDN FLT 70 kV	P1-1:A13:51:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:42:_EXCHEQUER-LE GRAND 115KV [1560]	P3	N-1/G-1	>0.9	>0.9	>0.9	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Off-peak only
	P1-1:A13:53:_MCSWAIN 4.16KV GEN UNIT 1 & P1-2:A13:42:_EXCHEQUER-LE GRAND 115KV [1560]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
	P2-2:A13:13:_EXCHEQUR 115KV SECTION 1D	P2	Bus/Breaker	0.95	0.94	0.95	0.85	1.01	1.03	0.98	1.01	0.98	0.93	Off-peak only
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.64	0.81	0.99	0.91	NConv	0.91	NConv	Add redundant battery
KEARNEY 230kV	P2-4:A14:1:_HERNDON 230KV - SECTION 1E & 2E	P2	Bus/Breaker	0.97	0.94	0.88	1.01	1.03	1.03	0.99	1.03	0.99	0.96	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.92	0.85	1.03	1.04	1.06	1.00	1.04	1.00	0.96	Continue to monitor
KINGSRIVERPH 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	0.96	0.90	1.06	1.04	1.06	0.99	1.04	0.99	0.95	Continue to monitor
LASPALMS 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.94	0.89	1.05	1.02	1.06	0.97	1.02	0.97	0.94	Continue to monitor
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
LIVNGSTN 115kV	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.31	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.42	0.41	1.13	0.32	NConv	0.32	NConv	Add redundant battery
MANCHSTR 115kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.88	1.06	1.08	1.09	1.02	1.08	1.02	0.96	Continue to monitor
MARIPOS2 70kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.77	0.82	1.00	0.92	NConv	0.92	NConv	Add redundant battery
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.84	NConv	NA	NA	Project:Wilson Area reinforcement project
MCSWAIN 70kV	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.84	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.68	0.76	1.03	0.85	NConv	0.84	NConv	Add redundant battery
MCSWAINJ 70kV	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.84	NConv	NA	NA	Project:Wilson Area reinforcement project
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.33	NConv	NA	NA	Project:Wilson Area reinforcement project
MERCED 115kV	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.34	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.43	0.41	1.12	0.34	NConv	0.34	NConv	Add redundant battery
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.58	NConv	NA	NA	Project:Wilson Area reinforcement project
MERCED 70kV	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.58	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.46	0.53	1.10	0.58	NConv	0.58	NConv	Add redundant battery
	P2-4:A13:12:_WILSON A SECTION 1D & WILSON B SECTION 2D 115KV	P2	Bus/Breaker	NConv	NA	NA	NA	NConv	NA	0.84	NConv	NA	NA	Project:Wilson Area reinforcement project
MERCEDFALLS 70kV	P5-5a:A13:1:_WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NConv	NA	0.84	NConv	NA	NA	Project:Wilson Area reinforcement project
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.68	0.75	1.03	0.84	NConv	0.84	NConv	Add redundant battery
NRTHFORK 70kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	0.98	0.99	0.78	1.03	1.01	1.05	1.01	1.01	1.01	0.54	continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.80	NA	NA	1.05	NA	NA	NA	0.54	Continue to monitor
OAKHURST 115 kV	P1-1:A13:75:_CHWCHLLA1-25 25.00KV GEN UNIT V8 & P1-2:A13:36:_LE GRAND-CHOWCHILLA 115KV [2110]	P3	N-1/G-1	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Continue to monitor
	Base Case	P0	Base case	0.95	0.95	0.95	1.02	1.05	1.05	0.96	1.05	0.96	0.94	Continue to monitor
OIL CITY 70kV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	1.01	1.00	1.03	1.03	1.03	1.00	1.03	1.00	0.89	Sensitivity only
OROSI 70kV	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.00	0.99	NConv	1.04	1.04	1.04	1.03	1.04	1.01	0.89	Continue to monitor
ORTIGA 70 kV	P1-1:A13:43:_VEGA 0.36KV GEN UNIT 1 & P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	N-1/G-1	0.86	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project:Losbanos 70 kV area reinforcement project
	P1-1:A13:46:_WRIGHT D 12.47KV GEN UNIT QF & P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P3	N-1/G-1	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Project:Losbanos 70 kV area reinforcement project
	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	0.90	1.00	0.99	1.00	0.99	1.02	0.95	0.99	0.95	1.00	Project: Losbanos area reinforcement project
PARLIER 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.93	0.87	1.05	1.03	1.06	0.97	1.03	0.97	0.92	Continue to monitor
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.91	NConv	1.06	1.05	1.06	0.98	1.05	0.96	0.88	Continue to monitor
PENNZIER 70kV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	1.01	1.00	1.03	1.03	1.03	1.00	1.03	1.00	0.89	Sensitivity only
PIEDRA 1 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.94	0.88	1.05	1.03	1.06	0.97	1.03	0.97	0.92	Continue to monitor
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.96	0.92	NConv	1.06	1.05	1.06	0.99	1.05	0.96	0.88	Continue to monitor
PIEDRA 2 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.95	0.90	1.06	1.03	1.05	0.98	1.03	0.98	0.95	Continue to monitor
PNEDLE 115kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.94	0.84	1.07	1.08	1.10	1.01	1.08	1.01	0.94	Continue to monitor
	P2-2:A14:47:_HERNDON 115KV SECTION 2D	P2	Bus/Breaker	0.96	0.95	0.91	1.06	1.03	1.06	0.98	1.03	0.98	0.89	Continue to monitor
PNEDLE2 115kV	P2-3:A14:66:_HERNDON - 2D 115KV & HERNDON-WOODWARD LINE	P2	Bus/Breaker	0.96	0.95	0.91	1.06	1.03	1.06	0.98	1.03	0.98	0.89	Continue to monitor
	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.95	0.94	0.85	1.07	1.08	1.10	1.01	1.08	1.01	0.94	Continue to monitor
RAINBW 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.94	0.88	1.05	1.03	1.05	0.97	1.03	0.97	0.93	Continue to monitor
REEDLEY 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.91	0.93	0.85	1.05	1.04	1.07	0.96	1.04	0.96	0.90	Continue to monitor
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.91	NConv	1.06	1.05	1.07	0.98	1.05	0.95	0.85	Continue to monitor
RIVERROC 70 kV	P1-1:A13:26:_TRNQ8VRDSPV 0.55KV GEN UNIT 4 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.60	Continue to monitor
	P1-1:A13:29:_LILBEAR4SPV 34.50KV GEN UNIT 1 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.60	Continue to monitor
	P1-1:A14:93:_FRIANTDAM 6.60KV GEN UNIT 2 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.58	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.54	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	NA	NA	0.83	NA	NA	1.05	NA	NA	NA	0.60	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.85	NA	NA	1.05	NA	NA	NA	0.60	Continue to monitor
SANDCRK 70kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.94	1.00	0.89	1.03	1.02	1.04	1.01	1.02	1.01	0.93	Continue to monitor
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	0.97	NConv	1.03	1.03	1.04	1.02	1.03	0.99	0.88	Continue to monitor
SANGER 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.92	0.94	0.89	1.05	1.03	1.05	0.97	1.03	0.97	0.94	Continue to monitor
SANGERCGN 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.93	0.94	0.89	1.05	1.03	1.05	0.97	1.03	0.97	0.94	Continue to monitor
SAXONCRK 70kV	P2-2:A13:13:_EXCHEQUR 115KV SECTION 1D	P2	Bus/Breaker	0.96	0.94	0.96	0.89	1.02	1.04	0.98	1.02	0.98	0.94	Off-peak only
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.69	0.82	1.00	0.91	NConv	0.91	NConv	Add redundant battery
SHARON 115 kV	P1-1:A13:75:_CHWCHLLA1-25 25.00KV GEN UNIT V8 & P1-2:A13:36:_LE GRAND-CHOWCHILLA 115KV [2110]	P3	N-1/G-1	>0.9	>0.9	0.88	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.88	Continue to monitor
SJNO2 70 kV	P1-1:A13:26:_TRNQ8VRDSPV 0.55KV GEN UNIT 4 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.55	Continue to monitor
	P1-1:A14:93:_FRIANTDAM 6.60KV GEN UNIT 2 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.53	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.49	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	0.99	0.99	0.78	1.03	1.01	1.05	1.01	1.01	1.01	0.55	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.81	NA	NA	1.05	NA	NA	NA	0.55	Continue to monitor
SJNO3 70 kV	P1-1:A13:26:_TRNQ8VRDSPV 0.55KV GEN UNIT 4 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.53	Continue to monitor
	P1-1:A14:93:_FRIANTDAM 6.60KV GEN UNIT 2 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.52	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.48	Continue to monitor
	Base Case	P0	Base case	1.01	1.00	0.96	1.02	1.04	1.07	1.03	1.04	1.03	0.95	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	0.98	0.98	0.77	1.02	1.01	1.05	1.01	1.01	1.01	0.53	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.80	NA	NA	1.05	NA	NA	NA	0.54	Continue to monitor
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	1.01	0.99	NConv	1.01	1.05	1.07	1.01	1.05	1.00	0.89	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
STONCRRL 70kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.96	1.01	0.89	1.03	1.02	1.04	1.02	1.02	1.02	0.94	Continue to monitor
STONCRRL 70kV	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.99	0.98	NConv	1.03	1.03	1.04	1.03	1.03	1.00	0.88	Continue to monitor
TOMATAK 70 kV	P1-1:A13:62:_CALRENEW 12.50KV GEN UNIT 1 & P1-3:A13:38:_MENDOTA 11S/70KV TB 5	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.90	Continue to monitor
TORNADO 70kV	P5-5c:A14:14:_Gates 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.98	1.00	0.99	1.02	1.03	1.03	0.99	1.03	0.99	0.88	Sensitivity only
TVY VLLY 70 kV	P1-1:A14:102:_KINGSBUR 13.80KV & SANGERCGN 13.80KV & KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.83	Continue to monitor
	P1-1:A14:93:_FRIANTDAM 6.60KV GEN UNIT 2 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.82	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.80	Continue to monitor
	P1-1:A14:94:_FRIANTDAM 6.60KV GEN UNIT 3 & P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P3	N-1/G-1	>0.9	>0.9	0.85	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.81	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	1.04	1.02	0.93	1.03	1.04	1.04	1.06	1.03	1.06	0.83	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.95	NA	NA	1.04	NA	NA	NA	0.84	Sensitivity only
WAHTOKE 115kV	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.94	0.90	NConv	1.06	1.05	1.07	0.97	1.05	0.95	0.84	Continue to monitor
WILSON 230kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	NA	NA	NA	NA	NConv	0.32	NConv	Add redundant battery
WILSON A 115kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	NA	NA	NA	NA	NConv	0.33	NConv	Add redundant battery
WILSON B 115kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	NA	NA	NA	NConv	0.33	NA	Project:Wilson Area reinforcement project
WILSONRCTR 230kV	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	NA	NA	NA	NA	NConv	0.32	NConv	Add redundant battery
WISHON 70kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	1.00	1.00	0.80	1.03	1.02	1.05	1.02	1.02	1.02	0.57	Continue to monitor
	P5-5c:A13:8:_Borden 230-70kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	NA	0.82	NA	NA	1.05	NA	NA	NA	0.57	Continue to monitor
WOODWARD 115kV	P5-5c:A14:2:_Gregg 230kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	0.97	0.96	0.89	1.06	1.08	1.09	1.02	1.08	1.02	0.96	Continue to monitor
WST FRSO 115kV	P5-5a:A14:3:_MCCALL #1 & 2 115KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundant Battery/Relay	0.87	0.88	0.88	1.06	1.02	1.03	0.93	1.02	0.93	0.93	Add redundant relay
	P5-5c:A14:10:_Mccall 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NA	0.87	NConv	1.06	NA	1.03	NA	NA	0.92	0.90	Add redundant battery
YOSEMITE 70 kV	P1-1:A13:51:_EXCHQUER 13.80KV GEN UNIT 1 & P1-2:A13:1:_FINKSWSTA-WESTLEY #1 230KV [0]	P3	N-1/G-1	>0.9	>0.9	>0.9	0.90	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	Off-peak only
	P1-1:A13:53:_MCSWAIN 4.16KV GEN UNIT 1 & P1-2:A13:42:_EXCHEQUER-LE GRAND 115KV [1560]	P3	N-1/G-1	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.87	Continue to monitor
	& P1-3:A13:31:_EXCHEQUR 70/115KV TB 1	P3	N-1/G-1	>0.9	>0.9	>0.9	0.83	>0.9	>0.9	>0.9	>0.9	>0.9	0.89	Off-peak only
	P2-2:A13:13:_EXCHEQUR 115KV SECTION 1D	P2	Bus/Breaker	0.95	0.93	0.95	0.85	1.01	1.03	0.98	1.01	0.98	0.92	Off-peak only
	P5-5c:A13:2:_Wilson 230-115kV Batt(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NConv	NConv	0.64	0.81	0.99	0.91	NConv	0.90	NConv	Add redundant battery

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Voltage Deviation

California ISO

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
AUBERRY 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	19	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	40	Continue to monitor
AUBRYTP 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	18	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	40	Continue to monitor
CANAL 70 kV	P1-2:A13:69:_LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940]	P1	N-1	9	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	NA	Project: Losbanos 70 kV area reinforcement project
CASSIDY 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	21	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	44	Continue to monitor
COPPRMNE 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	17	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	38	Continue to monitor
FRIANTDAM 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	15	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	36	Continue to monitor
NRTHFORK 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	19	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	41	Continue to monitor
RIVERROC 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	19	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	41	Continue to monitor
RVRRCK T 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	19	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	41	Continue to monitor
SJNO2 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	19	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	41	Continue to monitor
SJNO3 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	19	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	41	Continue to monitor
TVY VLLY 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	19	Continue to monitor
WISHON 70 kV	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	18	<8%	<8%	<8%	<8%	<8%	<8%	NA	Continue to monitor
	P1-2:A13:81:_BORDEN-COPPERMINE 70KV [8500] MOAS OPENED ON BORDEN_CASSIDY	P1	N-1	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	<8%	40	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Greater Fresno
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Spring Off-Peak	2027 OP Sensitivity	2030 SP High CEC Forecast	
P1-2 - Line GREGG to HERNDON 230 kV ckt 1 with RAS	P1	N-1	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Working with PTO to obtain 1ph fault impedance data
P1-4 - SVD GREGG 230 kV id v	P1	N-1	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Continue to monitor
P2-3 - Internal fault at non-Bus-tie breaker Herndon 252 protecting Line GREGG to HERNDON 230 kV ckt 1 with RAS	P2	Bus/Breaker	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Potential WECC/NERC criteria violation	No Issues	Working with PTO to obtain 1ph fault impedance data
P2-4 - Internal fault at Bus-tie Breaker 202 at MC CALL 230 kV Bus D	P2	Bus/Breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Continue to monitor
P2-4 - Internal fault at Bus-tie Breaker 302 at MC CALL 230 kV Bus E	P2	Bus/Breaker	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity only
P3-2 - Gen HELMS 1 18 kV unit 1 and Line GREGG to HERNDON 230 kV ckt 1 with RAS	P3	N-1/G-1	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Continue to monitor
P3-2 - Gen KERCKHOF 13.8 kV unit 1 and Line GREGG to HERNDON 230 kV ckt 1	P3	N-1/G-1	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	No Issues	No Issues	Limiting Helms generation
P3-2 - Gen SUNRISEPR 18 kV (3 units) and Line GREGG to HERNDON 230 kV ckt 1 with RAS	P3	N-1/G-1	No Issues	No Issues	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	Sensitivity only
P3-3 - Gen HELMS 1 18 kV unit 1 and Tran MC CALL 230/115 kV bk 1	P3	N-1/G-1	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Continue to monitor
P3-4 - Gen HELMS 1 18 kV unit 1 and SVD GREGG 230 kV id v	P3	N-1/G-1	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Continue to monitor
P4-1 - Stuck 115 kV Breaker 172 protecting Gen KERCKHOF 13.8 kV unit 1	P4	Stuck Breaker	No Issues	No Issues	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	No Issues	Continue to monitor
P5-5c - Failure of non-redundant DC battery supplying Borden 230kV and 70kV Buses	P5	Non-redundant battery	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Potential WECC/NERC criteria violation	Add redundant battery supply
P7-1 - Fault on Line Midway*-Wheeler Ridge #1 230 kV ckt 1 and Line Midway*-Wheeler Ridge 230 kV ckt 2	P7	DCTL	No Issues	No Issues	Potential WECC/NERC criteria violation	No Issues	No Issues	No Issues	Continue to monitor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Greater Fresno**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)										Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **PG&E Greater Fresno**
Single Source Substation with more than 100 MW Load

California ISO

Substation	Load Served (MW)														Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Winter Peak	2030 Winter Peak	2035 Winter Peak	2027 Spring Off-Peak	2030 Summer-Off Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Kern
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
Kern PP-Westpark #1 115kV line	P1-2:A15:39:_KERN-WESTPARK #2 115KV [2010]+P1-2:A15:49:_KERN-MAGUNDEN-WITCO 115KV [1970]	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	151	Continue to Monitor
	P1-2:A15:39:_KERN-WESTPARK #2 115KV [2010]+P1-2:A15:41:_7TH STANDARD-KERN 115KV [1981]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	107	Sensitivity Only
Kern PP-Westpark #2 115kV line	P1-2:A15:38:_KERN-WESTPARK #1 115KV [2000]+P1-2:A15:49:_KERN-MAGUNDEN-WITCO 115KV [1970]	P6	N-1-1	<100	<100	107	<100	<100	<100	<100	<100	<100	151	Continue to Monitor
Gates-Midway 230kV line	P2-2:A15:10:_MIDWAY-F 230KV Section 1F	P2	Bus/Breaker	3	67	59	30	25	145	106	7	13	103	Generation re-dispatch
	P2-3:A15:16:_MIDWAY-F - 1F 230KV & MIDWAY-F-MIDWAY-R13 #1 line	P2	Bus/Breaker	3	67	59	30	25	145	106	7	13	103	Generation re-dispatch
	P2-4:A15:24:_MIDWAY-E Section 1E & MIDWAY-F Section 1F 230KV	P2	Bus/Breaker	3	67	59	30	24	145	106	7	13	103	Generation re-dispatch
	P2-4:A15:3:_MIDWAY-F 230KV - Section 1F & 2F	P2	Bus/Breaker	3	67	59	30	25	145	106	7	13	104	Generation re-dispatch
	P1-2:A15:2:_Q1593SWSTA-MIDWAY-F #1 230KV [0]	P1	N-1	3	67	59	30	25	145	106	7	13	103	Generation re-dispatch
Midway-Kern #3 230kV line	P2-4:A15:23:_MIDWAY-DDBSB Section 2D & MIDWAY-E Section 2E 230KV	P2	Bus/Breaker	117	NA	NA	NA	51	NA	59	40	NA	NA	Sensitivity Only
Midway-Sunrise #2 230kV line	P2-3:A15:12:_MIDWAY-E - 1E 230KV & line	P2	Bus/Breaker	NA	100	100	12	NA	2	NA	NA	33	159	Midway-Lapaloma RAS
	P2-4:A15:21:_MIDWAY-E Section 1E & MIDWAY-F Section 1F 230KV	P2	Bus/Breaker	NA	100	100	12	NA	2	NA	NA	34	160	Midway-Lapaloma RAS
	P2-4:A15:16:_MIDWAY-D Section 1D & MIDWAY-E Section 1E 230KV	P2	Bus/Breaker	NA	100	100	NA	NA	NA	NA	NA	NA	159	Midway-Lapaloma RAS
	P2-4:A15:22:_MIDWAY-E Section 2E & MIDWAY-F Section 2F 230KV	P2	Bus/Breaker	NA	NA	NConv	NA	NA	NA	NA	NA	NA	159	Midway-Lapaloma RAS
	P2-4:A15:24:_MIDWAY-E SECTION 1E & MIDWAY-F SECTION 1F 230KV	P2	Bus/Breaker	NA	100	100	NA	NA	NA	NA	NA	NA	160	Midway-Lapaloma RAS
Arco-Tulare Lake 70kV line	P2-1:A15:140:_BADGER HILL TAP 70KV [8452] (BDGR HLL-BDGRHL T)	P2	Bus/Breaker	NA	NA	156	NA	NA	NA	NA	NA	NA	132	Sensitivity Only
Semitropic-Famoso 115 kV Line	P2-2:A15:36:_MIDWAY 115KV Section 2E	P2	Bus/Breaker	102	53	59	74	57	NA	103	54	109	NA	Project: NE Kern Reinforcement
	P2-4:A15:11:_MIDWAY 115KV - Section 2E & 1E	P2	Bus/Breaker	63	53	59	74	57	NA	103	54	109	NA	Project: NE Kern Reinforcement
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	63	53	59	74	57	NA	103	54	109	NA	Project: NE Kern Reinforcement
	P2-2:A15:36:_MIDWAY 115KV Section 2E	P2	Bus/Breaker	NA	51	57	70	NA	1	NA	NA	102	NA	Project: NE Kern Reinforcement
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	NA	51	57	70	NA	1	NA	NA	102	NA	Project: NE Kern Reinforcement
	P2-4:A15:9:_MIDWAY 115KV - Section 2E & 1E	P2	Bus/Breaker	NA	51	57	70	NA	1	NA	NA	102	NA	Project: NE Kern Reinforcement
	P2-3:A15:146:_KERN PP 115KV - MIDDLE BREAKER BAY 8	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	Sensitivity Only
Cawelo-7th Standard	P2-2:A15:36:_MIDWAY 115KV Section 2E	P2	Bus/Breaker	NA	66	68	54	NA	NA	NA	NA	101	NA	Project: NE Kern Reinforcement
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	125.85	70.52	100.94	<100	NA	NA	NA	NA	101	NA	Project: NE Kern Reinforcement
	P2-4:A15:9:_MIDWAY 115KV - Section 2E & 1E	P2	Bus/Breaker	NA	66	68	54	NA	NA	NA	NA	101	NA	Project: NE Kern Reinforcement
	P1-1:A15:75:_MT POSO 13.80kV Gen Unit 1+P1-2:A15:45:_LERDO-KERN OIL-7TH STANDARD 115KV [1950]	P3	G-1/N-1	NA	NA	NA	103	NA	NA	NA	NA	NA	NA	Project: NE Kern Reinforcement
Kern-Kern Oil-Famoso 70 kV Line	P2-2:A15:36:_MIDWAY 115KV Section 2E	P2	Bus/Breaker	61	37	42	47	42	15	105	39	109	NA	Project: NE Kern Reinforcement
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	61	37	42	47	42	15	105	39	109	NA	Project: NE Kern Reinforcement
	P2-4:A15:9:_MIDWAY 115KV - Section 2E & 1E	P2	Bus/Breaker	61	37	42	47	42	15	105	39	109	NA	Project: NE Kern Reinforcement
Kern-Magunden-Witco 115kV line	P2-1:A15:59:_COLUMBUS-BEAR TAP 115KV [0] NO FAULT	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	119	Sensitivity Only
	P2-3:A15:36:_WESTPARK - 1D 115KV & WESTPARK-COLUMBUS LINE	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	118	Sensitivity Only
	P2-1:A15:59:_COLUMBUS-BEAR TAP 115KV [0] NO FAULT	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	114	Sensitivity Only
	P2-3:A15:36:_WESTPARK - 1D 115KV & WESTPARK-COLUMBUS LINE	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	113	Sensitivity Only
	P2-3:A15:44:_LIVEOAKSWSTA - 1D 115KV & LIVE OAK TAP LINE	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	107	Sensitivity Only
	P2-1:A15:50:_KERN-MAGUNDEN-WITCO 115KV [1970] (KRN OL J-MAGUNDEN)	P2	Bus/Breaker	63	NA	NA	NA	38	NA	36	38	NA	101	Sensitivity Only
	P2-3:A15:149:_KERN PP 115KV - MIDDLE BREAKER BAY A	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	102	Sensitivity Only
	P2-1:A15:50:_KERN-MAGUNDEN-WITCO 115KV [1970] (KRN OL J-MAGUNDEN)	P2	Bus/Breaker	75	NA	NA	NA	51	NA	50	51	NA	102	Sensitivity Only
	P2-3:A15:149:_KERN PP 115KV - MIDDLE BREAKER BAY A	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	103	Sensitivity Only
	P2-3:A15:50:_WITCO_JCT - 1D 115KV & KERN-MAGUNDEN-WITCO LINE	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	102	Sensitivity Only
	P1-2:A15:40:_WESTPARK-COLUMBUS 115KV [0]	P1	N-1	72	82	92	51	43	7	41	43	46	119	Sensitivity Only
	P1-2:A15:41:_7TH STANDARD-KERN 115KV [1981]	P1	N-1	39	15	45	13	22	14	15	22	15	103	Sensitivity Only
	P1-2:A15:49:_KERN-MAGUNDEN-WITCO 115KV [1970]	P1	N-1	63	72	80	45	38	7	36	38	41	101	Sensitivity Only
	P7-1:A15:7_Kern PP-Westpark No. 1 & 2 115 kV Lines	P7	DCTL	77	90	112	45	32	16	27	32	31	NA	Continue to monitor
	P1-2:A15:38:_KERN-WESTPARK #1 115KV [2000]+P1-2:A15:39:_KERN-WESTPARK #2 115KV [2010]	P6	N-1-1	<100	<100	112	<100	<100	<100	<100	<100	<100	165	Continue to Monitor
Kern PP-7th Standard 115kV line	P1-2:A15:48:_KERN OIL-LIVEOAKSWSTA-POSO MT 115KV [0] MOAS OPENED ON CRCKERNFRNTJ_POSO MT+P1-2:A15:49:_KERN-MAGUNDEN-WITCO 115KV [1970]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	133	Sensitivity Only
Kern Oil-Witco 115kV line	P1-2:A15:41:_7TH STANDARD-KERN 115KV [1981]+P1-2:A15:51:_KERN-LIVE OAK 115KV [1960]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	131	Sensitivity Only
Kern Oil-Live Oak 115kV line	P1-2:A15:41:_7TH STANDARD-KERN 115KV [1981]+P1-2:A15:49:_KERN-MAGUNDEN-WITCO 115KV [1970]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	116	Sensitivity Only
Kern Oil-Kern Water 115kV	P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]+P1-2:A15:40:_WESTPARK-COLUMBUS 115KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	116	Sensitivity Only
Kern-Magunden 70kV line	P1-2:A15:30:_MIDWAY-WHEELER RIDGE #1 230KV [5190]+P1-2:A15:111:_BITTERWATRSS-MIDWAY-D 230KV [0]	P6	N-1-1	<100	336	<100	<100	<100	<100	<100	<100	246	<100	Summer Setup
	P1-2:A15:7:_BITTERWATRSS-WHEELER 230KV [0]+P1-2:A15:30:_MIDWAY-WHEELER RIDGE #1 230KV [5190]	P6	N-1-1	<100	<100	<100	309	<100	<100	<100	<100	NConv	<100	Summer Setup
	P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]+P1-2:A15:111:_BITTERWATRSS-MIDWAY-D 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Summer Setup
	P7-1:A15:16:_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DCTL	279	20	2	305	234	19	367	167	NConv	NA	Summer Setup
Midway-Tupman-Rio Brave-Renfro 115kV line	P2-4:A15:9:_MIDWAY 115KV - Section 2E & 1E	P2	Bus/Breaker	107	180.74	176.56	129	58	5	123.18	58	62	289	Under Review
	P2-1:A15:89:_MIDWAY-RENFRO-TUPMAN 115KV [2590] (MIDWAY-TPMNTP1)	P2	Bus/Breaker	51	NA	74	NA	25	7	19	25	NA	128	Sensitivity Only
	P7-1:A15:14:_CALIENTE SW STA - MIDWAY #1 & #2 230 KV LINES	P7	DCTL	27	14	12	79	54	105	41	57	21	NA	Generation re-dispatch
	P1-2:A15:56:_MIDWAY-RENFRO-TUPMAN 115KV [2590]+P1-2:A15:64:_MIDWAY-SHAFTER 115KV [2610]	P6	N-1-1	141.83	146.71	<100	<100	<100	<100	<100	<100	<100	147	Sensitivity Only
Midway 230/115kV TB #2	P2-4:A15:10:_MIDWAY 115KV - Section 1E & 1D	P2	Bus/Breaker	NA	40	47	20	NA	104	NA	NA	21	126	Sensitivity Only
	P2-3:A15:139:_MIDWAY-D 230KV - MIDDLE BREAKER BAY 3	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	124	Sensitivity Only
	P2-4:A15:10:_MIDWAY 115KV - SECTION 2D & 1D	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	NConv	Sensitivity Only
Fellows-Taft 115kV line	P2-2:A15:35:_MIDWAY 115KV Section 2D	P2	Bus/Breaker	36	39	16	84	47	26	102	47	102	NA	Sensitivity Only
	P2-3:A15:64:_MIDWAY - 2D 115KV & MIDWAY-TEMBLOR-PUMPJACK line	P2	Bus/Breaker	36	39	NA	84	47	NA	102	47	102	NA	Sensitivity Only
	P2-3:A15:65:_MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN line	P2	Bus/Breaker	36	39	NA	84	47	NA	102	47	102	NA	Sensitivity Only
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	32	36	19	86	44	27	106	45	106	NA	Sensitivity Only
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]	P1	N-1	35	38	17	83	46	27	103	47	103	51	Sensitivity Only
Fellows-Midsun 115kV line	P2-2:A15:35:_MIDWAY 115KV Section 2D	P2	Bus/Breaker	34	37	5	71	47	30	101	47	100	NA	Sensitivity Only
	P2-3:A15:65:_MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN line	P2	Bus/Breaker	34	37	NA	71	47	NA	101	47	100	NA	Sensitivity Only
	P2-3:A15:66:_MIDWAY - 2D 115KV & MIDWAY-TEMBLOR-PUMPJACK line	P2	Bus/Breaker	34	37	NA	71	47	NA	101	47	100	NA	Sensitivity Only
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	31	35	5	73	45	30	104	45	104	NA	Sensitivity Only
	P2-1:A15:67:_MIDWAY-TAFT 115KV [2620]	P1	N-1	33	36	2	70	47	30	101	47	101	58	Sensitivity Only
Kern Ridge-Temblor 115kV line	P2-1:A15:105:_MIDWAY-TEMBLOR 115KV [2630] (TEMBLOR-PSE MCKJ)	P2	Bus/Breaker	16	NA	15	NA	2	24	105	2	NA	15	Project: Midway-Temblor 115kV line Reconductor
	P2-1:A15:26:_MIDWAY-TEMBLOR 115KV [2630] (PSE MCKJ-BELRIDGETJCT)	P2	Bus/Breaker	17	NA	NA	NA	4	NA	106	4	NA	15	Project: Midway-Temblor 115kV line Reconductor
	P7-1:A15:8:_MIDSUN-MIDWAY & MIDWAY-TEMBLOR 115 KV LINES	P7	DCTL	17	17	15	27	2	24	105	2	71	NA	Sensitivity only
	P2-1:A15:34:_MIDWAY-TEMBLOR-PUMPJACK 115KV [0]	P1	N-1	17	17	15	27	2	24	105	2	71	15	Sensitivity Only
Midway-Rio Bravo-Renfro 115kV line	P2-4:A15:9:_MIDWAY 115KV - SECTION 2D & 2E	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	144	Sensitivity Only
	P2-4:A15:9:_MIDWAY 115KV - SECTION 2D & 2E	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	145	Sensitivity Only
Taft-Maricopa 70kV line	P2-4:A15:10:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	43	66	26	97	69	23	137	70	138	NConv	Sensitivity Only
	P5-5C[DC]:A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	64	NA	NConv	64	NA	NA	Project: Midway 230-115 battery installation
Taft-Elk Hills 70kV line	P2-4:A15:10:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	75	98	26	128	102	23	168	103	169	NConv	Sensitivity Only
	Base Case	P0	Base Case	82	87	95	94	73	54	54	73	61	108	Sensitivity Only
Maricopa-Copus 70kV line	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	194	103	20	112	91	10	160	92	161	NConv	Summer Setup
	P2-4:A15:10:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	44	NA	NA	NA	65	NA	112	65	NA	NConv	Sensitivity Only
	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	NA	76	15	84	NA	8	NA	NA	114	NA	Sensitivity Only
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:68:_MIDSUN-MIDWAY 115KV [2580]	P6	N-1-1	<100	<100	<100	144	<100	<100	<100	<100	193	NConv	Generation re-dispatch
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:70:_FELLOWS-TAFT 115KV [1580]	P6	N-1-1	<100	133	<100	217	<100	<100	<100	<100	247	110	Summer Setup
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:71:_FELLOWS-MIDSUN 115KV [1570]	P6	N-1-1	<100	133	<100	194	<100	<100	<100	<100	246	127	Summer Setup
	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	56	102	20	111	90	8	159	91	160	NConv	Summer Setup
	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	52	92	15	111	83	18	186	84	186	NConv	Summer Setup
	P2-4:A15:10:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	61	101	6	145	88	6	193	89	194	NConv	Summer Setup
Taft-Maricopa 70kV line	P2-4:A15:10:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	122	103	7	146	90	8	194	90	196	NConv	Summer Setup
	P7-1:A15:1:_KERN-OLD RIVER NO. 1 & 2 70 KV LINES	P7	DCTL	38	27	83	8	17	8	103	17	91	NA	Sensitivity Only
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:68:_MIDSUN-MIDWAY 115KV [2580]	P6	N-1-1	<100	124	<100	165	<100	<100	<100	<100	NA	NConv	Summer Setup
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:70:_FELLOWS-TAFT 115KV [1580]	P6	N-1-1	<100	126	<100	201	<100	<100	<100	<100	216	NA	Summer Setup
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:71:_FELLOWS-MIDSUN 115KV [1570]	P6	N-1-1	<100	125	<100	177	<100	<100	<100	<100	214	NA	Summer Setup
	P5-5C[DC]:A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	90	NA	NConv	90	NA	NA	Project: Midway 230-115 battery installation
Copus-Lakeview 70kV line	P2-4:A15:10:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	61	101	157	145	88	6	193	89	194	NConv	Summer Setup
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:68:_MIDSUN-MIDWAY 115KV [2580]	P6	N-1-1	<100	NA	<100	152	<100	<100	<100	<100	235	NConv	Generation re-dispatch
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:70:_FELLOWS-TAFT 115KV [1580]	P6	N-1-1	<100	122	<100	223	<100	<100	<100	<100	285	140	Summer Setup
	P1-2:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:71:_FELLOWS-MIDSUN 115KV [1570]	P6	N-1-1	<100	122	<100	201	<100	<100	<100	<100	284	157	Summer Setup
Wheeler Ridge-Lakeview 70kV Line	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	60	91	8	155	79	15	235	80	237	NConv	Generation re-dispatch
	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	60	91	8	155	80	15	235	80	237	NConv	Generation re-dispatch
	P1-2:A15:8:_BITTERWATRSS-MIDWAY-DBAAH 230KV [0]	P1	N-1	100	NA	NA	NA	100	NA	67	89	NA	NA	Summer Setup
San Bernard-Weedpatch 70kV line	P1-2:A15:7:_BITTERWATRSS-WHEELER 230KV [0]+P1-2:A15:30:_MIDWAY-WHEELER RIDGE #1 230KV [5190]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	NConv	NA	Sensitivity Only
	P5-5C[DC]:A15:8:_WHEELER RIDGE 230-115-70KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	204	NA	NA	NA	0	NA	39	0	NA	NA	Install redundant battery
	P7-1:A15:16:_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DCTL	164	16	24	51	8	5	276	8	NConv	NA	Summer Setup
Weedpatch-Magunden 70kV line	P2-1:A15:10:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVI1-MIDWAY-DBAAH)	P2	Bus/Breaker	110	NA	NA	NA	105	NA	69	95	NA	NA	Summer Setup
	P2-1:A15:11:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVI2-MIDWAY-DBAAH)	P2	Bus/Breaker	110	NA	NA	NA	108	NA	76	97	NA	NA	Summer Setup
	P2-1:A15:1:_BITTERWATRSS-WHLR RJ2 230KV [0] No Fault	P2	Bus/Breaker	100	77	NA	54	95	NA	54	88	31	NA	Summer Setup
	P2-1:A15:2:_BUENAVI2-BITTERWATRSS 230KV [0] No Fault	P2	Bus/Breaker	100	64	NA	56	100	NA	67	89	31	NA	Summer Setup
	P7-1:A15:16:_MIDWAY-WHEELER RIDGE #1 & #2 230 KV LINES	P7	DCTL	292	50	44	292	261	18	351	190	NConv	NA	Summer Setup
	P1-2:A15:8:_BITTERWATRSS-MIDWAY-DBAAH 230KV [0]	P1	N-1	100	NA	NA	NA	100	NA	67	89	NA	NA	Summer Setup
	P1-2:A15:7:_BITTERWATRSS-WHEELER 230KV [0]+P1-2:A15:30:_MIDWAY-WHEELER RIDGE #1 230KV [5190]	P6	N-1-1	<100	336	<100	309	<100	<100	<100	<100	246	<100	Summer Setup
	P1-2:A15:5:_Q1397-Q1398-WHEELER #1 230KV [0]+P1-2:A15:111:_BITTERWATRSS-MIDWAY-D 230KV [0]	P6	N-1-1	<100	<100	<100	105	<100	125	<100	<100	<100	<100	Summer Setup
	P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]+P1-2:A15:111:_BITTERWATRSS-MIDWAY-D 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	125	<100	<100	<100	<100	Summer Setup
Copus 115kV Bus Tie Breaker	P2-4:A15:67:_MIDWAY-TAFT 115KV [2620]+P1-2:A15:70:_FELLOWS-TAFT 115KV [1580]	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	115	<100	Sensitivity Only
Semitropic-Famoso 70kV line	P2-2:A15:36:_MIDWAY 115KV Section 2E	P2	Bus/Breaker	NA	9	15	54	NA	0	NA	NA	101	NA	Project: NE Kern Reconductor
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	102	9	15	54	NA	0	NA	NA	101	NA	Project: NE Kern Reconductor
	P2-4:A15:9:_MIDWAY 115KV - Section 2E & 1E	P2	Bus/Breaker	NA	9	15	54	NA	0	NA	NA	101	NA	Project: NE Kern Reconductor

2025-2026 ISO Reliability Assessment - Study Results
Study Area: PG&E Kern
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2027 OP Sensitivity	2030 SP High CEC Forecast	2040 SJVLY area Hi-EV sensitivity	
San Luis Obispo-Carrizo 115kV line	P2-1:A15:105:_MIDWAY-TEMBLOR 115KV [2630] (TEMBLOR-PSE MCKJ)	P2	Bus/Breaker	20	NA	17	NA	8	26	118	8	NA	18	Generation re-dispatch
	P2-1:A15:22:_MIDWAY-TEMBLOR 115KV [2630] (BELRIDGETJCT-MIDWAY)	P2	Bus/Breaker	71	70	64	116	40	122	112	40	85	60	Generation re-dispatch
	P2-1:A15:26:_MIDWAY-TEMBLOR 115KV [2630] (PSE MCKJ-BELRIDGETJCT)	P2	Bus/Breaker	70	NA	NA	NA	46	NA	120	46	NA	63	Generation re-dispatch
	P2-2:A15:35:_MIDWAY 115KV Section 2D	P2	Bus/Breaker	NA	70	64	116	NA	122	NA	NA	85	NA	Generation re-dispatch
	P2-3:A15:66:_MIDWAY - 2D 115KV & MIDWAY-TEMBLOR-PUMPJACK line	P2	Bus/Breaker	20	NA	NA	NA	8	NA	118	8	NA	NA	Generation re-dispatch
	P2-3:A15:68:_MIDWAY - 2D 115KV & MIDWAY-RENFRO-TUPMAN line	P2	Bus/Breaker	NA	70	64	116	NA	122	NA	NA	85	NA	Generation re-dispatch
	P2-4:A15:7:_MIDWAY 115KV - Section 2D & 2E	P2	Bus/Breaker	NA	70	64	116	NA	122	NA	NA	85	NA	Generation re-dispatch
	P2-4:A15:8:_MIDWAY 115KV - Section 2D & 1D	P2	Bus/Breaker	71	70	64	116	40	122	113	40	85	NA	Generation re-dispatch
Temblor-San Luis Obispo 115kV line	P1-2:A15:34:_MIDWAY-TEMBLOR-PUMPJACK 115KV [0]	P1	N-1	20	20	18	17	8	26	118	7	76	18	Sensitivity Only
Midway 230/115kV TB #3	P1-3:A15:121:_MIDWAY-D 230/115KV TB 1+P1-3:A15:122:_MIDWAY-D 230/115KV TB 2	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	126	Sensitivity Only
Midway 230/115kV TB #2	P1-3:A15:121:_MIDWAY-D 230/115KV TB 1+P1-3:A15:12:_MIDWAY-E 230/115KV TB 3	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	126	Sensitivity Only
Kern PP 230/115kV TB #3	P1-3:A15:8:_KERN PP 230/115KV TB 4+P1-3:A15:9:_KERN PP 230/115KV TB 5	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	137	Sensitivity Only
Kern PP 230/115kV TB #5	P1-3:A15:7:_KERN PP 230/115KV TB 3+P1-3:A15:8:_KERN PP 230/115KV TB 4	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	137	Sensitivity Only
Kern PP 230/115kV TB #4	P1-3:A15:7:_KERN PP 230/115KV TB 3+P1-3:A15:9:_KERN PP 230/115KV TB 5	P6	N-1-1	<100	<100	<100	<100	<100	<100	<100	<100	<100	137	Sensitivity Only
Arco-Antelope 70kV line	Base Case	P0	Base Case	71	76	77	59	64	52	64	64	69	101	Sensitivity Only
Buena Vista-Midway #1 230kV line	P2-1:A15:11:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-DBAAH)	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Project: Wheeler Ridge Junction
	P2-1:A15:2:_BUENAVJ2-BITTERWATRSS 230KV [0] No Fault	P2	Bus/Breaker	NA	64	NA	41	NA	NA	NA	NA	14	NA	Project: Wheeler Ridge Junction
	P2-3:A15:24:_MIDWAY-DBAAH 230KV - Middle Breaker Bay 6	P2	Bus/Breaker	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Project: Wheeler Ridge Junction
	P2-1:A15:11:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-DBAAH)	P2	Bus/Breaker	108	NA	NA	NA	111	NA	53	102	NA	NA	Project: Wheeler Ridge Junction
	P2-1:A15:2:_BUENAVJ2-BITTERWATRSS 230KV [0] No Fault	P2	Bus/Breaker	99	NA	NA	NA	101	NA	44	92	NA	NA	Project: Wheeler Ridge Junction
	P2-3:A15:24:_MIDWAY-DBAAH 230KV - Middle Breaker Bay 6	P2	Bus/Breaker	100	NA	NA	NA	101	NA	45	93	NA	NA	Project: Wheeler Ridge Junction
	P2-1:A15:11:_MIDWAY-WHEELER RIDGE #2 230KV [5200] (BUENAVJ2-MIDWAY-DBAAH)	P2	Bus/Breaker	99	NA	NA	NA	101	NA	44	92	NA	NA	Project: Wheeler Ridge Junction
	P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]+P1-2:A15:111:_BITTERWATRSS-MIDWAY-D 230KV [0]	P6	N-1-1	<100	<100	<100	<100	<100	151	<100	<100	<100	<100	Sensitivity Only
Buena Vista - Midway #2 230kV line	P2-4:A15:23:_MIDWAY-DDBSB Section 2D & MIDWAY-E Section 2E 230KV	P2	Bus/Breaker	117	NA	NA	NA	51	NA	59	40	NA	NA	Project: Wheeler Ridge Junction
	P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]+P1-2:A15:30:_MIDWAY-WHEELER RIDGE #1 230KV [5190]	P6	N-1-1	<100	<100	<100	<100	<100	107	<100	<100	<100	<100	Sensitivity Only
Buena Vista - Wheeler Ridge #2 230kV line	P2-1:A15:10:_MIDWAY-WHEELER RIDGE #1 230KV [5190] (BUENAVJ1-MIDWAY-DBAAH)	P2	Bus/Breaker	109	NA	NA	NA	111	NA	58	103	NA	NA	Project: Wheeler Ridge Junction
	P1-2:A15:30:_MIDWAY-WHEELER RIDGE #1 230KV [5190]+P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	107	<100	48	92	<100	<100	Project: Wheeler Ridge Junction
Buena Vista - Wheeler Ridge #1 230kV line	P1-2:A15:111:_BITTERWATRSS-MIDWAY-D 230KV [0]+P1-2:A15:118:_WHEELER-CASALOMA #1 230KV [0]	P6	N-1-1	<100	<100	<100	<100	140	<100	<100	<100	<100		Project: Wheeler Ridge Junction
Midway-Gates 230kV line	P5-5C(DC):A15:7:_MIDWAY 230-115KV BATT(FAILURE OF NON-REDUNDENT BATT)	P5	Non-Redundant Battery/Relay	NConv	NA	NA	NA	13	NA	NConv	16	NA	NA	Project:Midway 230-115 battery project
	Base Case	P0	Base Case	12	41	37	40	60	100	46	45	17	81	Generation re-dispatch

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **Entire PG&E System**
High Voltages Under P0 Conditions

Bus/Substation	Area	Division	Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	Project & Potential Mitigation Solutions
			2027 Spring Off-Peak	2030 Summer Off-Peak	2035 Winter Off-Peak	2035 Spring Off-Peak	2027 OP Heavy Renewable & Min Gas Gen	
LAURELES 60.0 kV	Central Coast/Los Padres	Central Coast	0.9784	0.9177	0.9918	1.0072	0.9759	System adjustments or voltage support if needed
DIVIDE 70.0 kV	Central Coast/Los Padres	Los Padres	1.0544	1.0279	1.0451	1.0455	1.0546	System adjustments or voltage support if needed
BRIGHTN 115.0 kV	Central Valley	Sacramento	1.0269	1.0166	1.0765	1.0741	1.0269	System adjustments or voltage support if needed
DAVIS 115.0 kV	Central Valley	Sacramento	1.0193	1.0272	1.0615	1.0618	1.0194	System adjustments or voltage support if needed
GRAND IS 115.0 kV	Central Valley	Sacramento	1.0251	1.0175	1.0774	1.0752	1.0251	System adjustments or voltage support if needed
W.SCRMNO 115.0 kV	Central Valley	Sacramento	1.0217	1.0256	1.0653	1.0649	1.0218	System adjustments or voltage support if needed
WOODLD 115.0 kV	Central Valley	Sacramento	1.0246	1.0327	1.0522	1.0551	1.0247	System adjustments or voltage support if needed
APPLE HL 115.0 kV	Central Valley	Sierra	1.0505	1.0464	1.0535	1.0522	1.0504	System adjustments or voltage support if needed
ATLANTIC 115.0 kV	Central Valley	Sierra	1.0517	1.039	1.0482	1.0505	1.0517	System adjustments or voltage support if needed
BELL PGE 115.0 kV	Central Valley	Sierra	1.035	1.0481	1.0523	1.0512	1.0349	System adjustments or voltage support if needed
BOGUE 115.0 kV	Central Valley	Sierra	1.0448	1.0471	1.0492	1.0562	1.0448	System adjustments or voltage support if needed
DRUMPH1 115.0 kV	Central Valley	Sierra	1.0553	1.0554	1.0576	1.0633	1.0553	System adjustments or voltage support if needed
E.MRYSVE 115.0 kV	Central Valley	Sierra	1.0479	1.0448	1.0565	1.0662	1.0479	System adjustments or voltage support if needed
ELDORAD 115.0 kV	Central Valley	Sierra	1.0521	1.0482	1.0543	1.0527	1.052	System adjustments or voltage support if needed
HIGGINS 115.0 kV	Central Valley	Sierra	1.0407	1.0502	1.0537	1.0553	1.0406	System adjustments or voltage support if needed
HORSESHE 115.0 kV	Central Valley	Sierra	1.04	1.0445	1.0505	1.0478	1.0399	System adjustments or voltage support if needed
PLACER 115.0 kV	Central Valley	Sierra	1.0333	1.0472	1.0516	1.0498	1.0333	System adjustments or voltage support if needed
PLSNT GR 115.0 kV	Central Valley	Sierra	1.0495	1.0403	1.0482	1.0509	1.0495	System adjustments or voltage support if needed
BELLOTA 115.0 kV	Central Valley	Stockton	1.0455	1.0073	1.0473	1.0514	1.0459	System adjustments or voltage support if needed
CLAY 60.0 kV	Central Valley	Stockton	1.0467	1.0346	1.0454	1.0532	1.0466	System adjustments or voltage support if needed
CNTRY CB 60.0 kV	Central Valley	Stockton	1.0412	1.0506	1.0511	1.0481	1.0405	System adjustments or voltage support if needed
FROGTOWN 115.0 kV	Central Valley	Stockton	1.0512	1.0395	1.0415	1.0427	1.0495	System adjustments or voltage support if needed
HAMMER 60.0 kV	Central Valley	Stockton	1.041	1.0507	1.0518	1.0492	1.0403	System adjustments or voltage support if needed
HERDLYN 60.0 kV	Central Valley	Stockton	1.1078	1.0387	1.0539	1.059	1.1097	System adjustments or voltage support if needed
LOCKFORD 115.0 kV	Central Valley	Stockton	1.0464	1.0093	1.0496	1.0537	1.0465	System adjustments or voltage support if needed
MSHR 60V 60.0 kV	Central Valley	Stockton	1.041	1.0463	1.0507	1.0491	1.0403	System adjustments or voltage support if needed
STANISLAUSPH 115.0 kV	Central Valley	Stockton	1.0503	1.045	1.0425	1.0434	1.0485	System adjustments or voltage support if needed
STKTON A 115.0 kV	Central Valley	Stockton	1.0481	1.0062	1.0486	1.0533	1.0484	System adjustments or voltage support if needed
TESLA 115.0 kV	Central Valley	Stockton	1.0456	1.032	1.0507	1.0545	1.0457	System adjustments or voltage support if needed
VLLY SPS 60.0 kV	Central Valley	Stockton	1.0424	1.0431	1.0526	1.0467	1.0422	System adjustments or voltage support if needed
MNTA VSA 60.0 kV	Greater Bay Area	De Anza	1.0494	1.0535	1.0533	1.0459	1.0514	System adjustments or voltage support if needed
RIVRBANK 115.0 kV	Greater Bay Area	missing	1.0566	1.0103	1.0179	1.047	1.0562	System adjustments or voltage support if needed
DUMBARTN 115.0 kV	Greater Bay Area	Mission	1.0378	1.0465	1.0474	1.051	1.0388	System adjustments or voltage support if needed
EASTSHRE 115.0 kV	Greater Bay Area	Mission	1.0386	1.0506	1.0485	1.0494	1.0397	System adjustments or voltage support if needed
MT EDEN 115.0 kV	Greater Bay Area	Mission	1.0383	1.0506	1.0485	1.0495	1.0394	System adjustments or voltage support if needed
NEWARK D 115.0 kV	Greater Bay Area	Mission	1.0412	1.0399	1.0473	1.0553	1.042	System adjustments or voltage support if needed
AIRWAYS 115.0 kV	Greater Fresno Area	Fresno	1.0426	1.031	1.0416	1.0513	1.0421	System adjustments or voltage support if needed
BIOLA 70.0 kV	Greater Fresno Area	Fresno	1.0369	1.0526	1.0477	1.0489	1.0361	System adjustments or voltage support if needed
BULLARD 115.0 kV	Greater Fresno Area	Fresno	1.0305	1.0415	1.0375	1.0532	1.0301	System adjustments or voltage support if needed
CAL AVE 115.0 kV	Greater Fresno Area	Fresno	1.0578	1.0176	1.0422	1.0451	1.0571	System adjustments or voltage support if needed
CLOVIS-1 115.0 kV	Greater Fresno Area	Fresno	1.0535	1.0262	1.0472	1.0561	1.0533	System adjustments or voltage support if needed
COPPRMNE 70.0 kV	Greater Fresno Area	Fresno	1.0554	1.0202	1.0533	1.0705	1.055	System adjustments or voltage support if needed
CORCORAN 115.0 kV	Greater Fresno Area	Fresno	1.0565	1.0152	1.0467	1.0485	1.043	System adjustments or voltage support if needed
CORCORAN 70.0 kV	Greater Fresno Area	Fresno	1.0692	1.029	1.0586	1.0625	1.0564	System adjustments or voltage support if needed
EXCELSIORSS 115.0 kV	Greater Fresno Area	Fresno	1.0546	1.0406	1.056	1.0597	1.0544	System adjustments or voltage support if needed
GUERNSEY 70.0 kV	Greater Fresno Area	Fresno	1.0516	1.07	1.0484	1.0497	1.0512	System adjustments or voltage support if needed
HENRIETTAD 70.0 kV	Greater Fresno Area	Fresno	1.0431	1.0539	1.0351	1.0351	1.0428	System adjustments or voltage support if needed
KENTSWSTA 70.0 kV	Greater Fresno Area	Fresno	1.0433	1.0541	1.0362	1.0364	1.0429	System adjustments or voltage support if needed
KERCKHF1 115.0 kV	Greater Fresno Area	Fresno	1.0515	1.0272	1.044	1.0552	1.0509	System adjustments or voltage support if needed
KERCKHOFFPH2 115.0 kV	Greater Fresno Area	Fresno	1.0515	1.0272	1.044	1.0552	1.0509	System adjustments or voltage support if needed
KINGSBURGD 115.0 kV	Greater Fresno Area	Fresno	1.0599	1.0189	1.0406	1.0451	1.0583	System adjustments or voltage support if needed
KNGLOBUS 70.0 kV	Greater Fresno Area	Fresno	1.114	0.9761	1.0833	1.0878	1.1123	System adjustments or voltage support if needed
LEMOORE 70.0 kV	Greater Fresno Area	Fresno	1.034	1.0527	1.0262	1.0328	1.0336	System adjustments or voltage support if needed
MALAGA 115.0 kV	Greater Fresno Area	Fresno	1.059	1.0145	1.0372	1.038	1.0585	System adjustments or voltage support if needed
MANCHSTR 115.0 kV	Greater Fresno Area	Fresno	1.0421	1.0263	1.0467	1.0583	1.0416	System adjustments or voltage support if needed
MC CALL 115.0 kV	Greater Fresno Area	Fresno	1.069	1.0173	1.0566	1.0612	1.0683	System adjustments or voltage support if needed
PNEDLE 115.0 kV	Greater Fresno Area	Fresno	1.0304	1.0408	1.0367	1.0523	1.03	System adjustments or voltage support if needed
REEDLEY 115.0 kV	Greater Fresno Area	Fresno	1.0652	1.0141	1.0586	1.0659	1.0646	System adjustments or voltage support if needed
SANGER 115.0 kV	Greater Fresno Area	Fresno	1.0593	1.0209	1.0503	1.0564	1.0587	System adjustments or voltage support if needed

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **Entire PG&E System**
High Voltages Under P0 Conditions

California ISO

			Voltage PU (Base Scenarios)				Voltage PU (Sensitivity Scenarios)	
SCHINDLR 115.0 kV	Greater Fresno Area	Fresno	1.0543	1.0408	1.0563	1.0593	1.054	System adjustments or voltage support if needed
SHEPHERD 115.0 kV	Greater Fresno Area	Fresno	1.04	1.0322	1.0394	1.0519	1.0398	System adjustments or voltage support if needed
TVY VLLY 70.0 kV	Greater Fresno Area	Fresno	1.047	1.0211	1.0449	1.053	1.0465	System adjustments or voltage support if needed
WAHTOKE 115.0 kV	Greater Fresno Area	Fresno	1.0679	1.0168	1.0588	1.065	1.0673	System adjustments or voltage support if needed
WAUKENASWSTA 115.0 kV	Greater Fresno Area	Fresno	1.0571	1.0157	1.0462	1.0482	1.0446	System adjustments or voltage support if needed
WOODWARD 115.0 kV	Greater Fresno Area	Fresno	1.0386	1.0338	1.0379	1.0513	1.0384	System adjustments or voltage support if needed
WST FRSO 115.0 kV	Greater Fresno Area	Fresno	1.0574	1.0162	1.0348	1.0348	1.0568	System adjustments or voltage support if needed
ATWATER 115.0 kV	Greater Fresno Area	Yosemite	1.0482	1.0408	1.0362	1.0577	1.048	System adjustments or voltage support if needed
BORDEN 70.0 kV	Greater Fresno Area	Yosemite	1.0831	1.0072	1.0757	1.0929	1.0827	System adjustments or voltage support if needed
CRESSEY 115.0 kV	Greater Fresno Area	Yosemite	1.0477	1.0407	1.037	1.0588	1.0475	System adjustments or voltage support if needed
EL CAPTN 115.0 kV	Greater Fresno Area	Yosemite	1.0477	1.0404	1.0354	1.0568	1.0474	System adjustments or voltage support if needed
GALLO 115.0 kV	Greater Fresno Area	Yosemite	1.0476	1.0404	1.0368	1.0584	1.0474	System adjustments or voltage support if needed
GLASS 70.0 kV	Greater Fresno Area	Yosemite	1.0822	1.0077	1.0773	1.095	1.0818	System adjustments or voltage support if needed
HAMMONDS 115.0 kV	Greater Fresno Area	Yosemite	1.0526	1.0461	1.0499	1.0583	1.0522	System adjustments or voltage support if needed
LIVNGSTN 115.0 kV	Greater Fresno Area	Yosemite	1.0478	1.0407	1.0371	1.0585	1.0476	System adjustments or voltage support if needed
MADERA 70.0 kV	Greater Fresno Area	Yosemite	1.0835	1.009	1.0786	1.0963	1.0831	System adjustments or voltage support if needed
MERCED 115.0 kV	Greater Fresno Area	Yosemite	1.0485	1.0389	1.035	1.0557	1.0483	System adjustments or voltage support if needed
ORO LOMA 115.0 kV	Greater Fresno Area	Yosemite	1.056	1.0337	1.0461	1.055	1.0559	System adjustments or voltage support if needed
PANOCHE1 115.0 kV	Greater Fresno Area	Yosemite	1.0534	1.0531	1.052	1.0602	1.053	System adjustments or voltage support if needed
WILSONPGAE 115.0 kV	Greater Fresno Area	Yosemite	1.0495	1.0391	1.0326	1.0534	1.0492	System adjustments or voltage support if needed
ARCATA 60.0 kV	Humboldt	Humboldt	1.0343	1.0362	1.0548	1.0501	1.0348	System adjustments or voltage support if needed
EUREKA 60.0 kV	Humboldt	Humboldt	1.0328	1.0344	1.0478	1.0502	1.0328	System adjustments or voltage support if needed
FAIRHAVN 60.0 kV	Humboldt	Humboldt	1.0345	1.0393	1.0611	1.0511	1.0357	System adjustments or voltage support if needed
HARRIS 60.0 kV	Humboldt	Humboldt	1.0347	1.0325	1.0544	1.0516	1.0349	System adjustments or voltage support if needed
HMBOBAYPPA 60.0 kV	Humboldt	Humboldt	1.0362	1.0451	1.0456	1.05	1.0361	System adjustments or voltage support if needed
HUMBOLDT 60.0 kV	Humboldt	Humboldt	1.0359	1.0323	1.0547	1.0515	1.0361	System adjustments or voltage support if needed
JANS CRK 60.0 kV	Humboldt	Humboldt	1.0258	1.0308	1.0539	1.051	1.026	System adjustments or voltage support if needed
7STNDRD 115.0 kV	Kern	Kern	1.0481	1.046	1.045	1.0727	1.048	System adjustments or voltage support if needed
KERN OIL 115.0 kV	Kern	Kern	1.0451	1.044	1.0423	1.0704	1.0451	System adjustments or voltage support if needed
KERN PWR 115.0 kV	Kern	Kern	1.0536	NA	NA	NA	1.0535	System adjustments or voltage support if needed
LERDO 115.0 kV	Kern	Kern	1.0424	1.0388	1.04	1.0651	1.0424	System adjustments or voltage support if needed
LIVE OAK 115.0 kV	Kern	Kern	1.0469	1.043	1.0418	1.0699	1.0468	System adjustments or voltage support if needed
MAGUNDEN 115.0 kV	Kern	Kern	1.0387	1.0442	1.0396	1.0702	1.0386	System adjustments or voltage support if needed
STOCKDLE 115.0 kV	Kern	Kern	1.0501	1.0409	1.0474	1.0757	1.0501	System adjustments or voltage support if needed
TEVIS 115.0 kV	Kern	Kern	1.0511	1.0429	1.0482	1.0766	1.051	System adjustments or voltage support if needed
WESTPARK 115.0 kV	Kern	Kern	1.0516	1.0484	1.0474	1.0755	1.0515	System adjustments or voltage support if needed
WITCO_JCT 115.0 kV	Kern	Kern	1.0458	1.0446	1.0424	1.0711	1.0457	System adjustments or voltage support if needed
CARQUINZ 115.0 kV	North Coast/North Bay	North Bay	1.0556	1.0249	1.0575	1.0694	1.056	System adjustments or voltage support if needed
IGNACIO 115.0 kV	North Coast/North Bay	North Bay	1.0565	1.0398	1.0706	1.0679	1.0569	System adjustments or voltage support if needed
LS GLLNS 115.0 kV	North Coast/North Bay	North Bay	1.056	1.0404	1.0708	1.0681	1.0564	System adjustments or voltage support if needed
SAN RAFL 115.0 kV	North Coast/North Bay	North Bay	1.055	1.0408	1.071	1.0681	1.0554	System adjustments or voltage support if needed
SILVERDO 115.0 kV	North Coast/North Bay	North Bay	1.0461	1.0497	1.0613	1.0621	1.0454	System adjustments or voltage support if needed
FULTON 115.0 kV	North Coast/North Bay	North Coast	1.0532	1.0457	1.0626	1.0605	1.0535	System adjustments or voltage support if needed
FULTON 60.0 kV	North Coast/North Bay	North Coast	1.0421	1.0453	1.0502	1.0484	1.0424	System adjustments or voltage support if needed
SNTA RSA 115.0 kV	North Coast/North Bay	North Coast	1.0362	1.0394	1.055	1.0532	1.0366	System adjustments or voltage support if needed
BUTTE 115.0 kV	North Valley	North Valley	1.0481	1.0442	1.0472	1.0527	1.0478	System adjustments or voltage support if needed
CASCADE 115.0 kV	North Valley	North Valley	1.0649	1.0386	1.048	1.0337	1.0651	System adjustments or voltage support if needed
COTWDPGE 115.0 kV	North Valley	North Valley	1.0634	NA	NA	NA	1.0635	System adjustments or voltage support if needed
JESSUP 115.0 kV	North Valley	North Valley	1.0615	1.0351	1.0432	1.0357	1.0616	System adjustments or voltage support if needed
NORD 1 115.0 kV	North Valley	North Valley	1.0473	1.0457	1.0489	1.0544	1.047	System adjustments or voltage support if needed
NOTRDAME 115.0 kV	North Valley	North Valley	1.0478	1.0445	1.0475	1.0529	1.0475	System adjustments or voltage support if needed
ORLAND B 60.0 kV	North Valley	North Valley	1.0477	1.0499	1.0524	1.0502	1.0479	System adjustments or voltage support if needed
PALERMO 115.0 kV	North Valley	North Valley	1.057	1.0548	1.0529	1.0641	1.0569	System adjustments or voltage support if needed
PARADSE 115.0 kV	North Valley	North Valley	1.0498	1.0446	1.0473	1.0527	1.0495	System adjustments or voltage support if needed
SYCAMORE 115.0 kV	North Valley	North Valley	1.0469	1.0456	1.0489	1.0542	1.0466	System adjustments or voltage support if needed
WYANDTTE 115.0 kV	North Valley	North Valley	1.056	1.0557	1.0539	1.0648	1.0559	System adjustments or voltage support if needed

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: **SCE Eastern Area**
Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_Hrenewable	S3_2027-SprOP_BESS	
19020 BLYTHE 161 24017 BLYTHESC 161 1 1	_EST_P1_line_55_Line JHINDMWD 230.0 to EAGLEMTN 230.0 Circuit 1 AND _EST_P1_line_6_CAMINO - GENE - IRON MTN - MEAD 230 KV OUTAGE	P6	N-1-1	< 100	NotConv	133.8	< 100	< 100	< 100	NotConv	< 100	< 100	System adjustments after the first contingency
19041 PARKER 161 19046 BOUSE 161 1 1	_EST_P1_line_A3_Line N.GILA 500.0 to HDWSH 500.0 Circuit 1 AND _EST_P1_line_A1_Line HASSYAMP 500.0 to N.GILA 500.0 Circuit 1	P6	N-1-1	106.6	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	Congestion management on 500kV North Gila area system due to high flows
21072 YUCCA161 161 21059 PILOT_KNB161 161 1 1	_EST_P1_line_A3_Line N.GILA 500.0 to HDWSH 500.0 Circuit 1 AND _EST_P1_line_A1_Line HASSYAMP 500.0 to N.GILA 500.0 Circuit 1	P6	N-1-1	101.9	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
21076 RAMON230 230 24806 MIRAGE 230 1 1	_EST_P1_line_82_Line RAMON230 230.0 to DEVERS 230.0 Circuit 1 AND _EST_P1_line_84_Line RAMON230 230.0 to MIRAGE 230.0 Circuit 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	109.3	< 100	< 100	< 100	Path 42 RAS
21279 CVSUB92 92.0 21808 CVSUB161 161 1 1	_EST_P1_line_73_Line RAMON230 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_72_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	123.5	< 100	< 100	< 100	132.3	< 100	< 100	123.8	NotConv	
21319 DIXIELAN 92.0 21974 RTP1SPSTN 92.0 1 1	_EST_P1_line_A3_Line N.GILA 500.0 to HDWSH 500.0 Circuit 1 AND _EST_P1_line_A1_Line HASSYAMP 500.0 to N.GILA 500.0 Circuit 1	P6	N-1-1	115.3	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	Congestion management on 500kV North Gila area system due to high flows
	_EST_P1_line_9_Line SERRANO 500.0 to VALLEYSC 500.0 Circuit 1 AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P6	N-1-1	109.1	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	_EST_P1_line_72_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_73_Line RAMON230 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	164.8	< 100	< 100	< 100	128.1	< 100	< 100	163.5	NotConv	Path 42 RAS
21376 RTP2SFLP 92.0 21974 RTP1SPSTN 92.0 1 1	_EST_P1_line_14_Line DEVERS 500.0 to VALLEYSC 500.0 Circuit 1 AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P6	N-1-1	103.5	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	Congestion management on 500kV North Gila area system due to high flows
	_EST_P1_line_15_Line DEVERS 500.0 to VALLEYSC 500.0 Circuit 2 AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P6	N-1-1	103.5	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	_EST_P1_line_9_Line SERRANO 500.0 to VALLEYSC 500.0 Circuit 1 AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P6	N-1-1	111.0	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	_EST_P1_line_A3_Line N.GILA 500.0 to HDWSH 500.0 Circuit 1 AND _EST_P1_line_A1_Line HASSYAMP 500.0 to N.GILA 500.0 Circuit 1	P6	N-1-1	117.2	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	_EST_P1_line_72_Line CVSUB230 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_73_Line RAMON230 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	166.7	< 100	< 100	< 100	129.3	< 100	< 100	165.5	NotConv	Path 42 RAS
21377 ANZA 92.0 21378 SALTON_CITY 92.0 1 1	_EST_P1_line_19_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6	N-1-1	< 100	110.5	< 100	NotConv	< 100	< 100	111.2	< 100	< 100	System adjustments after the first contingency
	_EST_P1_line_20_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND _EST_P1_line_19_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6	N-1-1	< 100	110.5	< 100	NotConv	< 100	< 100	111.2	< 100	< 100	
21378 SALTON_CITY 92.0 21379 DSERT_SHORES 92.0 1 1	_EST_P1_line_19_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6	N-1-1	< 100	106.9	< 100	NotConv	< 100	< 100	107.6	< 100	< 100	
	_EST_P1_line_20_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND _EST_P1_line_19_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6	N-1-1	< 100	106.9	< 100	NotConv	< 100	< 100	107.6	< 100	< 100	
24084 LITEHIPE 230 24091 MESA CAL 230 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.3	< 100	Congestion Management
24801 DEVERS 500 29252 DVRS_RB_11 500 1 1	_EST_P1_line_17_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND _EST_P1_line_70_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	N-1-1	123.5	< 100	< 100	< 100	< 100	< 100	< 100	179.4	< 100	System adjustments after the first contingency / Reduce high renewable generation output
	_EST_P1_line_17_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P6	N-1-1	128.1	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	IDE CRAS / Congestion management on 500kV North Gila area system due to high flows
	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_17_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P3	G-1/N-1	111.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	WOCR CRAS
	_EST_P1_gen_02_Gen SENTINEL Block AND _EST_P1_line_17_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P3	G-1/N-1	112.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_line_17_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P1	N-1	109.9	< 100	< 100	< 100	< 100	< 100	< 100	149.4	< 100	WOCR CRAS / Reduce High Renewable Generation Output
24801 DEVERS 500 29254 DVRS_RB_21 500 2 1	_EST_P1_line_16_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P6	N-1-1	124.4	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	IDE CRAS / Congestion management on 500kV North Gila area system due to high flows
24804 DEVERS 230 24806 MIRAGE 230 1 1	_EST_P1_line_23_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 2 AND _EST_P1_line_82_Line RAMON230 230.0 to DEVERS 230.0 Circuit 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	103.4	< 100	< 100	< 100	Path 42 RAS
25401 EAGLEMTN 230 25405 IRON MTN 230 1 1	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	112.5	< 100	< 100	< 100	< 100	Blythe Energy RAS (Generation Drop)
	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	< 100	< 100	< 100	< 100	113.2	< 100	< 100	< 100	< 100	
	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_2_Line BLYTHESC 161.0 to EAGLEMTN 161.0 Circuit 1	P6	N-1-1	119.8	< 100	< 100	< 100	NotConv	< 100	< 100	< 100	< 100	
	_EST_P1_tran_85_Tran EAGLEMTN 161.00 to EAGLEMTN 230.00 Circuit 5EMTN 5T 12.00 AND _EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	119.8	< 100	< 100	< 100	NotConv	< 100	< 100	< 100	< 100	
	_EST_P1_line_19_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 2	P7	DCTL	< 100	< 100	< 100	< 100	111.8	< 100	< 100	< 100	< 100	
25405 IRON MTN 230 24019 CAMINO 230 1 1	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	112.0	< 100	< 100	< 100	< 100	Blythe Energy RAS (Generation Drop)
	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	< 100	< 100	< 100	< 100	112.6	< 100	< 100	< 100	< 100	
	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_2_Line BLYTHESC 161.0 to EAGLEMTN 161.0 Circuit 1	P6	N-1-1	110.0	< 100	< 100	< 100	NotConv	< 100	< 100	< 100	< 100	
	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_tran_85_Tran EAGLEMTN 161.00 to EAGLEMTN 230.00 Circuit 5EMTN 5T 12.00	P6	N-1-1	110.0	< 100	< 100	< 100	NotConv	< 100	< 100	< 100	< 100	
	_EST_P1_line_19_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 2	P7	DCTL	< 100	< 100	< 100	< 100	111.5	< 100	< 100	< 100	< 100	
	_EST_P1_line_68_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1 AND _EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	< 100	< 100	< 100	< 100	NotConv	< 100	< 100	108.9	< 100	Blythe Energy RAS (Generation Drop) / Reduce High Renewable Generation Output
25406 J.HINDS 230 24806 MIRAGE 230 1 1	_EST_P1_line_43_Line EAGLEMTN 230.0 to IRON MTN 230.0 Circuit 1 AND _EST_P1_tran_85_Tran EAGLEMTN 161.00 to EAGLEMTN 230.00 Circuit 5EMTN 5T 12.00	P6	N-1-1	< 100	< 100	< 100	< 100	136.5	< 100	< 100	< 100	< 100	Blythe Energy RAS (Generation Drop)
	_EST_P1_line_50_Line JHINDMWD 230.0 to EAGLEMTN 230.0 Circuit 1	P1	N-1	137.2	< 100	< 100	< 100	137.6	< 100	< 100	< 100	< 100	
	EST_MWD_Line_5_Line JHINDMWD - EAGLEMTN 230 kV	P2-1	Line Section w/o Fault	137.2	< 100	< 100	< 100	137.6	< 100	< 100	< 100	< 100	
	EST_MWD_Line_32_CBs-J.HindsMWD. J.HindMWD portion & EagleMTN-J.Hinds Jh & Eagle Shunt Reactor	P2-2	Bus Section w/o Fault	137.2	< 100	< 100	< 100	137.6	< 100	< 100	< 100	< 100	
	EST_MWD_Line_34_CB405-EagleMTN loss EagleMTN sub and J.Hind MWD portion Jh & Eagle Shunt Reactor	P2-2	Bus Section w/o Fault	137.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_3_CAMINO - GENE - IRON MTN - MEAD 230 KV OUTAGE	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.5	< 100	< 100	< 100	< 100	
25432 GENE LX2 230 25404 GENE BK2 230 2 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	103.3	103.3	< 100	Congestion Management
25500 CALCITE 230 24085 LUGO 230 1 1	_EST_P1_line_19_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	105.7	< 100	< 100	< 100	System adjustments after the first contingency
25512 JHINDMWD 230 25401 EAGLEMTN 230 1 1	_EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1 AND _EST_P1_line_54_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	< 100	< 100	153.0	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_line_54_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 100	< 100	146.5	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	144.0	< 100	< 100	< 100	178.1	< 100	< 100	< 100	< 100	
	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_28_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	P3	G-1/N-1	< 100	< 100	101.2	< 100	< 100	< 100	< 100	< 100	< 100	

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Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_Hrenewable	S3_2027-SprOP_BESS	
	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	144.0	< 100	146.5	< 100	178.1	< 100	< 100	< 100	< 100	
	_EST_P1_line_2_Line BLYTHESC 161.0 to EAGLEMTN 161.0 Circuit 1 AND _EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	149.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_line_19_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 2	P7	DCTL	106.9	< 100	< 100	< 100	162.1	< 100	< 100	< 100	< 100	Blythe Energy RAS (Generation Drop)
25512 JHINDMWD 230 25406 J.HINDS 230 r1 1	_EST_P1_line_54_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 100	< 100	141.1	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	138.7	< 100	< 100	< 100	144.6	< 100	< 100	< 100	< 100	
	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_27_Line ALBERHIL 500.0 to SERRANO 500.0 Circuit 1	P3	G-1/N-1	< 100	< 100	100.7	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_28_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	P3	G-1/N-1	< 100	< 100	103.0	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	138.7	< 100	141.1	< 100	144.6	< 100	< 100	< 100	< 100	
	_EST_P1_line_19_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 1 AND _EST_P1_line_20_Line DEVERS 230.0 to MIRAGE 230.0 Circuit 2	P7	DCTL	107.6	< 100	< 100	< 100	131.6	< 100	< 100	< 100	< 100	
29255 DVRS_RB_22 500 24374 REDBLUFF 500 2 1	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_16_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P3	G-1/N-1	108.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	_EST_P1_gen_02_Gen SENTINEL Block AND _EST_P1_line_16_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P3	G-1/N-1	109.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	WOCR CRAS
Colorado River 1AA or 2AA 500/230 kV	Colorado River 1AA or 2AA 500/230 kV	P1	N-1	123.0	163.8	163.4	153.4	< 100	< 100	163.6	160.0	< 100	
	_EST_P1_line_1_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1 AND Colorado River 1AA or 2AA 500/230 kV	P6	N-1-1	< 100	164.9	< 100	156.8	< 100	< 100	165.6	< 100	< 100	
Devers 1AA 500/230 Kv	_EST_P1_line_28_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1 AND _EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P6	N-1-1	< 100	119.6	< 100	157.0	< 100	< 100	118.1	< 100	< 100	System adjustments after the first contingency
Devers 1AA or 2AA 500/230 kV	Devers 1AA or 2AA 500/230 kV	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.4	< 100	Congestion Management
Failed to Converge in S2_2027-SmrPk_Hrenewable case	_EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	Congestion management on 500kV North Gila area system due to high flows
	_EST_P1_gen_02_Gen SENTINEL Block AND _EST_P1_line_A4_Line N.GILA 500.0 to IMPRLVLY 500.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
Red Bluff 1AA or 2AA 500/230 kV	Red Bluff 1AA or 2AA 500/230 kV	P1	N-1	< 100	129.9	133.1	156.5	< 100	< 100	129.7	152.6	< 100	
	Red Bluff 1AA or 2AA 500/230 kV AND _EST_P1_line_2_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1	P6	N-1-1	< 100	< 100	< 100	155.7	< 100	< 100	129.3	< 100	< 100	WOCR CRAS
	_EST_P1_line_19_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND Red Bluff 1AA or 2AA 500/230 kV	P6	N-1-1	< 100	129.3	< 100	155.4	< 100	< 100	129.0	< 100	< 100	
Red Bluff 2AA 500/230 kV	_EST_P4_line_06_Colorado River-Red Bluff No.2 500 kV & Red Bluff 500/220 kV 1AA Bank	P4	Stuck Breaker	< 100	129.9	132.9	156.3	< 100	< 100	129.6	152.3	< 100	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE Eastern Area
High/Low Voltages

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_Hrenewable	S3_2027-SprOP_BESS	
BLYTHESC 161 kV	_EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.89	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	Addition of reactive support recommended - First phase of SCE method of service study includes addition of reactive support on distribution side of Blythe substation
EAGLEMTN 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Blythe Energy RAS (Generation Drop)
EM LX1 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
EM LX2 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
JH LX2 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	Close distribution capacitor at Eagle Mountain substation pre-contingency
JH LX1 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	_EST_P1_line_50_Line JHINDMWD 230.0 to EAGLEMTN 230.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	Per CAISO Procedure 3100B, post-contingency voltage operating range is 0.90-1.07 pu for SCE 115kV buses
BISHOP3 115 kV	_EST_P1_line_51_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
ALTWIND 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TIFFWIND 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BUCKWND 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BLAST 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
HI DESERT 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
DEVERS 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
EISNHOW 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BOTTLE 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BANWIND 115 kV	_EST_P1_tran_84_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 1DEVERS1T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
ALTWIND 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TIFFWIND 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BUCKWND 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BLAST 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
HI DESERT 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
DEVERS 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
EISNHOW 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BOTTLE 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BANWIND 115 kV	_EST_P1_tran_85_Tran DEVERS 500.00 to DEVERS 230.00 Circuit 2DEVERS2T 13.80	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	EST_MWD_Line_5_Line JHINDMWD - EAGLEMTN 230 kV	P2-1	Line Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
JH LX1 230 kV	EST_MWD_Line_31_CBs-J.HindsSCE. J-Mirage GenTie-Buck Blvd Jh & Eagle Shunt Reactor	P2-2	Bus Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	Close distribution capacitor at Eagle Mountain substation pre-contingency / Continue to monitor high voltage
JH LX2 230 kV	EST_MWD_Line_31_CBs-J.HindsSCE. J-Mirage GenTie-Buck Blvd Jh & Eagle Shunt Reactor	P2-2	Bus Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	1.05	
BISHOP3 115 kV	EST_MWD_Line_32_CBs-J.HindsMWD. J.HindMWD portion & EagleMTN-J.Hinds Jh & Eagle Shunt Reactor	P2-2	Bus Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	Per CAISO Procedure 3100B, post-contingency voltage operating range is 0.90-1.07 pu for SCE 115kV buses
BISHOP3 115 kV	EST_MWD_Line_34_CB405-EagleMTN loss EagleMTN sub and J.Hind MWD portion Jh & Eagle Shunt Reactor	P2-2	Bus Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
BLYTHESC 161 kV	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.89	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Addition of reactive support recommended - First phase of SCE method of service study includes addition of reactive support on distribution side of Blythe substation
BLYTHESC 161 kV	_EST_P1_gen_02_Gen SENTINEL Block AND _EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	
EAGLEMTN 230 kV	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Blythe Energy RAS (Generation Drop)
EM LX1 230 kV	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
EM LX2 230 kV	_EST_P4_line_05_Julian Hinds- Mirage 230 kV Line & Mirage-Ramon 230 kV Line	P4	Stuck Breaker	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
JH LX1 230 kV	_EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1 AND _EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.9 < V < 1.05	0.59	0.59	0.65	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Addition of reactive support recommended - First phase of SCE method of service study includes addition of reactive support on distribution side of Blythe substation
BLYTHESC 161 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1 AND _EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P6	N-1-1	0.9 < V < 1.05	0.61	0.63	0.66	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
JH LX1 230 kV	_EST_P1_line_68_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1 AND _EST_P1_line_51_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.68	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.64	0.9 < V < 1.05	
JHINDMWD 230 kV	_EST_P1_line_68_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1 AND _EST_P1_line_51_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.70	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.65	0.9 < V < 1.05	
BLYTHESC 161 kV	_EST_P1_line_68_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1 AND _EST_P1_line_51_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.71	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.66	0.9 < V < 1.05	
EM LX1 230 kV	_EST_P1_line_69_Line PARKER 230.0 to GENE 230.0 Circuit 1 AND _EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	Blythe Energy RAS (Generation drop) for 2027 Spring OP / System adjustments after the first contingency for 27 SP
EAGLEMTN 230 kV	_EST_P1_line_69_Line PARKER 230.0 to GENE 230.0 Circuit 1 AND _EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	
EM LX2 230 kV	_EST_P1_line_55_Line JHINDMWD 230.0 to EAGLEMTN 230.0 Circuit 1 AND _EST_P1_line_48_Line EAGLEMTN 230.0 to IRON MTN 230.0 Circuit 1	P6	N-1-1	0.9 < V < 1.05	0.69	0.78	0.69	0.9 < V < 1.05	0.85	0.67	0.9 < V < 1.05	0.9 < V < 1.05	OP7720F
EAGLEMTN 230 kV	_EST_P1_line_55_Line JHINDMWD 230.0 to EAGLEMTN 230.0 Circuit 1 AND _EST_P1_line_48_Line EAGLEMTN 230.0 to IRON MTN 230.0 Circuit 1	P6	N-1-1	0.9 < V < 1.05	0.71	0.79	0.70	0.9 < V < 1.05	0.85	0.69	0.9 < V < 1.05	0.9 < V < 1.05	
JHINDMWD 230 kV	_EST_P1_line_43_Line EAGLEMTN 230.0 to IRON MTN 230.0 Circuit 1 AND _EST_P1_line_51_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.76	
JHINDMWD 230 kV	_EST_P1_line_48_Line EAGLEMTN 230.0 to IRON MTN 230.0 Circuit 1 AND _EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.81	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	System adjustments after the first contingency
JH LX1 230 kV	_EST_P1_line_48_Line EAGLEMTN 230.0 to IRON MTN 230.0 Circuit 1 AND _EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.81	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
MIRAGE 230 kV	_EST_P7_line_06_Line DEVERS - MIRAGE 230.00 kV No.1 & No.2	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Continue to monitor high voltage

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: **SCE Eastern Area**
Voltage Deviation

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_Hrenewable	S3_2027-SprOP_BESS	
BLYTHESC 161 kV	_EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P1	N-1	< 8	9.40	9.82	< 8	< 8	< 8	9.83	< 8	< 8	Addition of reactive support recommended - First phase of SCE method of service study includes addition of reactive support on distribution side of Blythe substation
EAGLEMTN 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	10.60	< 8	< 8	< 8	< 8	Blythe Energy RAS (Generation Drop)
EM LX1 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	10.60	< 8	< 8	< 8	< 8	
EM LX2 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	10.60	< 8	< 8	< 8	< 8	
IRON MTN 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	10.16	< 8	< 8	< 8	< 8	
J.HINDS 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	9.03	< 8	< 8	< 8	< 8	
JH LX1 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	9.05	< 8	< 8	< 8	< 8	
JH LX2 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	9.05	< 8	< 8	< 8	< 8	
JHINDMWD 230 kV	_EST_P1_line_49_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	N-1	< 8	< 8	< 8	< 8	9.05	< 8	< 8	< 8	< 8	
EAGLEMTN 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	< 8	< 8	< 8	8.83	< 8	< 8	8.31	< 8	< 8	Close distribution capacitor at Eagle Mountain substation pre-contingency
EM LX1 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	< 8	8.06	< 8	9.00	< 8	< 8	8.39	< 8	< 8	
EM LX2 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	< 8	8.06	< 8	9.00	< 8	< 8	8.57	< 8	< 8	
JHINDMWD 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	< 8	8.47	< 8	9.40	< 8	< 8	8.84	< 8	< 8	
JH LX1 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	< 8	8.69	< 8	9.65	< 8	< 8	8.96	< 8	< 8	
JH LX2 230 kV	_EST_P1_line_56_Line JHINDMWD 230.0 to J.HINDS 230.0 Circuit r1	P1	N-1	< 8	8.69	< 8	9.65	< 8	< 8	9.23	< 8	< 8	
BLYTHESC 161 kV	_EST_P1_gen_01_Gen MountainView Block AND _EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P3	G-1/N-1	< 8	9.68	10.24	< 8	< 8	< 8	< 8	< 8	< 8	Addition of reactive support recommended - First phase of SCE method of service study includes addition of reactive support on distribution side of Blythe substation
BLYTHESC 161 kV	_EST_P1_gen_02_Gen SENTINEL Block AND _EST_P1_line_3_Line BLYTHE 161.0 to BLYTHESC 161.0 Circuit 1	P3	G-1/N-1	< 8	10.25	< 8	< 8	< 8	< 8	10.41	< 8	< 8	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE Eastern Area
Transient Stability

California ISO

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			B2_2030-SmrPk	B3_2035-SmrPk	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S3_2027-SprOP_BESS	
3ph fault@BlytheSC, loss BLYTHESC-EAGLEMTN 161kV and EagleMt 5A bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@BlytheSC, loss BLYTHESC-EAGLEMTN 161kV and EagleMt 5A bank, Blythe RAS trip 1CT	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@EagleM, loss EAGLEMTN-IRON MTN 230kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@Jhind, loss JHINDMWD-EAGLEMTN 230kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@Jhind, loss JHINDMWD-EAGLEMTN 230kV, Blythe RAS trip 1CT	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@Jhind, loss J.Hinds-Mirage 230kV	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@Jhind, loss J.Hinds-Mirage 230 kV, Blythe RAS trip 1CT	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@CR, loss PALOVRDE-COLRIVER 500	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Red Bluff, loss COLRIVER-REDBLUFF 500 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Devers, loss DEVERS-REDBLUFF 500 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Valley, loss DEVERS-VALLEYSC 500 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Valley, loss SERRANO-ALBERHILL 500 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Valley, loss ALBERHILL-VALLEYSC 500 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Devers, loss Tran DEVERS AA #2	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@CR, loss CIELO AZUL-COLRIVER 500	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@Gila, Loss IMPRLVLY-N.GILA 500.0 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, 3ph@Gila, Loss IMPRLVLY-N.GILA 500.0 #1	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph fault@Bus Tie CB, loss J.Hinds	P2	Breaker Fault	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
no Devers SVC, SLG@DEVERS-middleCB, Loss of DEVERS-REDBLUFF 500 #1 & DEVERS-Valley 500 #1 lines	P2	Breaker Fault	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG@DEVERS-middleCB, Loss of DEVERS-REDBLUFF 500 #2 & DEVERS 1AA Bank	P2	Breaker Fault	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Blythe, lose BlytheSC-EagleMTN, EagleMTN 5A Bank and BlytheSC-BlytheWalc 161 kV	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Blythe, lose BlytheSC-EagleMTN, EagleMTN 5A Bank and BlytheSC-BlytheWalc 161 kV, Blythe RAS	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@CB70@EagleMTN161, lose BlytheSC-EagleMTN 161 kV and EagleMTN 230/161 Bank	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@CB70@EagleMTN161, lose BlytheSC-EagleMTN 161 kV and EagleMTN 230/161 Bank, Blythe RAS	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@CB407@EagleMTN, lose EagleMtn & IronMtn Sub	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@CB407@EagleMTN, lose EagleMtn & IronMtn Sub, Blythe RAS	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@CB307@IronMTN, lose IronMTN 230kV Sub station, Gene-Parker and CAMINO-GENE-IRON MTN-MEAD 230 KV	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@EagleMTN, stuck breaker CB405@EagleMTN, loss EagleMTN-J.Hinds, J.Hinds MWD portion and EAGLEMTN sub	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@EagleMTN, stuck breaker CB405@EagleMTN, loss EagleMTN-J.Hinds, J.Hinds MWD portion and EAGLEMTN sub, Blythe RAS	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@J.Hinds, loss J.Hinds-Mirage 230 kV, stuck CB509@J.Hinds, loss J.Hinds portion (include Blythe Gen) by LBFB	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG@230kV, Stuck CB432@EagleMtn230, loss EagleMTN sub by LBFB	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG@230kV, Stuck CB432@EagleMtn230, loss EagleMTN sub by LBFB, Blythe RAS	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&StuckCB@Valley, loss SERRANO-VALLEYSC & Valley 4AA Bank	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@DEVERS, Loss of DEVERS-REDBLUFF 500 #1 & DEVERS-Valley 500 #1 lines	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@DEVERS, Loss of DEVERS-REDBLUFF 500 #2 & DEVERS 1AA Bank	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Mirage, Loss of Devers - Mirage 230 kV #2 & CVSUB230 - Mirage 230 kV lines	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Devers, Loss of Devers-Vista #1 & Devers 3A	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Devers, Loss Devers-Vista #2 & Devers 1AA bank	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@El Casco Loss of Devers-El Casco 230kV & El Casco 3A Bank	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Mirage , Loss J.Hinds-Mirage & Mirage-Ramon 230 kV Lines	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@Mirage , Loss J.Hinds-Mirage & Mirage-Ramon 230 kV Lines, Blythe RAS	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near BlytheSC, pilot relay fail, lose BlytheSC - EagleMTN 161kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near EagleMtn, pilot relay fail, lose BlytheSC - EagleMTN 161kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near EagleMTN, pilot relay fail, lose EagleMTN-IronMTN 230kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near IronMtn, pilot relay fail, lose EagleMTN-IronMTN 230kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG@near EagleMTN, pilot relay fail, lose J.Hinds-EagleMTN 230kV Line and J.Hinds MWD portion	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG@near EagleMTN, pilot relay fail, lose J.Hinds-EagleMTN 230kV Line and J.Hinds MWD portion, Blythe RAS	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near J.HindsMWD, pilot relay fail, lose J.Hinds-EagleMTN 230kV Line and J.Hinds MWD portion	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near J.HindsMWD, pilot relay fail, lose J.Hinds-EagleMTN 230kV Line and J.Hinds MWD portion	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near J.Hinds, Loss Julian Hinds-Mirage 230 kV line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near J.Hinds, Loss Julian Hinds-Mirage 230kV, Blythe RAS	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near Mirage, Loss Julian Hinds-Mirage 230 kV line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG near Mirage, Loss Julian Hinds-Mirage 230kV, Blythe RAS	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG@EagleMTN230Bus, EagleMTN DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@Valley500Bus, Valley DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@JHinds230Bus, JHinds DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@BlytheSCBus, Blythe DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@Mirage230Bus, Mirage DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Diverge	WECC Criteria Not Met	Add Redundant Relay
SLG@DV500Bus, Devers DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@ElCascoBus, ElCasco DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@SanBernardinoBus, SanBernardino DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@VistaBus, Vista DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
SLG@Etwanda230Bus, Etwanda DC sytem fail, persistent fault	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
1ph&stuckCB@CR, loss COLRIVER-PALOVRDE 500	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Centipede 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Filippi 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Grace 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss COLRIVER-REDBLUFF 500	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR500, loss Tran REDBLUFF 1AA	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, Loss of DEVERS-REDBLUFF 500 #2	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss REDBLUFF-Oberon 500	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss REDBLUFF-DSRTSunlight 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss REDBLUFF-Black Ranch 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss REDBLUFF-Almasol 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-CIELO AZUL 500	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss REDBLUFF-Victory Pass 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@RB, loss REDBLUFF-Athos 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-REDBLUFF 500 #2	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-VALLEYSC 500 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
SLG&CBstuck@DEVERS500, Loss of DEVERS 1AA Bank	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-El Casco 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-Mirage 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-Sentinel 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-Vista 230 #2	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR500, loss COLRIVER-REDBLUFF 500	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-Marvel 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@El, Loss of DEVERS-El Casco 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@El, Loss of El Casco - San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@SanB, Loss of El Casco - San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@SanB, Loss of Devers - San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@SanB, Loss of Etwanda - San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@SanB, Loss of MNTVIEW3 - San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@SanB, Loss of San Bernardino - Vista 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Vista, Loss of San Bernardino - Vista 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Vista, Loss of San Bernardino - Vista 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss Tran COLRIVER 1AA	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Vista, Loss of Etiwanda - Vista 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Vista, Loss of Mira Loma - Vista 230 #2	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Vista, Loss of Mira Loma - Vista 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Etw, Loss of Etiwanda - San Bernardino 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Etw, Loss of Etiwanda - Vista 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Valley, Loss of DEVERS-VALLEYSC 500 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Valley, Loss of SERRANO-ALBERHILL 500 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Valley, Loss of ALBERHILL-VALLEYSC 500 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Valley, Loss of VALLEYSC 1AA	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Valley, Loss of VALLEY-S 4AA	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Valley, Loss of VALLEYSC-ROMOLA 500	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Genesis 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Mirage, Loss of DEVERS-Mirage 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Mirage, Loss of Julian Hinds-Mirage 230kV, Blythe RAS	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Mirage, Loss of RAMON-MIRAGE 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Mirage, Loss of CVSUB230-MIRAGE 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@JHinds, Loss of Julian Hinds-Mirage 230kV, Blythe RAS	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@JHinds, Loss of Julian Hinds-Buck Blvd 230kV, Blythe RAS	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@JHinds513, Loss of Julian Hinds	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Black Creek 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-DRACKER 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Suncatcher 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@CR, loss COLRIVER-Crimson 230	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
1ph&stuckCB@Devers, Loss of DEVERS-RAMON230 230 #1	P5-13d	Trip Coil Fail	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
EagleMTN-IronMTN line outage followed by 3ph@JJ.Hinds, lose J.Hinds-Mirage 230 kV line	P6	N-1-1	Diverge	Diverge	No Issues	No Issues	Diverge	No Issues	System Adjustments after first contingency
EagleMTN-IronMTN line outage followed by 3ph@JJ.Hinds, lose J.Hinds-Mirage 230 kV line, ISO7720	P6	N-1-1	Diverge	No Issues	No Issues	No Issues	Diverge	No Issues	System Adjustments after first contingency
3ph@RB, Loss COLRIVER- REDBLUFF 500.0 #1 & #2	P6	N-1-1	No Issues	No Issues	No Issues	Diverge	No Issues	No Issues	System Adjustments after first contingency
3ph@Devers, Loss DEVERS-REDBLUFF 500.0 #1 & #2	P6	N-1-1	No Issues	No Issues	No Issues	Diverge	No Issues	No Issues	System Adjustments after first contingency
3ph@Valley, Loss DEVERS-VALLEYSC 500.0 #1 & #2	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@San Bernardino, Loss Etiwanda-San Bernardino & EL Casco -San Bernardino 230kV lines	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@San Bernardino, Loss San Bernardino-Vista & Devers-San Bernardino 230kV lines	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph fault@CR, loss PALOVRDE-COLRIVER & COLRIVER-CIELO AZUL 500kV lines	P6	N-1-1	Unstable	No Issues	No Issues	No Issues	Unstable	No Issues	System Adjustments after first contingency
3ph@Mirge, Loss RAMON-MIRAGE & CVSUB230-MIRAGE 230.0 Lines	P6	N-1-1	No Issues	Unstable	Diverge	Unstable	No Issues	Diverge	System Adjustments after first contingency
3ph@Mirge, Loss RAMON-MIRAGE & CVSUB230-MIRAGE 230.0 Lines, Path42 and Blythe RAS	P6	N-1-1	No Issues	Unstable	Diverge	Diverge	No Issues	Diverge	System Adjustments after first contingency
1ph@ Devers, Loss of Devers-Mirage 230-kV #1 & #2	P7	DCTL	No Issues	No Issues	Diverge	No Issues	Diverge	No Issues	Path 42 RAS & Blythe RAS
1ph@ Devers, Loss of Devers-Mirage 230-kV #1 & #2, Path 42 RAS & Blythe RAS	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@Devers, Loss Devers-San Bernardino & Devers-El Casco 230kV lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@SB, Loss Devers-San Bernardino & San Bernardino-El Casco 230kV lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@Vista, Loss of Devers - Vista 230kV line #1 & #2	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@SB, Loss Etiwanda-San Bernardino & San Bernardino-Vista 230kV lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@Vista, Loss of Mira Loma-Vista #2 & Vista-Wildlife 230kV lines	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
3ph@CV, Loss CVSUB230-RAMON & CVSUB230-MIRAGE 230.0 Lines	P7	DCTL	Unstable	Unstable	Diverge	Unstable	Unstable	Diverge	Path 42 RAS
3ph@CV, Loss CVSUB230-RAMON & CVSUB230-MIRAGE 230.0 Lines, Path42 and Blythe RAS	P7	DCTL	No Issues	No Issues	No Issues	No Issues	Unstable	No Issues	Path 42 RAS

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE Eastern Area
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_Hrenewable	S3_2027-SprOP_BESS	

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

2025-2026 ISO Reliability Assessment - Final Study Results

Study Area: SCE Eastern Area

Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)									Potential Mitigation Solutions
	B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_Hrenewable	S3_2027-SprOP_BESS	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_SCE_27 SP	B2_SCE_30 SP	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5_SCE_30 SmrOP	B6R: 2040 Winter Peak (w/o DMS)	B7_SCE_27 OP	B8R: 2035 Spring Off-Peak (w/o DMS)	S1_SCE_30 SP_HLOAD	S2_SCE_27 SP_HRenew	S3_SCE_27 OP_BES	
24042 ELDORDO 500 26048 MCCULLGH 500 1 1	P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	119.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Revise the Lugo-Victorville RAS along and rely on congestion management to address Eldorado-McCullough 500 kV tie overloads for P1, P2/P4, and P6 contingencies, while incorporating transmission projects to interconnect out-of-state wind resources as they are materialized.
	GP1_24001_Gen Alamitos Repower AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P3	G-1/L-1	< 100	< 100	< 100	121.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P24L_M_P4_0022_Tran LUGO 500.0 to LUGO 230.0 Circuit 2 Line LUGO 500.0 to ELDORDO 500.0 Circuit 1	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	< 100	119.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24074_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6	overlapping singles	< 100	< 100	123.4	160.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24080_Line MOHAVE 500.0 to ELDORDO 500.0 Circuit 1 AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6	overlapping singles	< 100	< 100	106.2	135.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 AND P1L_24150_Line ELDORDO2 230.0 to SLOAN CANYON 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	122.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24220_Line MOENKOPI 500.0 to ELDORDO 500.0 Circuit 1 AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	122.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
24042 ELDORDO 500 29037 eldor 5i 13.8 5 1	P1L_24228_Line SLOAN_CYN_5 500.0 to ELDORDO 500.0 Circuit 1 AND P1L_GLWP01A_Line H ALLEN 500.0 to SLOAN_CYN_5 500.0 Ckt 1	P6	overlapping singles	< 100	< 100	< 100	117.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Operation mitigation dropping generation in the NOL area after the first contingency
24085 LUGO 230 29258 lugo 3i AA3	P1T_24243_Tran LUGO 500.00 to LUGO 230.00 Circuit 1LUGO 1T 13.80 AND P1T_24244_Tran LUGO 500.00 to LUGO 230.00 Circuit 2LUGO 2T 13.80	P6	overlapping singles	< 100	119.4	162.3	121.8	118.8	< 100	< 100	126.7	126.3	< 100	< 100	Existing HDDP RAS & Mojave Desert RAS dropping generation in the NOL area
25500 CALCITE 230 24085 LUGO 230 1 1	P1L_24068_Line LUGO 500.0 to VICTORVL 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	< 100	< 100	Rely on congestion management and Calcite cRAS to address the P1, P2/P4, P5, and P6 overloads as needed, as generation interconnections continue to materialize in the area.
	P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 A	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.6	< 100	< 100	< 100	
	P1L_24121By_Line PISGAH 230.0 to CALCITE 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.9	< 100	< 100	< 100	
	P1L_24122_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P1	Single Contingency	< 100	< 100	< 100	119.4	< 100	110.8	< 100	114.2	< 100	< 100	< 100	
	P24L_M_P4_0009_Line LUGO 230.0 to VICTOR 230.0 Circuit 2 Line LUGO 230.0 to PISGAH 230.0 Circuit 2	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	< 100	119.6	< 100	111.1	< 100	114.5	< 100	< 100	< 100	
	GP1_24007_Gen Huntington Beach Repower AND P1L_24122_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P3	G-1/L-1	< 100	< 100	101.2	121.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P5L_TL_829_12_P5.2.13b Lugo-Pisgah No.2 230kV	P5	non-redundant component	< 100	< 100	< 100	119.4	< 100	110.8	< 100	114.2	< 100	< 100	< 100	
	P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 AND P1L_24068_Line LUGO 500.0 to VICTORVL 500.0 Circuit 1	P6	overlapping singles	< 100	< 100	103.3	108.7	< 100	< 100	< 100	115.3	< 100	< 100	< 100	
	P1L_24128_Line ELDORDO 230.0 to CIMA-PISGAH1 230.0 Circuit 1 AND P1L_24122_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	< 100	135.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 AND P1L_24122_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	109.2	129.6	< 100	< 100	< 100	123.3	< 100	< 100	< 100	
	P1L_24068_Line LUGO 500.0 to VICTORVL 500.0 Circuit 1 AND P1L_24122_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	105.8	127.0	< 100	< 100	< 100	121.7	< 100	< 100	< 100	
24219 PISGAH 230 24085 LUGO 230 2 1	P1L_24121Bx_Line CALCITE 230.0 to LUGO 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	108.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24121Bx_Line CALCITE 230.0 to LUGO 230.0 Circuit 1 AND P1L_2439_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	118.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24074_Line LUGO 500.0 to MOHAVE 500.0 Circuit 1 AND P1L_24121Bx_Line CALCITE 230.0 to LUGO 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	116.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24068_Line LUGO 500.0 to VICTORVL 500.0 Circuit 1 AND P1L_24121Bx_Line CALCITE 230.0 to LUGO 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	115.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24121Bx_Line CALCITE 230.0 to LUGO 230.0 Circuit 1 AND P1L_24128_Line ELDORDO 230.0 to CIMA-PISGAH1 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	128.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
24219 PISGAH 230 25500 CALCITE 230 1 1	P1L_24121Bx_Line CALCITE 230.0 to LUGO 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.6	< 100	< 100	< 100	
	P24L_M_P4_0012b_Line LUGO 230.0 to CALCITE 230.0 Circuit 1 Line LUGO 230.0 to VICTOR 230.0 Circuit 3	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.8	< 100	< 100	< 100	
24801 DEVERS 500 29252 DVRS_RB_11 500 1 1	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P1	Single Contingency	110.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	148.6	< 100	The P1 and P6 overloads could be mitigated by existing RAS and operational mitigation actions, such as curtailing generation in the SCE Eastern and the DCRT systems
	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6	overlapping singles	115.2	< 100	100.7	107.3	106.3	< 100	< 100	< 100	100.5	162.9	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	124.0	106.7	110.2	124.5	121.3	< 100	< 100	< 100	112.2	NotConv	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6	overlapping singles	129.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
24801 DEVERS 500 29254 DVRS_RB_21 500 2 1	P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P1	Single Contingency	107.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144.1	< 100	
	P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	120.3	105.2	110.2	124.5	119.6	< 100	< 100	< 100	110.8	NotConv	< 100	
	P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6	overlapping singles	125.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
29252 DVRS_RB_11 500 29253 DVRS_RB_12 500 1 1	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.4	< 100	
	GP1_24001_Gen Alamitos Repower AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P3	G-1/L-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.0	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	< 100	103.7	108.2	122.3	118.0	< 100	< 100	< 100	109.1	NotConv	< 100	
29253 DVRS_RB_12 500 24374 REDBLUFF 500 1 1	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P1	Single Contingency	109.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	147.1	< 100	
	GP1_24001_Gen Alamitos Repower AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P3	G-1/L-1	111.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	152.0	< 100	
	P1L_24069_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 AND P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2	P6	overlapping singles	112.5	< 100	< 100	100.6	< 100	< 100	< 100	< 100	< 100	151.4	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	122.7	105.6	110.1	124.4	120.1	< 100	< 100	< 100	111.0	NotConv	< 100	
	P1L_24155_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 2 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6	overlapping singles	127.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	
29255 DVRS_RB_22 500 24374 REDBLUFF 500 2 1	P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P1	Single Contingency	107.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144.0	< 100	
	GP1_24010_Gen Mountainview Block 2 AND P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P3	G-1/L-1	109.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24069_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 AND P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6	overlapping singles	110.4	< 100	< 100	100.6	< 100	< 100	< 100	< 100	< 100	148.1	< 100	
	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1	P6	overlapping singles	111.8	< 100	100.6	107.2	105.0	< 100	< 100	< 100	< 100	157.3	< 100	
	P1L_24154_Line DEVERS 500.0 to REDBLUFF 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	120.3	105.2	110.1	124.4	119.4	< 100	< 100	< 100	110.8	NotConv	< 100	
25401 EAGLEMTN 230 25405 IRON MTN 230 1 1	P1L_24180_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	Rely on congestion management curtailing generation in the Eastern or reducing import from IID, and along with and the Blythe RAS, to eliminate the P1 and P2/P4 overloads, and the P6 overloads could also eliminated by system adjustments curtailing generation in the Eastern area and/or reducing import from IID after the 1st event of P6 contingency
	P1L_24180_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1 AND P1L_SDGE40_Line IMPRLVLY 500KV to NSONGS 500 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.6	< 100	< 100	< 100	
25512 JHINDMWD 230 25401 EAGLEMTN 230 1 1	P1L_24112x_Line ALBERHIL 500.0 to SERRANO 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	P1	Single Contingency	< 100	100.2	105.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24180_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	Single Contingency	102.1	159.4	159.6	< 100	< 100	145.0	165.9	164.7	159.3	< 100	166.0	
	P24L_M_P4_0051b_Line ALBERHIL 500.0 to SERRANO 500.0 Circuit 1 Tran SERRANO 500.0 to SERRANO_2 230.0 Circuit 3	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	< 100	NotConv	120.5	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	< 100	
25512 JHINDMWD 230 25406 J.HINDS 230 r1 1	P1L_24180_Line J.HINDS 230.0 to MIRAGE 230.0 Circuit 1	P1	Single Contingency	< 100	141.4	141.6	< 100	< 100	139.8	146.1	145.7	141.4	< 100	146.2	
	P1L_241_Line PALOVRDE 500.0 to COLRIVER 500.0 Circuit 1 AND P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P6	overlapping singles	< 100	NotConv	109.3	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	< 100	

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_SCE_27 SP	B2_SCE_30 SP	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5_SCE_30 SmrOP	B6R: 2040 Winter Peak (w/o DMS)	B7_SCE_27 OP	B8R: 2035 Spring Off-Peak (w/o DMS)	S1_SCE_30 SP_HLOAD	S2_SCE_27 SP_HRenew	S3_SCE_27 OP_BES	
30060 MIDWAY 500 24591 MW_VINCNT_11 500 1 1	P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P1	Single Contingency	150.2									154.8		1. The P1 overloads with the heavy Path 26 flow from north to south up to the 4000 MW limit (B1/S2) could be eliminated by operational mitigation actions reducing power flow via Path 26. The P1 overload would lead to congestion issue that needs to be assessed in economic study. 2. The P6 overloads with the heavy Path 26 flow scenarios from north to south up to the 4000 MW limit and (B1/S2) could be eliminated by operational mitigation actions reducing power flow import via Path 26 after the 1st contingency.
24590 MW_VINCNT_12 500 24156 VINCENT 500 1 1	P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2	P1	Single Contingency	149.8									154.5		
	P1L_2408_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 2 AND P1DC_PDCI2_PDCI CONVERTER MONOPOLE #2	P6	overlapping singles	186.2									NotConv		
30060 MIDWAY 500 24593 MW_VINCNT_21 500 2 1	P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P1	Single Contingency	150.9									155.5		
24592 MW_VINCNT_22 500 24156 VINCENT 500 2 1	P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P1	Single Contingency	150.4									155.2		
	P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1 AND P1DC_PDCI2_PDCI CONVERTER MONOPOLE #2	P6	overlapping singles	187.0									NotConv		
	P1L_2409_Line MIDWAY 500.0 to WIRLWIND 500.0 Circuit 3 AND P1L_2407_Line MIDWAY 500.0 to VINCENT 500.0 Circuit 1	P6	overlapping singles	178.1									178.6		
30060 MIDWAY 500 24595 MW_WRLWND_31 500 3 1	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2	Credible Common Corridor	114.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.9	< 100	
24594 MW_WRLWND_32 500 29402 WIRLWIND 500 3 1	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2	Credible Common Corridor	115.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.1	< 100	1. The P0 overload with the heavy Path 26 flow from south to north up to the 3000 MW limit (B2/B3/B8/S1) could be eliminated by operational mitigation actions, including reducing power flow via Path 26 and/or dispatching energy storage in charging mode in the Tehachapi area. The P0 overload would lead to congestion issue that needs to be assessed in economic study; 2. The credible N-2 overloads for the operating scenarios with heavy Path 26 flow from north to south up to the 4000 MW limit (B1/S2) could be eliminated by the PG&E Path 26 RAS curtailing generation and the SCE Path 26 RAS dropping loads; 3. The P6 overloads for the operating scenarios with heavy Path 26 flow from north to south up to the 4000 MW limit (B1/S2) could be eliminated by operational mitigation actions reducing power flow import via Path 26 after the 1st contingency.
24595 MW_WRLWND_31 500 24594 MW_WRLWND_32 500 3 1	Base Case	P0	Normal Operation	< 100	118.9	116.4	< 100	< 100	< 100	< 100	102.7	120.8	< 100	< 100	
	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2	Credible Common Corridor	107.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.5	< 100	
	N2_4P26_N2S_RAS1_MIDWAY-Vincent 500kV N-2 WITH Path26 N2S RAS	N2	Credible Common Corridor	< 100	NA	NA	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	
	N2_5P26_N2S_RAS-OP_MIDWAY-Vincent 500kV N-2 WITH Path26 N2S RAS and OP	P6	overlapping singles	< 100	NA	NA	< 100	< 100	< 100	< 100	< 100	NA	< 100	< 100	
29400 ANTELOPE 500 29401 WINDHUB 500 1 1	P1L_24209_Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	108.1	< 100	< 100	< 100	101.3	< 100	< 100	The P1 and P2/P4 overloads could be eliminated by modifying Tehachapi CRAS to curtail generation in the area
	P24L_T_P4_017_Windhub 1AA bank and Windhub-Whirlwind 500 kV line	P2/P4	overlapping singles	< 100	< 100	< 100	< 100	108.3	< 100	< 100	< 100	101.5	< 100	< 100	
29402 WIRLWIND 500 29401 WINDHUB 500 1 1	P1L_24207_Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	107.8	< 100	< 100	< 100	100.9	< 100	< 100	
	P24L_T_P4_010_Windhub 4AA bank and Windhub-Antelope 500 kV line	P2/P4	overlapping singles	< 100	< 100	< 100	< 100	108.1	< 100	< 100	< 100	101.0	< 100	< 100	
24086 LUGO 500 24156 VINCENT 500 #1 or #2	P1L_24072_Line LUGO 500.0 to VINCENT 500.0 Circuit 2 or 1 AND P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6	overlapping singles	117.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NotConv	< 100	The P6 overloads could be eliminated by operational mitigation actions dispatching available resources after the 1st contingency.
24086 LUGO 500 24092 MIRALOMA 500 #2 or #3	P1L_24070_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3 or 2 AND P1L_24073_Line LUGO 500.0 to RANCHVST 500.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	110.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	1. The P7 overloads could be eliminated by preemptively dispatching available resources including energy storage resources in the Metro and Eastern areas 2. The P6 overloads might be eliminated by operational mitigation actions as system adjustment dispatching available resources including energy storage and demand response in the Metro and Eastern areas after the 1st contingency. 3. As an alternative option, advanced power flow control devices could be considered to eliminate the overloads as needed
24086 LUGO 500 24236 RANCHVST 500 1 1	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
24156 VINCENT 500 24386 MESA CAL 500 1 Sections 1 and 2	P1L_24071_Line LUGO 500.0 to VINCENT 500.0 Circuit 1 AND P1L_24072_Line LUGO 500.0 to VINCENT 500.0 Circuit 2	P6	overlapping singles	108.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.8	< 100	1. The P7 overloads could be eliminated by preemptively dispatching available resources including energy storage resources in the Metro area 2. The P6 overloads might be eliminated by operational mitigation actions as system adjustment dispatching available resources including energy storage and demand response in the Metro area after the 1st contingency 3. As an alternative option, the Mesa - Vincent 500 kV line rating can be increased by fixing the ground clearance limitation to maintain the 4000 MW limit of Path 26 from north to south.
	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
24092 MIRALOMA 500 24178 mirlom1i 13.8 1 1	P1T_24246_Tran MIRALOMA 500.00 to MIRALOMW 230.00 Circuit 2MIRLOM2T 13.80	P1	Single Contingency	< 100	< 100	< 100	103.1	< 100	< 100	< 100	< 100	< 100	101.7	< 100	The P1 overloads could be eliminated by operational mitigation actions dispatching available resources including energy storage and demand response in the Metro area.
24093 MIRALOMW 230 24178 mirlom1i 13.8 1 1	P1T_24246_Tran MIRALOMA 500.00 to MIRALOMW 230.00 Circuit 2MIRLOM2T 13.80	P1	Single Contingency	< 100	< 100	< 100	104.0	< 100	< 100	< 100	< 100	< 100	103.1	< 100	
24156 VINCENT 500 29518 vincen1i 13.8 1 1	P1T_24256_Tran VINCENT 500.0 to VINCNT2 230.0 Circuit 4VINCEN4T 13.8	P1	Single Contingency	< 100	< 100	< 100	113.0	< 100	< 100	< 100	< 100	< 100	102.3	< 100	The near-term P6 overloads of Vincent AA banks (B1/S2) could be eliminated by dispatching available resources including energy storage and demand response in the Vincent and Metro areas. The long-term P1, P2, P3, P4, and P6 overloads in the 2040 summer peak scenario (B4) could be eliminated by the following potential mitigation alternatives, either individually or in combination 1. Dispatch available resources including energy storage and demand response in the Vincent and Metro areas 2. Eliminate the P2 and P4 contingencies 2. Add a fifth AA bank, subject to feasibility assessment 3. Eliminate the 230 kV split bus configuration by upgrading circuit breakers at the Vincent 230 kV substation
	P24L_T_P4_022_Vincent 4AA bank and Vincent 3 capacitor	P2/P4	(blank)	< 100	< 100	< 100	112.5	< 100	< 100	< 100	< 100	< 100	101.9	< 100	
	GP1_24001_Gen Alamitos Repower AND P1T_24256_Tran VINCENT 500.00 to VINCNT2 230.00 Circuit 4VINCEN4T 13.80	P3	G-1/L-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	105.3	< 100	
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1 AND P1T_24256_Tran VINCENT 500.00 to VINCNT2 230.0 Circuit 4VINCEN4T 13.8	P6	overlapping singles	129.1	< 100	< 100	145.1	112.2	< 100	< 100	< 100	< 100	136.0	< 100	
24156 VINCENT 500 29520 vincen4i 13.8 4 1	P1T_24255_Tran VINCENT 500.0 to VINCNT2 230.0 Circuit 1VINCEN1T 13.8	P1	Single Contingency	< 100	< 100	< 100	112.5	< 100	< 100	< 100	< 100	< 100	101.8	< 100	
	GP1_24001_Gen Alamitos Repower AND P1T_24255_Tran VINCENT 500.00 to VINCNT2 230.00 Circuit 1VINCEN1T 13.80	P3	G-1/L-1	< 100	< 100	< 100	115.1	< 100	< 100	< 100	< 100	< 100	104.8	< 100	
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1 AND P1T_24255_Tran VINCENT 500.0 to VINCNT2 230.0 Circuit 1VINCEN1T 13.8	P6	overlapping singles	128.6	< 100	< 100	144.5	111.7	< 100	< 100	< 100	< 100	135.4	< 100	
24156 VINCENT 500 24190 vincen2i 13.8 2 1	P1T_24290_Tran VINCENT 500.0 to VINCENT 230.0 Circuit 3VINCEN3T 13.8 AND P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6	overlapping singles	117.4	< 100	< 100	102.9	< 100	< 100	< 100	< 100	< 100	132.0	< 100	
24156 VINCENT 500 241551 vincen3i 13.8 3 1	P1T_24254_Tran VINCENT 500.0 to VINCENT 230.0 Circuit 2VINCEN2T 13.8 AND P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P6	overlapping singles	115.2	< 100	< 100	101.1	< 100	< 100	< 100	< 100	< 100	129.6	< 100	
24386 MESA CAL 500/230 AA4 or AA3	P1T_24262_Tran MESA CAL 500/230 kV AA3 or AA4 AND P1T_24261_Tran MESA CAL 500/230 kV AA2	P6	overlapping singles	114.9	< 100	103.6	122.0	104.6	< 100	< 100	< 100	< 100	119.0	< 100	Add a 4th AA bank to address the long-term P6 overloads of Mesa AA banks (B3/B4). The near-term P6 overloads (S2) could be eliminated by dispatching available resources including energy storage and demand response in the Metro area.
	P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 AND P1T_24262_Tran MESA CAL 500/230 kV AA3 or AA4	P6	overlapping singles	110.8	< 100	< 100	113.2	< 100	< 100	< 100	< 100	< 100	112.5	< 100	
24386 MESA CAL 500/230 AA2	P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2 AND P1L_2428A_Line DELAMO 230.0 to CENTER 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	110.3	119.6	< 100	< 100	< 100	< 100	< 100	103.0	< 100	
	P1T_24262_Tran MESA CAL 500/230 kV AA3 AND P1T_24263_Tran MESA CAL 500/230 kV AA4	**P6**	**overlapping singles**	**103.8**	**< 100**	**105.9**	**117.7**	< 100	< 100	< 100	< 100	< 100	109.7	< 100	
	P1T_24255_Tran VINCENT 500.00 to VINCNT2 230.00 Circuit 1VINCEN1T 13.80 AND P1T_24256_Tran VINCENT 500.00 to VINCNT2 230.00 Circuit 4VINCEN4T 13.80	**P6**	**overlapping singles**	**< 100**	**< 100**	**< 100**	**110.3**	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1T_24256_Tran VINCENT 500.00 to VINCNT2 230.00 Circuit 4VINCEN4T 13.80 AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	**P6**	**overlapping singles**	**< 100**	**< 100**	**< 100**	**110.2**	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24076_Line MESA CAL 230.0 to VINCNT2 230.0 Circuit 2 AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	**P6**	**overlapping singles**	< 100	< 100	104.5	117.0	< 100	< 100	< 100	< 100	< 100	103.4	< 100	
	Base Case	P0	Normal Operation	< 100	< 100	< 100	109.1	< 100	101.5	< 100	< 100	< 100	< 100	< 100	
	P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	112.5	< 100	112.7	< 100	< 100	< 100	< 100	< 100	
	P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P1	Single Contingency	< 100	< 100	< 100	114.4	< 100	108.5	< 100	< 100	< 100	< 100	< 100	

2025-2026 ISO Reliability Assessment - Study Results
Study Area:
Thermal Overloads

SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_SCE_27 SP	B2_SCE_30 SP	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5_SCE_30 SmrOP	B6R: 2040 Winter Peak (w/o DMS)	B7_SCE_27 OP	B8R: 2035 Spring Off-Peak (w/o DMS)	S1_SCE_30 SP_HLOAD	S2_SCE_27 SP_HRenew	S3_SCE_27 OP_BES	
24393 MESACALS 230 24076 LAGUBELL 230 2 1	P24L_M_P4_0027_Line VINCNT2 230.0 to MESA CAL 230.0 Circuit 1 Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	< 100	116.3	< 100	116.3	< 100	< 100	< 100	100.0	< 100	
	GP1_24001_Gen Alamitos Repower AND P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P3	G-1/L-1	< 100	< 100	< 100	117.2	< 100	< 100	< 100	< 100	< 100	101.6	< 100	
	GP1_24001_Gen Alamitos Repower AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P3	G-1/T-1	< 100	< 100	101.1	117.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	GP1_24004_Gen El Segundo 5_6 MODULE AND Base Case	P3	G-1/T-1	< 100	< 100	101.4	117.4	< 100	105.6	< 100	< 100	< 100	< 100	< 100	
	GP1_24004_Gen El Segundo 5_6 MODULE AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P3	G-1/T-1	< 100	< 100	106.3	122.3	< 100	< 100	< 100	< 100	< 100	101.4	< 100	
	GP1_24005_Gen El Segundo 7_8 MODULE AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P3	G-1/T-1	< 100	< 100	106.3	122.2	< 100	< 100	< 100	< 100	< 100	101.3	< 100	
	GP1_24007_Gen Huntington Beach Repower AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P3	G-1/T-1	< 100	< 100	102.2	118.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	GP1_24015_Gen PEN Plant (SDG&E) AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P3	G-1/T-1	< 100	< 100	< 100	115.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24305_Line DELAMO 500.0 to MESA CAL 500.0 Circuit 1 AND P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	NA	NA	< 100	NA	< 100	NA	< 100	< 100	< 100	
	P1L_24305_Line DELAMO 500.0 to MESA CAL 500.0 Circuit 1 AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P6	overlapping singles	< 100	< 100	NA	NA	< 100	NA	< 100	NA	< 100	< 100	< 100	
	P1T_24250_Tran SERRANO 500.00 to SERRANO 230.00 Circuit 2SERRAN2T 13.80 AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P6	overlapping singles	< 100	< 100	101.1	116.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1DC_PDCI1_PDCI CONVERTER MONOPOLE #1 AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P6	overlapping singles	< 100	< 100	102.0	123.6	< 100	< 100	< 100	< 100	< 100	104.2	< 100	
	P1L_24055_Line HINSON 230.0 to DELAMO 230.0 Circuit 1 AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P6	overlapping singles	< 100	< 100	105.7	121.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80 AND P1L_2428A_Line DELAMO 230.0 to CENTER 230.0 Circuit 1	P6	overlapping singles	104.4	< 100	122.2	139.3	103.2	< 100	< 100	< 100	< 100	113.9	< 100	
	P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_24067_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	114.6	< 100	102.3	134.0	104.4	< 100	< 100	< 100	< 100	117.4	< 100	
	P1L_24061_Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	107.5	< 100	< 100	127.3	< 100	< 100	< 100	< 100	< 100	109.1	< 100	
	P1L_2422_Line CENTER 230.0 to MESACALS 230.0 Circuit 1 AND P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	110.1	< 100	< 100	128.1	< 100	< 100	< 100	< 100	< 100	111.4	< 100	
	P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80 AND P1L_24076_Line MESA CAL 230.0 to VINCNT2 230.0 Circuit 2	P6	overlapping singles	104.3	< 100	111.9	133.0	100.2	< 100	< 100	< 100	< 100	111.7	< 100	
	L_M_P7_0902_Line LAGUBELL 230.0 to MESACAL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	107.5	< 100	< 100	127.3	< 100	133.2	< 100	< 100	< 100	109.2	< 100	
	P7L_M_0013A_Line REDONDO 230.0 to MESA CAL 230.0 Circuit 1 Line LAGUBELL 230.0 to MESACAL 230.0 Circuit 1	P7	common structure	< 100	< 100	< 100	112.5	< 100	112.7	< 100	< 100	< 100	< 100	< 100	
24076 LAGUBELL 230 24091 MESA CAL 230 1 1	P7L_M_0014_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1 Line LAGUBELL 230.0 to MESACALS 230.0 Circuit 2	P7	common structure	< 100	< 100	< 100	100.4	< 100	111.4	< 100	< 100	< 100	< 100	< 100	
24084 LITEHIPE 230 24091 MESA CAL 230 1 1	Base Case	P0	Normal Operation	< 100	< 100	< 100	102.4	< 100	107.7	< 100	< 100	< 100	< 100	< 100	The near-term overloads could be eliminated by dispatching available resources including energy storage and demand response in the Metro area. However, various mitigation alternatives should be investigated to address the long-term P0 through P7 overloads in the Metro area without the Del Amo-Mesa-Serrano 500 kV reinforcement project, such as 1. Eliminating the Mesa and Alamitos 230 kV split bus configurations by upgrading circuit breakers 2. Upgrade the Laguna Bell 230 kV tie with LADWP by adding a phase-shifting and voltage regulating transformer tie 3. Loop existing 230 kV lines into Lighthipe 230 kV substation, subject to feasibility assessment 4. Upgrading Mesa - Laguna Bell 230 kV Circuit #2, Mesa - Lighthipe, Mesa - Center, and Center - Del Amo 230 kV lines 5. Develop Lighthipe-Mesa-Serrano 500 kV lines and add Lighthipe 500/230 kV substation 6. Explore other innovative and cost-effective solutions
	P5L_ab_BD_017_Laguna Bell 220 kv North Bus	P5	non-redundant component	< 100	< 100	< 100	100.6	< 100	107.0	< 100	< 100	< 100	< 100	< 100	
	P1L_24055_Line HINSON 230.0 to DELAMO 230.0 Circuit 1 AND P1L_24059_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	113.9	104.7	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2 AND P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	104.4	< 100	< 100	109.8	< 100	< 100	< 100	< 100	< 100	103.1	< 100	
	P1L_24061_Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_24059_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1	P6	overlapping singles	112.2	< 100	< 100	121.0	110.7	< 100	< 100	< 100	< 100	105.8	< 100	
	P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_24061_Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	110.3	< 100	< 100	113.7	101.7	< 100	< 100	< 100	< 100	106.1	< 100	
	P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P6	overlapping singles	104.4	< 100	< 100	109.8	< 100	< 100	< 100	< 100	< 100	103.0	< 100	
	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	112.2	< 100	< 100	121.1	110.8	145.6	< 100	< 100	< 100	105.9	< 100	
	L_M_P7_0902_Line LAGUBELL 230.0 to MESACAL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	110.3	< 100	< 100	113.7	101.7	127.1	< 100	< 100	< 100	106.2	< 100	
	P7L_M_0038_Line HINSON 230.0 to DELAMO 230.0 Circuit 1 Line ALMITOSW 230.0 to LITEHIPE 230.0 Circuit 1	P7	common structure	< 100	< 100	< 100	< 100	< 100	109.4	< 100	< 100	< 100	< 100	< 100	
24021 CENTER 230 24393 MESACALS 230 1 1	GP1_24001_Gen Alamitos Repower AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P3	G-1/L-1	< 100	< 100	< 100	103.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2 AND P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80	P6	overlapping singles	103.4	< 100	< 100	112.4	< 100	< 100	< 100	< 100	< 100	101.9	< 100	
	P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2 AND P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	104.0	< 100	< 100	109.5	< 100	< 100	< 100	< 100	< 100	100.6	< 100	
24029 DELAMO 230 24021 CENTER 230 1 1	P1L_24063_Line LAGUBELL 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P6	overlapping singles	102.3	< 100	109.8	130.8	< 100	< 100	< 100	< 100	< 100	110.8	< 100	
	P1L_2419_Line BARRE 230.0 to LEWIS 230.0 Circuit 1 AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	108.9	118.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1T_24261_Tran MESA CAL 500.00 to MESA CAL 230.00 Circuit 2MESA2T 13.80 AND P1L_24132_Line MESACALS 230.0 to LAGUBELL 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	116.6	130.1	< 100	< 100	< 100	< 100	< 100	107.9	< 100	
	P7L_M_0014_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1 Line LAGUBELL 230.0 to MESACALS 230.0 Circuit 2	P7	common structure	< 100	< 100	< 100	103.5	< 100	107.5	< 100	< 100	< 100	< 100	< 100	
24065 HINSON 230 24029 DELAMO 230 1 1	P1L_24059_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 AND P1L_24067_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	113.1	105.5	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24067_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1 AND P1L_2413x_Line ALMITOSW 230.0 to DELAMO 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	NA	NA	< 100	NA	< 100	NA	< 100	< 100	< 100	
	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	< 100	< 100	< 100	< 100	< 100	126.7	< 100	< 100	< 100	< 100	< 100	
24074 LA FRESA 230 24091 MESA CAL 230 1 1	P1L_24059_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 AND P1L_24067_Line LITEHIPE 230.0 to MESA CAL 230.0 Circuit 1	P6	overlapping singles	100.5	< 100	< 100	110.3	100.7	< 100	< 100	< 100	< 100	< 100	< 100	
	P7L_M_0026_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to HINSON 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	< 100	< 100	109.2	< 100	< 100	< 100	< 100	< 100	
24074 LA FRESA 230 24065 HINSON 230 1 1	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	< 100	< 100	< 100	102.3	< 100	124.9	< 100	< 100	< 100	< 100	< 100	
24082 LCIENEGA 230 24074 LA FRESA 230 1 1	P1L_2435_Line EL NIDO 230.0 to LCIENEGA 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	GP1_24004_Gen El Segundo 5_6 MODULE AND P1L_2435_Line EL NIDO 230.0 to LCIENEGA 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	101.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P5L_d_TC_097_El Nido - La Cienega 220 kv Line (Non Redundant Trip Coil La Cienega CB# 532)	P5	non-redundant component	< 100	< 100	< 100	< 100	< 100	100.2	< 100	< 100	< 100	< 100	< 100	
	P7L_M_0041_Line LA FRESA 230.0 to EL NIDO 230.0 Circuit 3 Line LA FRESA 230.0 to EL NIDO 230.0 Circuit 4	P7	common structure	124.1	< 100	< 100	112.1	141.1	137.2	< 100	< 100	101.2	< 100	< 100	
24016 BARRE 230 25201 LEWIS 230 1 1	Base Case	P0	Normal Operation	< 100	< 100	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	
	P7L_M_0044B_Line NSONGS 230.0 to SANTIAGO 230.0 Circuit 1 Line NSONGS 230.0 to SANTIAGO 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	< 100	< 100	< 100	115.0	< 100	< 100	< 100	< 100	< 100	
24030 BARRE-W 230 24044 ELLIS 230 #1 or #2	GP1_24007_Gen Huntington Beach Repower AND P1L_24223_Line BARRE-W 230.0 to ELLIS 230.0 Circuit 2 or 1	P3	G-1/L-1	106.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.5	< 100	Dispatch available resources including gas, energy storage, and demand response in the Metro area to address the P0, P3, and P6 overloads.
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1 AND P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P6	overlapping singles	108.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_2419_Line BARRE 230.0 to LEWIS 230.0 Circuit 1 AND P1L_24223_Line BARRE-W 230.0 to ELLIS 230.0 Circuit 2 or 1	P6	overlapping singles	128.2	107.6	< 100	103.1	113.7	< 100	< 100	< 100	111.4	123.6	< 100	

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_SCE_27 SP	B2_SCE_30 SP	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5_SCE_30 SmrOP	B6R: 2040 Winter Peak (w/o DMS)	B7_SCE_27 OP	B8R: 2035 Spring Off-Peak (w/o DMS)	S1_SCE_30 SP_HLOAD	S2_SCE_27 SP_HRenew	S3_SCE_27 OP_BES	
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1 AND P1L_24223_Line BARRE-W 230.0 to ELLIS 230.0 Circuit 2 or 1	P6	overlapping singles	114.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113.8	< 100	
29516 VINCNT2 230 24128 S.CLARA 230 1 1	P1DC_PDCI2_PDCI CONVERTER MONOPOLE #2 AND P1L_24094_Line PARDEE 230.0 to S.CLARA 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	117.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Dispatch available resources including energy storage and demand response in the Ventura area to address the P1 and P7 overloads prior to the P or P7 contingency and eliminate the P6 overloads after the 1st event of P6 contingency; The use of energy storage is subject to verification that it has sufficient MWh capability and can be fully charged when needed. If the energy storage resources in the Ventura area are insufficient or limited to be charged, the needs for upgrading the 230 kV lines will be considered as alternatives. Reconductor with HTLS and/or upgrading terminal equipment as available energy storage resources and demand response are insufficient/limited in the long term cases.
	P7L_M_0059_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2	P7	common structure	< 100	< 100	< 100	134.6	< 100	119.6	< 100	< 100	< 100	< 100	< 100	
	P7L_V_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	< 100	< 100	< 100	113.3	< 100	113.8	< 100	< 100	< 100	< 100	< 100	
24403 BAILEY 230 24115 PASTORIA 230 1 1	P1L_24093_Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 AND P1L_24100_Line PARDEE 230.0 to WARNE-PSTRIA 230.0 Circuit 1	P6	overlapping singles	136.4	116.4	115.0	< 100	< 100	< 100	< 100	123.9	114.5	< 100	110.9	
24114 PARDEE 230 24128 S.CLARA 230 1 1	P1L_24211_Line VINCNT2 230.0 to S.CLARA 230.0 Circuit 1	P1	Single Contingency	< 100	< 100	< 100	105.4	< 100	105.6	< 100	< 100	< 100	< 100	< 100	
	P1L_24091_Line PARDEE 230.0 to MOORPARK 230.0 Circuit 3 AND P1L_24211_Line VINCNT2 230.0 to S.CLARA 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	128.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24211_Line VINCNT2 230.0 to S.CLARA 230.0 Circuit 1 AND P1L_24105_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	104.7	160.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P7L_M_0059_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2	P7	common structure	< 100	< 100	124.4	183.3 (NotConv in PSLF)	102.3	176.23 (NotConv in PSLF)	< 100	< 100	103.8	110.3	< 100	
	P7L_T_0064_Line VINCNT2 230.0 to S.CLARA 230.0 Circuit 1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1	P7	common structure	< 100	< 100	< 100	118.2	< 100	110.1	< 100	< 100	< 100	< 100	< 100	
24114 PARDEE 230 24155 VINCENT 230 2 1	P1L_24102_Line PARDEE 230.0 to VINCNT2 230.0 Circuit 1 AND P1L_24136_Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	< 100	112.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P7L_T_0064_Line VINCNT2 230.0 to S.CLARA 230.0 Circuit 1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1	P7	common structure	< 100	< 100	< 100	107.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P7L_V_006_line PARDEE to SYLMAR220 230 ck 1 line PARDEE to SYLMAR220 230 ck 2	P7	common structure	< 100	< 100	< 100	104.0	< 100	110.2	< 100	< 100	< 100	< 100	< 100	
24128 S.CLARA 230 24058 GOLETA 230 Circuit #1 or #2	P1L_24104_Line S.CLARA 230.0 to GOLETA 230.0 Circuit #2 or #1	P1	Single Contingency	< 100	< 100	< 100	117.7	< 100	107.0	< 100	< 100	< 100	< 100	< 100	
	P24L_V_P4_005_Line MOORPARK 230.0 to S.CLARA 230.0 Circuit 2 Line GOLETA 230.0 to S.CLARA 230.0 Circuit #2 or #1	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P5L_d_TC_075_Goleta - Santa Clara No. 2 220 kv Line (Non Redundant Trip Coil Goleta CB# 542)	P5	non-redundant component	< 100	< 100	< 100	117.7	< 100	107.0	< 100	< 100	< 100	< 100	< 100	
	P5L_d_TC_168_Goleta - Santa Clara No. 2 220 kv Line (Non Redundant Trip Coil Santa Clara CB# 5092)	P5	non-redundant component	< 100	< 100	< 100	111.9	< 100	101.7	< 100	< 100	< 100	< 100	< 100	
24128 S.CLARA 230 24099 MOORPARK 230 1 1	P1L_24106_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2 AND P1L_24094_Line PARDEE 230.0 to S.CLARA 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	102.9	169.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24211_Line VINCNT2 230.0 to S.CLARA 230.0 Circuit 1 AND P1L_24106_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2	P6	overlapping singles	< 100	< 100	< 100	153.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P7L_V_002_line PARDEE to S.CLARA 230 ck 1 line S.CLARA to VINCNT2 230 ck 1	P7	common structure	< 100	< 100	< 100	139.3	< 100	129.0	< 100	< 100	< 100	< 100	< 100	
24128 S.CLARA 230 24099 MOORPARK 230 2 1	P24L_V_P4_006_Line MOORPARK 230.0 to S.CLARA 230.0 Circuit 1 Line GOLETA 230.0 to S.CLARA 230.0 Circuit 1	P2/P4	Internal Breaker Fault /stuck breaker	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1L_24094_Line PARDEE 230.0 to S.CLARA 230.0 Circuit 1 AND P1L_24105_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1	P6	overlapping singles	< 100	< 100	118.7	195.4	102.0	< 100	< 100	< 100	102.7	< 100	< 100	
	P7L_V_002_line PARDEE to S.CLARA 230 ck 1 line S.CLARA to VINCNT2 230 ck 1	P7	common structure	< 100	< 100	101.8	160.5	< 100	148.7	< 100	< 100	< 100	< 100	< 100	
22430 SILVERGT 230 22771 BAY BLVD 230 1 1	P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	P1	Single Contingency	< 100	105.2	< 100	< 100	< 100	< 100	< 100	< 100	106.3	< 100	< 100	P1, P2/P4, and P7 overloads could be eliminated by re-dispatching generation prior to the P1 contingency, until the completion of previously approved Imperial Valley - North of SONGS 500 kV line project
	P1L_SDGE30RAS0_23310 OCOTILLO-22885 SUNCREST 500KV &1	**P1**	**Single Contingency**	< 100	114.7	< 100	< 100	< 100	< 100	< 100	< 100	116.1	< 100	< 100	
	GP1_24007_Gen Huntington Beach Repower AND P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	**P3**	**G-1/L-1**	< 100	108.1	< 100	< 100	< 100	< 100	< 100	< 100	109.2	< 100	< 100	
	GP1_24015_Gen PEN Plant (SDG&E) AND P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	**P3**	**G-1/L-1**	< 100	108.2	< 100	< 100	< 100	< 100	< 100	< 100	109.4	< 100	< 100	
	P24L_M_P4_0051b_Line ALBERHIL 500.0 to SERRANO 500.0 Circuit 1 Tran SERRANO 500.0 to SERRANO_2 230.0 Circuit 3	P2/P4	Internal Breaker Fault /stuck breaker	< 100	104.4	< 100	< 100	< 100	< 100	< 100	< 100	105.4	< 100	< 100	
	P7L_M_0005_Line ELLIS 230.0 to SANTIAGO 230.0 Circuit 1 Line ELLIS 230.0 to JOHANNA 230.0 Circuit 1	P7	common structure	< 100	105.6	< 100	< 100	< 100	< 100	< 100	< 100	106.6	< 100	< 100	
	P7L_M_0022_Line S.ONOFRE 230.0 to SERRANO 230.0 Circuit 1 Line VIEJO 230.0 to CHINO 230.0 Circuit 1	P7	common structure	< 100	104.2	< 100	< 100	< 100	< 100	< 100	< 100	105.2	< 100	< 100	

Note (*): P6 results are reported without System adjustment between the two single P1 events

2025-2026 ISO Reliability Assessment - Study Results

Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project

High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					B1_SCE_27SP	B2_SCE_30SP	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5_SCE_30 SmrOP	B6R: 2040 Winter Peak (w/o DMS)	B7_SCE_27OP	B8R: 2035 Spring Off-Peak (w/o DMS)	S1_SCE_30 SP_HLOAD	S2_SCE_27SP _HRenew	S3_SCE_27OP _BES	
TROUT CANYON 500 kV	Base Case	P0	Normal Operation	Low Voltage						1.028						
	P1L_GLW02_Line TROUT CANYON 500.0 to	P1	Single Contingency	Low Voltage				0.996								
24086 LUGO 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.038			1.038		1.034						
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	Low Voltage										0.983		
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.929				0.979		
24092 MIRALOMA 500 KV	Base Case	P0	Normal Operation	Low Voltage				1.034		1.016				1.036		
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P1	Single Contingency	Low Voltage						0.981				0.996		
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.841				0.960		
241018 EASLEY 500 KV	Base Case	P0	Normal Operation	Low Voltage										1.021		
	P1L_DCRT01_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P1	Single Contingency	Low Voltage										0.985		
24138 SERRANO 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.038			1.035		1.009				1.029		
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P1	Single Contingency	Low Voltage												
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.834				0.956		
24151 VALLEYSC 500 KV	Base Case	P0	Normal Operation	Low Voltage						1.024				1.032		
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P1	Single Contingency	Low Voltage						0.997						
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.878				0.965		
	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	Low Voltage						0.957				0.982		
	P7L_M_0053_Line MIRALOMA 500.0 to SERRANO 500.0 Circuit 1 Line MIRALOMA 500.0 to SERRANO 500.0 Circuit 2	P7	common structure	Low Voltage						0.991						
24156 VINCENT 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.036			1.038						1.030		
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	Low Voltage										0.989		
	N2_1P26_N2S_NoRAS_MIDWAY-Vincent 500kV N-2 W/O Path26 RAS or OP	N2	Credible Common Corridor	Low Voltage	1.002									0.958		
24236 RANCHVST 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.039			1.030		1.017				1.036		
	P1L_24119_Line VINCENT 500.0 to MESA CAL 500.0 Circuit 1	P1	Single Contingency	Low Voltage						0.983				0.995		
	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	Low Voltage				0.996		0.945				0.987		
24374 REDBLUFF 500 KV	Base Case	P0	Normal Operation	Low Voltage										1.022		
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	Low Voltage										0.962		
	P1L_14017_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P1	Single Contingency	Low Voltage										0.984		
24384 EAST TS 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.039			1.036		1.018				1.034		
24385 WEST TS 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.038			1.036		1.018				1.033		
24386 MESA CAL 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.026			1.029		1.012				1.020		
	P1L_24131_Line MESA CAL 500.0 to MIRALOMA 500.0 Circuit 1	P1	Single Contingency	Low Voltage	0.995											
	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	Low Voltage				0.998		0.945				0.974		
	L_M_P7_0901B_Line LA FRESA to LAGUBELL 230 kV Circuit 1 and Line LA FRESA to MESA CAL 230 kV Circuit 1	P7	common structure	Low Voltage						0.962						
24573 HAE SVCL 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.020	1.028		1.012	1.032	1.022	1.014		1.030	1.019	1.014	
24801 DEVERS 500 KV	Base Case	P0	Normal Operation	Low Voltage					1.034	1.038				1.023		
	P1L_14017_Line DELANEY 500.0 to CIELO AZUL 500.0 Circuit 1	P1	Single Contingency	Low Voltage										0.978		
24849 DELAMO 500 KV	Base Case	P0	Normal Operation	Low Voltage												
	P1L_24068_Line LUGO 500.0 to VICTORVL 500.0 Circuit 1	P1	Single Contingency	Low Voltage												
	L_M_P7_0901B_Line LA FRESA to LAGUBELL 230 kV Circuit 1 and Line LA FRESA to MESA CAL 230 kV Circuit 1	P7	common structure	Low Voltage												
24900 COLRIVER 500 KV	Base Case	P0	Normal Operation	Low Voltage										1.034		
25660 MIRA81X2 500 KV	Base Case	P0	Normal Operation	Low Voltage	1.040			1.034						1.036		
29400 ANTELOPE 500 KV	Base Case	P0	Normal Operation	Low Voltage										1.037		
29402 WIRLWIND 500 KV	Base Case	P0	Normal Operation	Low Voltage					1.040							
24091 MESA CAL 230 kV	Base Case	P0	Normal Operation	Low Voltage				0.948								
	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.846						
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.707				0.874		
LAGUBELL 230 kV	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.683				0.881		
MESACALS 230 kV	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.696				0.885		
CENTER 230 kV	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.835						
DELAMO 230 kV	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.805						
24128 S.CLARA 230 kV	Base Case	P0	Normal Operation	Low Voltage				0.920								
	P1SVD_24301_SVD S.CLARA 230	P1	Single Contingency	Low Voltage				0.893								
	P7L_V_006_line PARDEE to SYLMAR220 230 ck 1_line PARDEE to SYLMAR220 230 ck 2	P7	common structure	Low Voltage				0.663		0.672						
	P7L_M_0059_Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 1 Line S.CLARA 230.0 to MOORPARK 230.0 Circuit 2	P7	common structure	Low Voltage				0.626		0.645				0.853		
BARRE 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	Low Voltage										0.885		
	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	Low Voltage						0.856						
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.713				0.903		
	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	Low Voltage										0.895		

Low voltage issues under normal conditions and potential voltage instability during single transmission line outages were observed in the SCE 500 kV system with high renewable generation in the near-term (B1/S2) and the long-term (B4), despite most of gas generation and over 2,000 MW of energy storage dispatched in the western LA Basin (Zone 996). In addition, the Southern California Bulk system study with 1-in-5 load level identified high voltage concern at the Mohave 500 kV substation, due to inadequate reactive power regulation.

Steady-state and dynamic reactive power support facilities at various candidate substations or nearby locations will be evaluated to determine optimal siting and Mvar sizing for both near-term and long-term needs. Locations and sizes under consideration include, but are not limited to: Eldorado (900, -300 Mvar), Lugo (1200, -300 Mvar), Vincent (900, -200 Mvar), Devers (600 Mvar), Mesa (900 Mvar), Lighthipe (300 Mvar), and Del Amo (300 Mvar). The technology options could be shunt capacitor/reactor, Static Var Systems including SVC and STARCOM, Synchronizer Condenser, or hybrid. Further evaluation is required to refine these options, confirm feasibility, and ensure compliance with applicable voltage criteria.

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project
High/Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description		Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				High/Low Voltage	B1_SCE_27SP	B2_SCE_30SP	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5_SCE_30 SmrOP	B6R: 2040 Winter Peak (w/o DMS)	B7_SCE_27OP	B8R: 2035 Spring Off-Peak (w/o DMS)	S1_SCE_30 SP_HLOAD	S2_SCE_27SP _HRenew	S3_SCE_27OP _BES	
BARRE-W 230 kV	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.739						
	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.873						
BAILEY 230 kV	P7L_V_006_line PARDEE to SYLMAR220 230 ck 1 line PARDEE to SYLMAR220 230 ck 2	P7	common structure	Low Voltage				0.865		0.837						
	P7L_V_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	Low Voltage				0.865		0.837						
HINSON 230 kV	P1SVD_24283_SVS DEVERS 500	P1	Single Contingency	Low Voltage						0.885						
	P5L_ab_TL_044_Lighthipe - Alamitos No. 1 230 kv Line	P5	non-redundant component	Low Voltage						0.885						
	P7L_M_0052_Line LUGO 500.0 to MIRALOMA 500.0 Circuit 2 Line LUGO 500.0 to MIRALOMA 500.0 Circuit 3	P7	common structure	Low Voltage						0.819						
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.645				0.884		
	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.711						
LITEHIPE 230 kV	P1SVD_24293_SVD MIRALOMA 500	P1	Single Contingency	Low Voltage						0.890						
	P1SVD_24283_SVS DEVERS 500	P1	Single Contingency	Low Voltage						0.890						
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.654				0.879		
	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.729						
MIRALOME 230 kV	P1L_24112y_Line ALBERHIL 500.0 to VALLEYSC 500.0 Circuit 1	P1	Single Contingency	Low Voltage						0.893						
	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.747				0.897		
LCIENEGA 230 kV	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.646						
EL NIDO 230 kV	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.656						
LA FRESA 230 kV	L_M_P7_0901B_Line LA FRESA 230.0 to LAGUBELL 230.0 Circuit 1 Line LA FRESA 230.0 to MESA CAL 230.0 Circuit 1	P7	common structure	Low Voltage						0.659						
SANTIAGO 230 kV	P7L_M_0051_Line MESA CAL 500.0 to VINCENT 500.0 Circuit 1 Line RIOHONDO 230.0 to VINCENT 230.0 Circuit 2	P7	common structure	Low Voltage						0.782						
EAGLROCK 230 kV	P7L_M_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage				0.896		0.890						
EDMONSTN 230 kV	P7L_V_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	Low Voltage				0.879		0.866						
PASTORIA 230 kV	P7L_V_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	Low Voltage				0.879		0.868						
SANT CLARA 230 kV	Base Case	P0	Normal Operation	Low Voltage				0.920								
PARDEE 230 kV								0.967								
	P7L_M_0001_PDCI BIPOLE CONVERTERS	P7	common structure	Low Voltage				0.876		0.902						
	P7L_V_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	Low Voltage				0.766		0.777						
MOORPARK 230 kV	Base Case	P0	Normal Operation	Low Voltage				0.955								Add reactive power support facility in the Ventura area at Santa Clara or Goleta (150 ~ 300 Mvar)
	P1DC_PDCI1_PDCI CONVERTER MONOPOLE #1	P1	Single Contingency	Low Voltage				0.888								
	P7L_V_0054_Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 1 Line PARDEE 230.0 to SYLMAR220 230.0 Circuit 2	P7	common structure	Low Voltage				0.719		0.733						
GOLETA 230 kV	Base Case	P0	Normal Operation	Low Voltage				0.868								
	P1L_LDWP07_Line VICTORVL 500.0 to RINALDI 500.0 Ckt 1	P1	Single Contingency	Low Voltage				0.862								
	P7L_V_003_line MOORPARK to S.CLARA 230 ck 1 line MOORPARK to S.CLARA 230 ck 2	P7	common structure	Low Voltage				0.570		0.574				0.804		
	N2_4P26_N2S_RAS1_MIDWAY-Vincent 500kV N-2 WITH Path26 N2S RAS	N2	Credible Common Corridor	Low Voltage				0.874								

Note (*): Voltage in blank cell is within applicable voltage criteria

2025-2026 ISO Reliability Assessment - Study Results

Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project

Voltage Deviation

Substation	Contingency	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5: 2030 Summer-Off Peak	B6R: 2040 Winter Peak (w/o DMS)	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak (w/o DMS)	S1: 2030SP High CEC Load	S2: 2030SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	
CHINO 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.60	< 8	Dynamic reactive power support facilities at one or two locations, such as ±(100~300) Mvar at Mohave or Eldorado 500 kV bus, ±(100~300) Mvar at Lugo 500 kV substation. Further evaluation is required to refine these options, confirm feasibility, and ensure compliance with applicable voltage criteria.
PADUA 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.48	< 8	
SANBRDNO 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.70	< 8	
SERRANO 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.36	< 8	
VILLA PK 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.21	< 8	
VSTA 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.29	< 8	
MIRALOMW 230 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.37	< 8	
MIRALOMW 500 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.19	< 8	
SERRANO 500 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8.93	< 8	
VALLEYSC 500 kV	P1L_SDGE10_22536 N.GILA-22360 IMPRLVLY 500KV &1	P1	Single Contingency	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	9.74	< 8	

2025-2026 ISO Reliability Assessment - Study Results

Study Area: SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project

Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			B7: 2027 Spring Off-Peak	B2: 2030 Summer Peak	B3: 2035 Summer Peak	B8: 2035 Spring Off-Peak	S3: 2027 Spring OP BESS Charging	S1: 2030SP High CEC Load	
P1-1_P1.2_Lugo 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	disruption	stable	stable	further investigation on disruption
P1-2_P1.2_Imperial Valley 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	stable	stable	criteria met
P1-25_P1.2_Valley 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	stable	stable	criteria met
P1-28_P1.2_Devers 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	stable	stable	criteria met
P1-29_P1.2_Devers 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	stable	stable	criteria met
P1-30_P1.2_N.Gila 500 kV_3-PH	P1	Single Contingency	stable	stable	stable	stable	stable	stable	criteria met
P4-54_P4.2_Devers 500 kV_1-PH	P4	stuck breaker	stable	stable	stable	stable	stable	stable	criteria met
P4-80_P4.2_Pardee 230 kV_1-PH	P4	stuck breaker	stable	stable	stable	stable	stable	stable	criteria met
P4-82_P4.2_Pardee 230 kV_1-PH	P4	stuck breaker	stable	stable	stable	stable	stable	stable	criteria met
P7-136_P7.1_La Fresa 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-138_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-139_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-140_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-141_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-142_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-143_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-144_P7.1_Mira Loma 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-145_P7.1_Mira Loma 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-146_P7.1_Rancho Vista 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-148_P7.1_Serrano 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-149_P7.1_Viejo 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-150_P7.1_Serrano 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-151_P7.1_Chino 230 kV _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-152_P7.1_Serrano 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-153_P7.1_La Fresa 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-154_P7.1_Eagle Rock 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-156_P7.1_Mesa 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-157_P7.1_Rancho Vista 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-158_P7.1_Walnut 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-159_P7.1_Villa Park 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-161_P7.1_Barre 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-162_P7.1_Barre 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-163_P7.2_Barre 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-164_P7.1_Alamitos 230 kV _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-165_P7.1_Del Amo 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-166_P7.1_Hinson 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-167_P7.1_Del Amo 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-168_P7.1_El Nido 230 kv_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-169_P7.1_Serrano 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-170a_P7.1_Mira Loma 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-170b_P7.1_Mira Loma 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-171a_P7.1_Santiago 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-171b_P7.1_S. Onofre 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-172_P7.1_Ellis 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-173_P7.1_Sylmar(SCE) 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-174_P7.1_Mira Loma 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-175_P7.1_Barre 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-176_P7.1_Barre 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-177_P7.1_Hinson 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-178_P7.1_Mesa 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-179_P7.1_Lugo 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-180_P7.1_Mira Loma 500 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-181_P7.1_Pardee 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-182_P7.1_Pardee 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-183_P7.1_Pardee 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-184_P7.1_Moorpark 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-185_P7.1_Moorpark 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-186_P7.1_Moorpark 230 kv _1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-187_P7.1_Santa Clara 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-188_P7.1_Santa Clara 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met
P7-191_P7.1_Pardee 230 kV_1-PH	P7	common structure	stable	stable	stable	stable	stable	stable	criteria met

2025-2026 ISO Reliability Assessment - Study Results

Study Area: **SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project**

Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5: 2030 Summer-Off Peak	B6R: 2040 Winter Peak (w/o DMS)	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak (w/o DMS)	S1: 2030SP High CEC Load	S2: 2030SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	

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

2025-2026 ISO Reliability Assessment - Study Results

Study Area: **SCE Main, covering SCE 500 kV system, and its Metro, EOL, and Ventura 230 kV systems, w/o modeling Del Amo - Mesa - Serrano 500 kV Reinforcement Project**

Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)											Potential Mitigation Solutions
	B1: 2027 Summer Peak	B2: 2030 Summer Peak	B3R: 2035 Summer Peak (w/o DMS)	B4R: 2040 Summer Peak (w/o DMS)	B5: 2030 Summer-Off Peak	B6R: 2040 Winter Peak (w/o DMS)	B7: 2027 Spring Off-Peak	B8R: 2035 Spring Off-Peak (w/o DMS)	S1: 2030SP High CEC Load	S2: 2030SP Heavy Renewable	S3: 2027 Spring OP BESS Charging	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
24086 LUGO 500 24085 LUGO 230.0 Transformer Bank 3	_NOL_tran_107_Tran LUGO 500.00 to LUGO 230.00 Circuit 2LUGO 1T 13.80 & Tran LUGO 500.00 to LUGO	P6	N-1-1	< 100	< 100	141.9	< 100	< 100	119.8	< 100	< 100	NotConv	Planned Victor CRAS / Reduce BESS charging
24156 VINCENT 500 24386 MESA CAL 500 1 1	_NOL_line_106_Line LUGO 500.0 to VINCENT 500.0 Circuit 1 & Line LUGO 500.0 to VINCENT 500.0 Circuit 2	P6	N-1-1	107.7	< 100	< 100	< 100	< 100	< 100	< 100	107.6	< 100	System adjustments after first contingency
24156 VINCENT 500 24386 MESA CAL 500 1 2	_NOL_line_106_Line LUGO 500.0 to VINCENT 500.0 Circuit 1 & Line LUGO 500.0 to VINCENT 500.0 Circuit 2	P6	N-1-1	107.7	< 100	< 100	< 100	< 100	< 100	< 100	107.6	< 100	
24219 PISGAH 230 25500 CALCITE 230 1 1	P1.2_line_112_Line CALCITE 230.0 to LUGO 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	113.3	< 100	< 100	< 100	Planned Calcite CRAS
24601 VICTOR 230 24602 VICTOR 115.0 Transformer Bank 1	P1.1_gen_289_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.3_tran_159_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 2VICTOR_2T 12.00	P3	G-1/N-1	< 100	< 100	120.2	< 100	< 100	< 100	< 100	< 100	< 100	Utilize Spare Victor 230/115kV Transformer
	P1.1_gen_289_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.3_tran_160_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 3VICTOR_3T 12.00	P3	G-1/N-1	< 100	< 100	116.9	< 100	< 100	< 100	< 100	< 100	< 100	
24601 VICTOR 230 24602 VICTOR 115.0 Transformer Bank 2	P1.1_gen_289_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.3_tran_158_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 1VICTOR_1T 12.00	P3	G-1/N-1	< 100	< 100	122.3	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_289_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.3_tran_160_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 3VICTOR_3T 12.00	P3	G-1/N-1	< 100	< 100	121.4	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.3_tran_136_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 3VICTOR_3T 12.00 AND P1.3_tran_134_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 1VICTOR_1T 12.00	P6	N-1-1	107.9	< 100	< 100	< 100	105.7	< 100	< 100	< 100	162.7	Utilize Spare Victor 230/115kV Transformer / Reduce BESS charging
24601 VICTOR 230 24602 VICTOR 115.0 Transformer Bank 3	P1.3_tran_159_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 2VICTOR_2T 12.00 AND P1.3_tran_158_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 1VICTOR_1T 12.00	P6	N-1-1	< 100	< 100	208.3	< 100	< 100	< 100	< 100	< 100	< 100	Utilize Spare Victor 230/115kV Transformer SCE and CAISO will continue monitoring load growth.
	P1.1_gen_289_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.3_tran_158_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 1VICTOR_1T 12.00	P3	G-1/N-1	< 100	< 100	116.0	< 100	< 100	< 100	< 100	< 100	< 100	Utilize Spare Victor 230/115kV Transformer
	P1.1_gen_289_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.3_tran_159_Tran VICTOR 115.00 to VICTOR 230.00 Circuit 2VICTOR_2T 12.00	P3	G-1/N-1	< 100	< 100	118.4	< 100	< 100	< 100	< 100	< 100	< 100	
24602 VICTOR 115 24607 ROADWAY 115 1 1	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	156.6	< 100	170.8	< 100	< 100	154.1	155.3	NotConv	Mojave Desert RAS
24602 VICTOR 115 24702 KRAMER 115 1 1	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	168.8	< 100	174.8	< 100	< 100	166.9	177.8	NotConv	
24607 ROADWAY 115 24702 KRAMER 115 1 1	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	166.4	< 100	170.8	< 100	< 100	164.8	177.4	NotConv	
24647 IVANPAH 230 24647 IVANPAH 230.0 Transformer Bank 3	P1.1_gen_308_Gen TOT812_D1_GE 34.5 Unit ID 1 AND P1.3_tran_166_Tran IVANPAH 115.00 to IVANPAH 230.00 Circuit 4IVNPH 4T 12.00	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	101.5	< 100	< 100	< 100	Ivanpah Area RAS
24647 IVANPAH 230 24647 IVANPAH 230.0 Transformer Bank 4	P1.1_gen_308_Gen TOT812_D1_GE 34.5 Unit ID 1 AND P1.3_tran_165_Tran IVANPAH 115.00 to IVANPAH 230.00 Circuit 3IVNPH 3T 12.00	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	101.5	< 100	< 100	< 100	
24648 IVANPAH 115 24778 MTN PASS 115 1 1	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	< 100	< 100	NotConv	< 100	< 100	NotConv	< 100	< 100	136.7	Planned Kramer CRAS may indirectly mitigate thermal overload - Further investigation needed / Reduce BESS charging
	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	137.7	Reduce BESS charging
24701 KRAMER 230 24601 VICTOR 230 1 1	P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P1	N-1	109.0	< 100	< 100	103.5	< 100	< 100	< 100	< 100	< 100	Mojave Desert RAS
	P1.1_gen_196_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	104.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_167_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_193_Gen RESURGENCE2 13.8 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	106.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_184_Gen COLOSEM 13.8 Unit ID 1-3 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	107.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_195_Gen SUNRAY2 0.39 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	107.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_161_Gen RUSH 2.4 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	108.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_163_Gen POOLE 7.2 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	108.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_185_Gen CSA DIAB 4 12.47 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	108.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_227_Gen COLOSEM 13.8 Unit ID 1-3 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_281_Gen SUNRAY2_G 0.4 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	< 100	101.9	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_201_Gen RUSH 2.4 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	< 100	102.8	< 100	< 100	< 100	< 100	< 100	
	P4_6_Kramer- Victor No. 2 220 kV and Kramer -Coolwater 220 kV - SLG 15 cycle fault at Kramer 220	P4	Stuck Breaker	108.0	< 100	< 100	102.5	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_182_Gen NAVY1_CALGEN 13.8 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	102.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.0	Mojave Desert RAS / Reduce BESS Charging
	P1.1_gen_192_Gen OXBOW 13.80 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	104.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.0	
	P1.1_gen_183_Gen All HDPP 15.0 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.6	Reduce BESS charging
	P1.1_gen_181_Gen BLM FACILITY 13.8 Unit ID 1 AND P1.2_line_36_Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.1	
	P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P1	N-1	109.0	< 100	< 100	103.5	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_196_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	104.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_167_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_193_Gen RESURGENCE2 13.8 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	106.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_184_Gen COLOSEM 13.8 Unit ID 1-3 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	107.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_195_Gen SUNRAY2 0.39 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	107.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
24701 KRAMER 230 24601 VICTOR 230 2 1	P1.1_gen_161_Gen RUSH 2.4 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	108.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Mojave Desert RAS
	P1.1_gen_163_Gen POOLE 7.2 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	108.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_185_Gen CSA DIAB 4 12.47 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	108.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_227_Gen COLOSEM 13.8 Unit ID 1-3 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_281_Gen SUNRAY2_G 0.4 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	101.9	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_201_Gen RUSH 2.4 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	102.8	< 100	< 100	< 100	< 100	< 100	
	line_P5_NOL_TC_004_Kramer - Victor No. 1 220 kV Line	P5	Non-Redundant Relay	109.0	< 100	< 100	103.5	< 100	< 100	< 100	< 100	< 100	
	line_P5_NOL_TC_005_Kramer - Victor No. 2 220 kV Line	P5	Non-Redundant Relay	109.0	< 100	< 100	103.5	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_182_Gen NAVY1_CALGEN 13.8 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	102.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.0	Mojave Desert RAS / Reduce BESS Charging
	P1.1_gen_192_Gen OXBOW 13.80 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	104.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.0	
	P1.1_gen_183_Gen All HDPP 15.0 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.6	Reduce BESS charging
	P1.1_gen_181_Gen BLM FACILITY 13.8 Unit ID 1 AND P1.2_line_35_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.1	
24701 KRAMER 230 24702 KRAMER 115.0 Transformer Bank 1	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	133.2	< 100	129.9	< 100	< 100	137.2	127.0	< 100	Mojave Desert RAS
24701 KRAMER 230 24702 KRAMER 115.0 Transformer Bank 2	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	145.0	< 100	138.3	< 100	< 100	146.7	135.3	< 100	
24701 KRAMER 230 24717 COLWATER 230 2 1	P1.2_line_89_Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P1	N-1	< 100	< 100	111.6	< 100	< 100	< 100	< 100	< 100	< 100	Planned Kramer CRAS
	P1.1_gen_308_Gen TOT812_D1_GE 34.5 Unit ID 1 AND P1.2_line_89_Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	101.1	< 100	< 100	110.2	< 100	< 100	< 100	
	P1.1_gen_190_Gen COLOSEM 13.8 Unit ID 1-3 AND P1.2_line_89_Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	109.5	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_294_Gen SUNRAY2_G 0.4 Unit ID 1 AND P1.2_line_89_Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	109.9	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_195_Gen NAVY1_CALGEN 13.8 Unit ID 1 AND P1.2_line_89_Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P3	G-1/N-1	< 100	< 100	110.5	< 100	< 100	< 100	< 100	< 100	< 100	
24702 KRAMER 115 24716 COLWATER 115 1 1	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	Reduce BESS charging
24716 COLWATER 115 24765 TAP705 115 1 1	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	152.9	< 100	< 100	< 100	< 100	< 100	< 100	Planned Kramer CRAS may indirectly mitigate thermal overload - Further investigation needed
24716 COLWATER 115 24774 DUNNSIDE 115 1 1	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	< 100	< 100	113.7	< 100	< 100	< 100	105.3	NotConv	Mojave Desert RAS may indirectly mitigate thermal overload - Further investigation needed
	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	< 100	< 100	NotConv	< 100	< 100	NotConv	< 100	< 100	116.5	Planned Kramer CRAS may indirectly mitigate thermal overload - Further investigation needed / Reduce BESS charging
	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.4	Reduce BESS charging
24717 COLWATER 230 24716 COLWATER 115 Transformer Bank	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	162.3	NotConv	NotConv	176.9	< 100	NotConv	NotConv	131.7	109.4	Planned Kramer CRAS / Reduce BESS charging
	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	107.1	< 100	< 100	< 100	< 100	< 100	107.7	
24731 INYOKERN 115 24866 TAP189 115 1 1	P1.2_line_86_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	Bishop RAS
	P2_11_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P2-1	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	line_P5_NOL_TC_021_Inyokern - Control - Coso - Haiwee 115 kV Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	line_P5_TL_NOL_17_P5.b Control-Coso-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	line_P5_TL_NOL_18_P5.b Control-Coso-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
24759 TORTILLA 115 24765 TAP705 115 1 1	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	104.0	NotConv	NotConv	104.6	< 100	NotConv	NotConv	< 100	< 100	Planned Kramer CRAS may indirectly mitigate thermal overload - Further investigation needed
	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	159.1	< 100	< 100	< 100	< 100	< 100	< 100	
24777 BAKER 115 24774 DUNNSIDE 115 1 1	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	NotConv	< 100	< 100	112.9	< 100	< 100	< 100	104.5	NotConv	Mojave Desert RAS may indirectly mitigate thermal overload - Further investigation needed
	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	< 100	< 100	NotConv	< 100	< 100	NotConv	< 100	< 100	117.4	Planned Kramer CRAS may indirectly mitigate thermal overload - Further investigation needed / Reduce BESS charging
	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	118.3	Reduce BESS charging
24777 BAKER 115 24778 MTN PASS 115 1 1	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	< 100	< 100	NotConv	< 100	< 100	NotConv	< 100	< 100	133.6	Planned Kramer CRAS may indirectly mitigate thermal overload - Further investigation needed / Reduce BESS charging
	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	134.6	Reduce BESS charging
	P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P1	N-1	< 100	< 100	120.7	< 100	< 100	112.7	< 100	< 100	< 100	
	P1.1_gen_218_Gen ALBAG1 16.8 Unit ID 1 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	103.0	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_219_Gen OCASOG2 16.8 Unit ID 2 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	103.0	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_264_Gen DAGGETT2 34.5 Unit ID 1 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	107.3	< 100	< 100	104.0	< 100	< 100	< 100	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
24795 SANDLOT 230 24701 KRAMER 230 1 1	P1.1_gen_308_Gen TOT812_D1_GE 34.5 Unit ID 1 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	110.4	< 100	< 100	124.5	< 100	< 100	< 100	Planned Kramer CRAS
	P1.1_gen_190_Gen COLOSEM 13.8 Unit ID 1-3 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	118.7	< 100	< 100	110.5	< 100	< 100	< 100	
	P1.1_gen_294_Gen SUNRAY2_G 0.4 Unit ID 1 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	119.0	< 100	< 100	110.8	< 100	< 100	< 100	
	P1.1_gen_195_Gen NAVY1_CALGEN 13.8 Unit ID 1 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	119.6	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_279_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_39_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	119.7	< 100	< 100	< 100	< 100	< 100	< 100	
	P4_6_Kramer- Victor No. 2 220 kV and Kramer -Coolwater 220 kV - SLG 15 cycle fault at Kramer 220	P4	Stuck Breaker	< 100	< 100	120.2	< 100	< 100	112.4	< 100	< 100	< 100	
	line_P5_NOL_TC_002_Kramer - Cool Water 220 kV Line	P5	Non-Redundant Relay	< 100	< 100	120.7	< 100	< 100	112.7	< 100	< 100	< 100	
24865 TAP188 115 24723 CONTROL 115 1 1	P1.2_line_6_Line INYOKERN 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	100.3	< 100	< 100	< 100	Bishop RAS
	P2_16_Line TAP189 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	line_P5_NOL_TC_009_Control - Haiwee - Inyokern 115 kV Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	line_P5_NOL_TC_022_Inyokern - Control - Haiwee 115 kV Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.1	< 100	< 100	< 100	
	line_P5_TL_NOL_19_P5.b Control-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.1	< 100	< 100	< 100	
	line_P5_TL_NOL_7_P5.b Control-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	line_P5_TL_NOL_8_P5.b Control-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	
	_NOL_line_143_TAP189-Inyokern & Control-TAP189 115 kV line	P7	DCTL	< 100	< 100	< 100	< 100	< 100	100.3	< 100	< 100	< 100	
24866 TAP189 115 24723 CONTROL 115 1 1	P1.2_line_86_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	
	P2_11_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P2-1	Line Section w/o Fault	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	
	P1.1_gen_226_Gen BISHOP3 2.4 Unit ID 1-2 AND P1.2_line_86_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.6	< 100	< 100	< 100	
	P1.1_gen_234_Gen BISHOP4 2.4 Unit ID 1-5 AND P1.2_line_86_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.6	< 100	< 100	< 100	
	P1.1_gen_273_Gen BISHOP2 2.4 Unit ID 1 AND P1.2_line_86_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	101.3	< 100	< 100	< 100	
	line_P5_NOL_TC_008_Control - Coso - Haiwee - Inyokern 115 kV Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.6	< 100	< 100	< 100	
	line_P5_NOL_TC_021_Inyokern - Control - Coso - Haiwee 115 kV Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	
	line_P5_TL_NOL_17_P5.b Control-Coso-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	
	line_P5_TL_NOL_18_P5.b Control-Coso-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	104.1	< 100	< 100	< 100	
	line_P5_TL_NOL_6_P5.b Control-Coso-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	100.6	< 100	< 100	< 100	
	P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1 AND P1.2_line_86_Line TAP710 115.0 to INYOKERN 115.0 Circuit 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	135.9	< 100	< 100	< 100	
	_NOL_line_142_TAP188-TAP710-Coso-Inyokern 115 kV T/L	P7	DCTL	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	< 100	
	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	100.4	< 100	< 100	< 100	Ivanpah-Control TLRR Project Segment 1 will rebuild the 115 kV line before 2035 (ACCC Dove ~ 144 MVA Normal) / Congestion Management
25500 CALCITE 230 24085 LUGO 230 1 1	P1.2_line_8_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	105.8	< 100	< 100	< 100	Rely on congestion management and Calcite cRAS
	_NOL_line_101_Line ELDORDO 500.0 to LUGO 500.0 Circuit 1 & Line LUGO 500.0 to MOHAVE 500.0 Circuit 1	P6	N-1-1	< 100	< 100	100.5	< 100	< 100	111.5	< 100	< 100	< 100	System adjustments after first contingency
	P1.2_line_10_Line PISGAH 230.0 to CALCITE 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	114.6	< 100	< 100	< 100	Planned Calcite CRAS
	P1.2_line_9_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	115.9	< 100	< 100	< 100	
	P1.1_gen_258_Gen DAGGETT3 34.5 Unit ID 1 AND P1.2_line_9_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	101.8	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_197_Gen HIDEDST1 20.0 Unit ID 1 AND P1.2_line_9_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	102.3	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_254_Gen All HDPP 15.0 Unit ID 1 AND P1.2_line_9_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	106.7	< 100	< 100	< 100	< 100	< 100	< 100	
	P1.1_gen_220_Gen MOJAVE PRJT 16.8 Unit ID 1 AND P1.2_line_9_Line PISGAH 230.0 to LUGO 230.0 Circuit 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	118.1	< 100	< 100	< 100	
	P4_3_Lugo - Pisgah No. 1 220 kV and Lugo - Victor No. 3 220 kV - SLG 15 cycle fault at Lugo 220	P4	Stuck Breaker	< 100	< 100	100.1	< 100	< 100	116.1	< 100	< 100	< 100	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
High/Low Voltages

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
TORTILLA 115 kV	line_NOL_P1_04_Line COLWATER-Tortilla-Segs2 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Close Capacitors at Tortilla 115kV pre contingency
ACCELERATE 115 kV	line_NOL_P1_04_Line COLWATER-Tortilla-Segs2 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	P2_6_Line TORTILLA 115.0 to TAP705 115.0 Circuit 1	P2-1	Line Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	P2_6_Line TORTILLA 115.0 to TAP705 115.0 Circuit 1	P2-1	Line Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
DOWNS 115 kV	P1.1_gen_182_Gen NAVY1_CALGEN 13.8 Unit ID 1 AND P1.2_line_61_Line INYOKERN 115.0 to DOWNS 115.0 Circuit 1	P3	G-1/N-1	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Future Downs Capacitor will improve low votlage
ROADWAY 115 kV	P1.1_gen_167_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	0.85	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	Lugo-Victor-Kramer upgrade
HAMLIN 115 kV	P1.1_gen_167_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	0.85	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	
HAMLIN 115 kV	P1.1_gen_209_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	
ROADWAY 115 kV	P1.1_gen_209_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	P1.1_gen_233_Gen RESURGENCE2 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	System adjustments after first contingency (Close Capacitors at Tortilla 115kV)
ACCELERATE 115 kV	P1.1_gen_233_Gen RESURGENCE2 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	P1.1_gen_234_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	P1.1_gen_234_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 230 kV	P1.1_gen_192_Gen OXBOW 13.80 Unit ID 1 AND P1.2_line_1_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.90	System adjustments after first contingency (Open Shunt Reactor at Inyo 230kV)
INYO 230 kV	P1.1_gen_194_Gen OXBOW G1 13.8 Unit ID 1 AND P1.2_line_113_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 230 kV	P1.1_gen_212_Gen OXBOW G1 13.8 Unit ID 1 AND P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	line_P5_BD_002_Cool Water 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Close in Capacitors at Taortilla 115 kV pre contingency
ACCELERATE 115 kV	line_P5_BD_002_Cool Water 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	line_P5_NOL_TC_033_Tortilla - Cool Water - SEGS 2 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	line_P5_NOL_TC_033_Tortilla - Cool Water - SEGS 2 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	line_P5_TL_NOL_35_P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	line_P5_TL_NOL_35_P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 230 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Redundant Protection
DWP INYO 230 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
DOWNS 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CAL GEN 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
SEARLES 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
SOUTHBAS 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.76	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.68	0.9 < V < 1.05	0.9 < V < 1.05	
CALCITY 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.77	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.69	0.9 < V < 1.05	0.9 < V < 1.05	
TAP482 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.77	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.69	0.9 < V < 1.05	0.9 < V < 1.05	
TAP481 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.77	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.69	0.9 < V < 1.05	0.9 < V < 1.05	
EDWARDS 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.77	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.69	0.9 < V < 1.05	0.9 < V < 1.05	
HOLGATE 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.77	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.69	0.9 < V < 1.05	0.9 < V < 1.05	
ROCKET TEST 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.85	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.76	0.9 < V < 1.05	0.9 < V < 1.05	
RP_Kramer_H 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
KRAMER 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.85	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.08	0.76	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	line_P5_BD_004_Tortilla 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	
TORTILLA 115 kV	line_P5_BD_004_Tortilla 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.14	0.9 < V < 1.05	0.9 < V < 1.05	
ACCELERATE 115 kV	P1.2_line_30_Line KRAMER 115.0 to ACCELERATE 115.0 Circuit 1 AND P1.3_tran_144_Tran COLWATER 115.00 to COLWATER 230.00 Circuit 1COLWATER 1T 12.00	P6	N-1-1	0.9 < V < 1.05	0.80	0.9 < V < 1.05	0.79	0.9 < V < 1.05	0.9 < V < 1.05	0.79	0.9 < V < 1.05	0.9 < V < 1.05	System adjustments after first contingency
INYO 230 kV	P1.2_line_5_Line TAP710 115.0 to CONTROL 115.0 Circuit 1 AND line_NOL_P1_31_Line INYO 230.0 to DWP INYO 230.0 Circuit 1	P6	N-1-1	0.9 < V < 1.05	0.90	0.89	0.89	0.9 < V < 1.05	0.86	0.90	0.9 < V < 1.05	0.9 < V < 1.05	System adjustments after first contingency (Open Shunt Reactor at Inyo 230kV)
INYO 230 kV	tran_NOL_P1_69_Tran INYO PS 115.00 to INYO 230.00 Circuit 1 0.00 AND line_NOL_P1_31_Line INYO 230.0 to DWP INYO 230.0 Circuit 1	P6	N-1-1	0.88	0.88	0.87	0.88	0.88	0.87	0.88	0.88	0.88	
DUNNSIDE 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.75	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
High/Low Voltages

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
BAKER 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.77	
DUNNSIDE 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.73	
BAKER 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.75	
BAKER 115 kV	_NOL_line_97_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1 & Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P7	DCTL	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.85	0.9 < V < 1.05	
DUNNSIDE 115 kV	_NOL_line_97_Line KRAMER 230.0 to VICTOR 230.0 Circuit 1 & Line KRAMER 230.0 to VICTOR 230.0 Circuit 2	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	Addition of reactive support recommended
BAKER 115 kV	_NOL_tran_107_Tran LUGO 500.00 to LUGO 230.00 Circuit 2LUGO 1T 13.80 & Tran LUGO 500.00 to LUGO	P7	DCTL	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	
DUNNSIDE 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.73	
BAKER 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.75	
BAKER 115 kV	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.85	0.9 < V < 1.05	
DUNNSIDE 115 kV	P7_6_Line KRAMER - VICTOR 230.0 ck 1 Line KRAMER - VICTOR 230.0 ck 2	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	
TORTILLA 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.85	
TAP705 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
SEGS2 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
GALE 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
COLWATER 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
TIEFORT 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
HIDDEN SPRIN 115 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
COLWATER 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	
OCASO 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	
SANDLOT 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	
ALBA 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	
TOT981_HV 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	
SILVR_SPRNGS 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	
CUMBERLAND 230 kV	_NOL_line_94_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to KRAMER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	
TORTILLA 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.82	
TAP705 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
SEGS2 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	Reduce BESS charging
GALE 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
COLWATER 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
TIEFORT 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
HIDDEN SPRIN 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.84	
COLWATER 230 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
SILVR_SPRNGS 230 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	
CUMBERLAND 230 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	
TORTILLA 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.82	
TAP705 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
SEGS2 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
GALE 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
COLWATER 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
TIEFORT 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.83	
HIDDEN SPRIN 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.84	
COLWATER 230 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	
SILVR_SPRNGS 230 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	
CUMBERLAND 230 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	
OXBOW B 230 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 230 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	SOB-4: Redispatch VAR resources in the area and potential generation

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High/Low Voltages

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
DWP INYO 230 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.07	1.06	1.06	1.06	1.05	1.07	1.06	1.06	
BISHOP3 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
BSPHYD34 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.07	1.06	
OXBOW B 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	
BISHOP4 115 kV	line_NOL_P1_28_Line CONTROL 115.0 to INYO 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	line_NOL_P1_28_Line CONTROL 115.0 to INYO 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
BISHOP4 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.07	1.06	1.06	
BISHOP3 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
BSPHYD34 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
OXBOW B 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
RUSH 115 kV	P1.1_gen_191_Gen MAMMOTH 4.16 Unit ID 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.1_gen_191_Gen MAMMOTH 4.16 Unit ID 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.07	1.06	1.06	0.9 < V < 1.05	1.05	1.07	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	1.06	1.06	0.9 < V < 1.05	1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	1.06	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.2_line_53_Line CONTROL 115.0 to INYO 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.2_line_54_Line CONTROL 115.0 to INYO 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.2_line_55_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BISHOP3 115 kV	P1.2_line_55_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BSPHYD34 115 kV	P1.2_line_55_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
OXBOW B 115 kV	P1.2_line_55_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.06	
BISHOP3 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
OXBOW B 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
BSPHYD34 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
BISHOP4 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
BISHOP4 115 kV	P1.2_line_57_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BISHOP3 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.06	
BSPHYD34 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.06	
OXBOW B 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.07	
BISHOP4 115 kV	P1.3_tran_129_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
OXBOW B 115 kV	P1.3_tran_129_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.3_tran_134_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BSPHYD34 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
LEE VINE 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	

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				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
OXBOW B 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
RUSH 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
BISHOP3 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
LEE VINE 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BISHOP4 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BISHOP3 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BSPHYD34 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
OXBOW B 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.06	
RUSH 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
RUSH 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.06	
LEE VINE 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.07	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.07	
OXBOW B 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.05	
BISHOP3 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
BSPHYD34 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
BISHOP4 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
BISHOP4 115 kV	P1.4_shunt_203_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
BISHOP4 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BSPHYD34 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
LEE VINE 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
OXBOW B 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
RUSH 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
BISHOP3 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BISHOP3 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_293_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_293_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
RUSH 115 kV	P1.4_shunt_293_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	Per CAISO Procedure 3100B, post-contingency voltage is within operating limits
BISHOP4 115 kV	P1.4_shunt_294_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
RUSH 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
High/Low Voltages

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
BSPHYD34 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
RUSH 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
RUSH 115 kV	P1.4_shunt_314_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_314_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
RUSH 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP3 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
BSPHYD34 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
LEE VINE 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
RUSH 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
BISHOP3 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
BSPHYD34 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.06	
OXBOW B 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
BISHOP4 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.06	
BISHOP4 115 kV	tran_NOL_P1_68_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
OXBOW B 115 kV	tran_NOL_P1_68_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
SEGS2 115 kV	P2_1_Line COLWATER 115.0 to TAP705 115.0 Circuit 1	P2-1	Line Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP705 115 kV	P2_1_Line COLWATER 115.0 to TAP705 115.0 Circuit 1	P2-1	Line Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TORTILLA 115 kV	P2_1_Line COLWATER 115.0 to TAP705 115.0 Circuit 1	P2-1	Line Section w/o Fault	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP188 115 kV	P2_12_Line TAP710 115.0 to TAP188 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.06	1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
BISHOP4 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.07	1.06	1.06	1.06	1.05	1.07	1.07	1.06	
BISHOP3 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
BSPHYD34 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.07	1.06	
OXBOW B 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	
OXBOW B 230 kV	P1.1_gen_194_Gen OXBOW G1 13.8 Unit ID 1 AND P1.4_shunt_294_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P3	G-1/N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 230 kV	P1.1_gen_212_Gen OXBOW G1 13.8 Unit ID 1 AND P1.4_shunt_315_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
BISHOP4 115 kV	line_P5_NOL_TC_010_Control - Inyo 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	line_P5_NOL_TC_010_Control - Inyo 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
BISHOP4 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.07	1.06	1.06	1.06	1.05	1.07	1.07	1.06	
BISHOP3 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
BSPHYD34 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.07	1.06	
OXBOW B 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	
BISHOP4 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.07	1.06	1.06	
BISHOP3 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
BSPHYD34 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
OXBOW B 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
TORTILLA 115 kV	line_P5_NOL_TC_018_Cool Water - SEGS - Tortilla 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	

2025-2026 ISO Reliability Assessment - Final Study Results
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California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
TAP705 115 kV	line_P5_NOL_TC_018_Cool Water - SEGS - Tortilla 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
SEGS2 115 kV	line_P5_NOL_TC_018_Cool Water - SEGS - Tortilla 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
BISHOP4 115 kV	line_P5_NOL_TC_020_Inyo - Control 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
OXBOW B 115 kV	line_P5_NOL_TC_020_Inyo - Control 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
TAP189 115 kV	line_P5_NOL_TC_022_Inyokern - Control - Haiwee 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.05	1.05	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
TORTILLA 115 kV	line_P5_TL_NOL_13_P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP705 115 kV	line_P5_TL_NOL_13_P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
SEGS2 115 kV	line_P5_TL_NOL_13_P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TORTILLA 115 kV	line_P5_TL_NOL_14_P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP705 115 kV	line_P5_TL_NOL_14_P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
SEGS2 115 kV	line_P5_TL_NOL_14_P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP189 115 kV	line_P5_TL_NOL_19_P5.b Control-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	1.06	1.06	1.05	1.05	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
TAP189 115 kV	line_P5_TL_NOL_20_P5.b Control-Haiwee-Inyokern 115 kv Line	P5	Non-Redundant Relay	1.06	1.06	1.05	1.05	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
TORTILLA 115 kV	line_P5_TL_NOL_36_P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP705 115 kV	line_P5_TL_NOL_36_P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
SEGS2 115 kV	line_P5_TL_NOL_36_P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	
TAP188 115 kV	_NOL_line_142_TAP188-TAP710-Coso-Inyokern 115 kV T/L	P7	DCTL	1.06	1.06	1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
DOWNS 115 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CAL GEN 115 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
SEARLES 115 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CAL GEN 115 kV	_NOL_line_95_Line KRAMER 230.0 to COLWATER 230.0 Circuit 2 & Line SANDLOT 230.0 to COLWATER 230.0 Circuit 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CAL GEN 115 kV	P7_2_Line KRAMER - COLWATER 230.0 ck 2 Line SANDLOT - COLWATER 230.0 ck 1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.06	1.06	
CONTROL 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	
INYO PS 115 kV	line_NOL_P1_03_Line Control N-1: CONTROL- Casa Diablo-Sherwin TAP704 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	1.05	1.05	1.05	
CONTROL 115 kV	line_NOL_P1_28_Line CONTROL 115.0 to INYO 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYO 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
CONTROL 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
INYO PS 115 kV	line_NOL_P1_30_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	1.06	1.06	0.9 < V < 1.05	1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.2_line_3_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.2_line_53_Line CONTROL 115.0 to INYO 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYO 115 kV	P1.2_line_55_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.2_line_55_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.06	
CONTROL 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
CONTROL 115 kV	P1.2_line_56_Line CSA DIAB 115.0 to RUSH 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	
CONTROL 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.2_line_60_Line CSA DIAB 115.0 to CONTROL 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.07	
INYO PS 115 kV	P1.2_line_69_Line CONTROL 115.0 to CSA DIAB-SHRWN 115.0 Circuit 1	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.05	
CONTROL 115 kV	P1.3_tran_129_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	

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High/Low Voltages

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
INYO 115 kV	P1.3_tran_129_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.4_shunt_200_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
INYO 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.07	1.06	
INYO PS 115 kV	P1.4_shunt_201_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.05	
INYO 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	
CONTROL 115 kV	P1.4_shunt_202_Line-Shunt CSA DIAB-RUSH CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	1.05	
INYO 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.4_shunt_204_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	Per SOB-17 normal operating voltage is 0.991 - 1.113 p.u.
INYO 115 kV	P1.4_shunt_291_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_shunt_292_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_shunt_295_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.4_shunt_312_Line-Shunt CONTROL-CSA DIAB CAP 115.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.4_shunt_313_Line-Shunt OXBOWB-OXBOWA CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.4_shunt_316_Line-Shunt CONTROL-TAP704 CAP 230.0	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.4_svd_304_SVD INYO 220	P1	N-1	0.9 < V < 1.05	1.06	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	
INYO PS 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	1.06	0.9 < V < 1.05	1.07	0.9 < V < 1.05	1.06	1.06	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
INYO 115 kV	P1.4_svd_325_SVD INYO 220	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	1.06	1.06	
CONTROL 115 kV	tran_NOL_P1_68_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYO 115 kV	tran_NOL_P1_68_Tran INYO 115.00 to INYO PS 115.00 Circuit 1 0.00	P1	N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYO 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.07	1.06	
CONTROL 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	
INYO PS 115 kV	P2_8_Line TAP704 115.0 to CONTROL 115.0 Circuit 1	P2-1	Line Section w/o Fault	0.9 < V < 1.05	1.05	1.06	1.05	1.05	0.9 < V < 1.05	1.05	1.05	1.06	
CONTROL 115 kV	line_P5_NOL_TC_010_Control - Inyo 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYO 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.07	1.06	
CONTROL 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	
INYO PS 115 kV	line_P5_NOL_TC_013_Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	1.05	1.06	1.05	1.05	0.9 < V < 1.05	1.05	1.05	1.06	
INYO 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.06	1.06	
CONTROL 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	1.06	1.06	1.06	1.06	1.06	0.9 < V < 1.05	1.06	1.07	1.06	
INYO PS 115 kV	line_P5_NOL_TC_014_Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	1.06	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
CONTROL 115 kV	line_P5_NOL_TC_020_Inyo - Control 115 kV Line	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	
INYOKERN 115 kV	line_P5_BD_003_Kramer 115 kv East Bus	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Per SOB-17 normal operating voltage is 1.052 - 1.113 p.u.
INYOKERN 115 kV	_NOL_line_144_Kramer-Inyokern-Randsburg No.3 & Kramer-Inyokern-Randsburg No.1	P7	DCTL	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
Voltage Deviation

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	
ACCELERATE 115 kV	P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P1	N-1	< 8	< 8	< 8	11.56	< 8	< 8	< 8	< 8	< 8	Close capacitors at Tortilla 115kV pre-contingency
TORTILLA 115 kV	P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P1	N-1	< 8	< 8	< 8	12.08	< 8	< 8	< 8	< 8	< 8	
INYO 230 kV	P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P1	N-1	< 8	< 8	9.55	< 8	< 8	9.08	< 8	< 8	< 8	Recommended to add RAS/OP to open Inyo 230kV Shunt Reactor with loss of SCE-LADWP tie
ROADWAY 115 kV	P1.1_gen_167_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	13.06	< 8	< 8	< 8	< 8	< 8	< 8	11.40	< 8	Lugo-Victor-Kramer upgrade
HAMLIN 115 kV	P1.1_gen_167_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	13.06	< 8	< 8	< 8	< 8	< 8	< 8	11.40	< 8	
HAMLIN 115 kV	P1.1_gen_209_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	< 8	9.62	< 8	< 8	< 8	< 8	9.38	< 8	< 8	
ROADWAY 115 kV	P1.1_gen_209_Gen BLDMSA1&2 0.9 Unit ID 1 AND P1.2_line_23_Line VICTOR 115.0 to ROADWAY 115.0 Circuit 1	P3	G-1/N-1	< 8	9.61	< 8	< 8	< 8	< 8	9.38	< 8	< 8	
DOWNS 115 kV	P1.1_gen_182_Gen NAVY1_CALGEN 13.8 Unit ID 1 AND P1.2_line_61_Line INYOKERN 115.0 to DOWNS 115.0 Circuit 1	P3	G-1/N-1	8.16	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	System adjustments after first contingency
ACCELERATE 115 kV	P1.1_gen_233_Gen RESURGENCE2 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	< 8	< 8	< 8	11.81	< 8	< 8	< 8	< 8	< 8	System adjustments after first contingency / Close capacitors at Tortilla 115kV pre-contingency
TORTILLA 115 kV	P1.1_gen_233_Gen RESURGENCE2 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	< 8	< 8	< 8	12.34	< 8	< 8	< 8	< 8	< 8	
ACCELERATE 115 kV	P1.1_gen_234_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	< 8	< 8	< 8	12.01	< 8	< 8	< 8	< 8	< 8	
TORTILLA 115 kV	P1.1_gen_234_Gen RESURGENCE1 13.8 Unit ID 1 AND P1.2_line_1_Line COLWATER 115.0 to TORTILLA 115.0 Circuit 1	P3	G-1/N-1	< 8	< 8	< 8	12.55	< 8	< 8	< 8	< 8	< 8	
INYO 230 kV	P1.1_gen_192_Gen OXBOW 13.80 Unit ID 1 AND P1.2_line_1_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	8.45	< 8	< 8	< 8	8.91	< 8	< 8	< 8	8.65	System adjustments after first contingency / Open Shunt Reactor at Inyo 230kV
	P1.1_gen_194_Gen OXBOW G1 13.8 Unit ID 1 AND P1.2_line_113_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	< 8	8.97	< 8	8.17	< 8	< 8	8.98	< 8	< 8	
	P1.1_gen_212_Gen OXBOW G1 13.8 Unit ID 1 AND P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	< 8	< 8	10.99	< 8	< 8	< 8	< 8	< 8	< 8	
	P1.1_gen_217_Gen POOLE 7.2 Unit ID 1 AND P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	< 8	< 8	9.65	< 8	< 8	< 8	< 8	< 8	< 8	
	P1.1_gen_223_Gen CSA DIAB 4 12.5 Unit ID 1 AND P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	< 8	< 8	9.80	< 8	< 8	< 8	< 8	< 8	< 8	
	P1.1_gen_226_Gen BISHOP3 2.4 Unit ID 1-2 AND P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	< 8	< 8	9.69	< 8	< 8	< 8	< 8	< 8	< 8	
	P1.1_gen_234_Gen BISHOP4 2.4 Unit ID 1-5 AND P1.2_line_120_Line DWP INYO 230.0 to INYO 230.0 Circuit 1	P3	G-1/N-1	< 8	< 8	9.81	< 8	< 8	< 8	< 8	< 8	< 8	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			B2_2030-SmrPk	B3_2035-SmrPk	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S3_2027-SprOP_BESS	
Kramer-Sandlot 230 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Coolwater-Sandlot 230 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Coolwater 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Tortilla 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Accelerate 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Accelerate-Tortilla 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Coolwater-Segs 2-Tortilla 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Ivanpah-Baker-Coolwater-Dunn Siding- Mountain Pass 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Inyokern-Randsburg No. 1 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Inyokern-Randsburg No. 3 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern-Searles 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern-Downs 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Downs-Searles 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Coso-Haiwee-Inyokern 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Haiwee-Inyokern 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Inyo 115 kV TL (Path 60)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Casa Diablo 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Casa Diablo-Sherwin 115 kV TL	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Silver Peak A 55 kV TL (Path 52)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Silver Peak C 55 kV TL (Path 52)	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo 1AA or 2AA 500230 kV Transformer Bank	P1	N-1	WECC Criteria Not Met	Diverge	No Issues	No Issues	WECC Criteria Not Met	No Issues	Mojave Desert RAS
Victor 1A, 2A, 3A, or 4A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer 1A or 2A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Coolwater 1A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control 1B or 2B 11555 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyo - Control 115 kV T/L	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Ivanpah 3A or 4A 230115 kV Transformer Bank	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Victor No. 1 230 kV T/L	P1	N-1	WECC Criteria Not Met	WECC Criteria Not Met	No Issues	No Issues	No Issues	No Issues	Mojave Desert RAS
Kramer-Coolwater 230 kV T/L	P1	N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Ivanpah-Baker-Coolwater-Dunn Siding- Mountain Pass 115 kV T/L	P2-1	Line Section w/o Fault	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Ivanpah-Baker-Coolwater-Dunn Siding- Mountain Pass 115 kV T/L	P2-1	Line Section w/o Fault	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
HDPP Units 1, 2, 3 & ST Generation (POI: Victor 230 kV Bus) out	P3	G-1/N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
HDPP Units 1, 2, 3 & ST Generation (POI: Victor 230 kV Bus) out	P3	G-1/N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
HDPP Units 1, 2, 3 & ST Generation (POI: Victor 230 kV Bus) out	P3	G-1/N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Casa Diablo IV Generation (POI: Casa Diablo 115 kV Bus) out of s	P3	G-1/N-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo - Rancho Vista 500 kV and Lugo - Vincent No. 1 500 kV - Sl	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo - Victorville 500 kV and Lugo - Vincent No.2 500 kV - SLG 15	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo - Pisgah No. 1 220 kV and Lugo - Victor No. 3 220 kV - SLG	P4	Stuck Breaker	WECC Criteria Not Met	No Issues	No Issues	No Issues	No Issues	No Issues	HDPP RAS
Lugo - Victor No. 4 220 kV and Lugo 2AA Bank - SLG 15 cycle fau	P4	Stuck Breaker	WECC Criteria Not Met	No Issues	No Issues	No Issues	No Issues	No Issues	HDPP RAS
Kramer - Tortilla 115 kV and Kramer - Inyokern - Randsburg No. 3	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Sandlot 220 kV and Coolwater - Sandlot 220 kV - SLG 15	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer- Victor No. 2 220 kV and Kramer -Coolwater 220 kV - SLG	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Coolwater - Kramer 115 kV and Kramer -Victor 115 kV - SLG 15 c	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Sungen 115 kV and Kramer -Roadway 115 kV - SLG 15 c	P4	Stuck Breaker	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control 115 kv East Bus	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Cool Water 115 kv East Bus	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer 115 kv East Bus	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Tortilla 115 kv East Bus	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control 55 kV Bus	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern 115 kv Bus	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.3.13c Kramer 230 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	No Issues	WECC Criteria Not Met	No Issues	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Sandlot 230 kV	P5	Non-Redundant Relay	No Issues	No Issues	WECC Criteria Not Met	No Issues	No Issues	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Victor 230 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Control 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Cool Water 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	No Issues	WECC Criteria Not Met	No Issues	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Inyokern 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Kramer 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Tortilla 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Victor 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Cool Water 220 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	No Issues	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Ivanpah 220 kV	P5	Non-Redundant Relay	No Issues	No Issues	WECC Criteria Not Met	No Issues	No Issues	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Ivanpah 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Roadway 115 kV	P5	Non-Redundant Relay	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	WECC Criteria Not Met	Add Redundant Relay
P5.3.13c Control 55 kV	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - BLM West 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Cool Water 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - LSP 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Victor No. 1 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Victor No. 2 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Victor - Lugo No. 1 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Victor - Lugo No. 2 220 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control - Coso - Haiwee - Inyokern 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control - Haiwee - Inyokern 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control - Inyo 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control No. 1 Transformer	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control No. 3 Transformer	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control - Sherwin - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control - Casa Diablo 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Cool Water - Baker-Dunn Siding -Ivanpah - Mt. Pass 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Cool Water - Gale 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Cool Water - Kramer 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Cool Water - SEGS - Tortilla 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Cool Water - Tiefort 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyo - Control 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern - Control - Coso - Haiwee 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern - Control - Haiwee 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern - Downs 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern - Kramer - Randsburg No. 1 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern - Kramer - Randsburg No. 3 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Inyokern - Searles 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Cool Water 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Inyokern - Randsburg No. 1 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Inyokern - Randsburg No. 3 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Roadway 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Tortilla 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Victor 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Tortilla - Kramer 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Victor - Kramer 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Victor - Roadway 115 kV Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b BLM West - Kramer 230 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b BLM West - Kramer 230 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b LUZ LSP - Kramer 230 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b LUZ LSP - Kramer 230 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: SCE North of Lugo
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			B2_2030-SmrPk	B3_2035-SmrPk	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S3_2027-SprOP_BESS	
P5.b Coso-Haiwee-Inyokern - Control 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Coso-Haiwee-Inyokern - Control 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Haiwee-Inyokern - Control 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Haiwee-Inyokern - Control 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Colwater - Baker-Dunn Siding-Ivanpah-Mt. Pass 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Colwater - Baker-Dunn Siding-Ivanpah-Mt. Pass 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer - Colwater 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer - Colwater 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Colwater - SEGS-Tortilla 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Colwater - Tiefort 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Colwater - Tiefort 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Coso-Haiwee-Control - Inyokern 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Coso-Haiwee-Control - Inyokern 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Haiwee-Control - Inyokern 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Haiwee-Control - Inyokern 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Inyokern - Downs 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Inyokern - Downs 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Inyokern-Randsburg No.1 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Inyokern-Randsburg No.1 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Inyokern-Randsburg No.3 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Inyokern-Randsburg No.3 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Inyokern-Searles 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Inyokern-Searles 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Roadway 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Roadway 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Victor 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Victor 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Tortilla-Cool Water-SEGS2 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Tortilla 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
P5.b Kramer-Tortilla 115 kv Line	P5	Non-Redundant Relay	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo-Pisgah No. 1 and No. 2 230 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Calcite-Lugo 230 kV T/L and Lugo-TOT1080 230 kV T/L	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo 1AA or 2AA 500/230 kV Transformer Bank and Calcite-Lugo	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo 1AA and 2AA 500/230 kV Transformer Bank	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	Unstable	Mojave Desert RAS
Coolwater-Segs 2-Tortilla 115 kV T/L and Kramer-Coolwater 230 k	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Coolwater 1A 230/115 kV Transformer Bank and Kramer-Accelerat	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Control-Coso-Haiwee-Inyokern 115 kV T/L and Kramer-Inyokern-R	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	Unstable	Bishop RAS
Kramer 1A or 2A 230/115 kV Transformer Bank and Kramer-Victor	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Sandlot 230 kV T/L and Coolwater 1A 230/115 kV Transfo	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Ivanpah 3A or 4A 230/115 kV Transformer Bank and Coolwater-Sa	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer-Victor No. 1 and No. 2 230 kV T/L	P6	N-1-1	Unstable	No Issues	No Issues	No Issues	Unstable	WECC Criteria Not Met	Mojave Desert RAS
Kramer-Inyokern-Randsburg No. 1 115 kV T/L and Kramer-Inyoker	P6	N-1-1	No Issues	No Issues	Unstable	Unstable	No Issues	Unstable	System adjustments after first contingency
Control-Inyo 115 kV T/L (Path 60) and Control-Coso-Haiwee-Inyok	P6	N-1-1	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo - Victor No. 1 and No. 2 230 kV Lines - SLG 15 cycle fault at	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Lugo - Victor No. 3 and No. 4 230 kV Lines - SLG 15 cycle fault at	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Victor No. 1 and No. 2 230 kV Lines - SLG 15 cycle fault	P7	DCTL	Unstable	No Issues	No Issues	No Issues	Unstable	WECC Criteria Not Met	Mojave Desert RAS
Kramer- Victor 115 kV and Victor - Roadway 115 kV - SLG 15 cycl	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Victor - Roadway No. 1 and No. 2 115 kV - SLG 15 cycle fault at Vi	P7	DCTL	No Issues	No Issues	No Issues	WECC Criteria Not Met	No Issues	No Issues	Planned Kramer CRAS
Kramer- Victor 115 kV and Kramer - Roadway 115 kV - SLG 15 cy	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Kramer - Sandlot 230 kV and Kramer - Coolwater 230 kV - SLG 15	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	No Issues	No Violation
Coolwater- Sandlot 230 kV and Kramer -Coolwater 230 kV - SLG 1	P7	DCTL	No Issues	Unstable	No Issues	No Issues	No Issues	No Issues	Planned Kramer CRAS
Control - Coso - Haiwee - Inyokern 115 kV and Control - Haiwee -	P7	DCTL	No Issues	No Issues	No Issues	No Issues	No Issues	Unstable	Bishop RAS

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: **SCE North of Lugo**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	

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

2025-2026 ISO Reliability Assessment - Final Study Results

Study Area: **SCE North of Lugo**

Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)									Potential Mitigation Solutions
	B1_2027-SmrPk	B2_2030-SmrPk	B3_2035-SmrPk	B5_2030-SmrOP	B7_2027-SprOP	B8_2035-SprOP	S1_2030-SmrPk_HLOAD	S2_2027-SmrPk_HRenewable	S3_2027-SprOP_BESS	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
24087 MAGUNDEN 230 24115 PASTORIA 230 1 1	P6.1.1_162_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 2 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	102.9	< 100	< 100	< 100	< 100	145.0	< 100	147.3	178.8	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_167_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 2 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	129.3	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_168_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 2 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110.2	< 100	< 100	130.5	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_174_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	114.4	< 100	< 100	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_198_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113.7	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_245_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	129.8	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_246_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110.5	< 100	< 100	130.9	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_252_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	114.8	< 100	< 100	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_276_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.1	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24087 MAGUNDEN 230 24115 PASTORIA 230 2 1	P6.1.1_119_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.4	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_245_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	131.2	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_246_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	111.6	< 100	< 100	132.3	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_252_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	116.0	< 100	< 100	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_276_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.3	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_83_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 3	P6	N-1-1	103.3	< 100	< 100	< 100	< 100	145.6	< 100	147.9	179.5	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_88_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	130.1	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_89_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110.8	< 100	< 100	131.3	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_95_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 1 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	115.1	< 100	< 100	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24087 MAGUNDEN 230 24115 PASTORIA 230 3 1	P6.1.1_82_P6.1.1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 1 Line MAGUNDEN 230.0 to PASTORIA 230.0 Circuit 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	102.1	< 100	103.8	125.9	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24087 MAGUNDEN 230 24153 VESTAL 230 1 1	P6.1.1_321_P6.1.1 Line MAGUNDEN 230.0 to SPRINGVL 230.0 Circuit 1 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	101.7	< 100	< 100	< 100	System re-dispatch after initial contingency
	P6.1.1_397_P6.1.1 Line MAGUNDEN 230.0 to SPRINGVL 230.0 Circuit 2 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	< 100	System re-dispatch after initial contingency
	P6.1.1_555_P6.1.1 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit 2 Line SPRINGVL 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	116.1	< 100	< 100	< 100	System re-dispatch after initial contingency
	P6.1.1_556_P6.1.1 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit 2 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	108.1	< 100	< 100	< 100	System re-dispatch after initial contingency
	P6.1.1_575_P6.1.1 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit 2 Line BIG CRK4 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	101.9	< 100	< 100	< 100	System re-dispatch after initial contingency
24087 MAGUNDEN 230 24153 VESTAL 230 2 1	P6.1.1_481_P6.1.1 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit 1 Line SPRINGVL 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	108.0	< 100	< 100	< 100	System re-dispatch after initial contingency
	P6.1.1_482_P6.1.1 Line MAGUNDEN 230.0 to VESTAL 230.0 Circuit 1 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	100.7	< 100	< 100	< 100	System re-dispatch after initial contingency
24087 MAGUNDEN 230 24401	P6.1.1_1010_P6.1.1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	109.0	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_732_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	101.8	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_766_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110.8	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
ANTELOPE 230 1 1	P6.1.1_768_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	107.8	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_803_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110.7	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_873_P6.1.1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	112.1	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
24114 PARDEE 230 24115 PASTORIA 230 1 1	P6.1.1_1010_P6.1.1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	131.3	118.6	121.3	124.4	104.8	149.2	116.0	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_695_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	114.4	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_837_P6.1.1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit	P6	N-1-1	125.9	112.1	113.5	120.8	< 100	149.4	109.4	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_873_P6.1.1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	136.0	123.1	125.9	128.9	109.4	154.0	120.5	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_907_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	121.4	107.7	109.2	116.4	< 100	144.8	105.0	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
24114 PARDEE 230 24217 WARNETAP 230 1 1	P1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	114.7	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P1	N-1	101.7	< 100	< 100	< 100	< 100	114.3	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_1077_P6.1.1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	115.4	106.4	108.6	110.3	< 100	< 100	104.5	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_2427_P6.1.1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	114.9	< 100	105.6	108.4	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_660_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	103.8	< 100	< 100	< 100	131.5	101.5	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_694_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	132.1	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_732_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	104.5	< 100	< 100	< 100	132.4	102.2	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_767_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit	P6	N-1-1	144.2	128.4	130.0	137.9	112.9	171.1	125.3	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_769_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit	P6	N-1-1	< 100	< 100	103.7	107.9	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_794_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	112.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_803_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	155.6	140.7	143.8	147.1	125.2	176.1	137.8	< 100	102.0	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
24114 PARDEE 230 24403 BAILEY 230 1 1	P6.1.1_623_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	109.3	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_694_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	108.1	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_695_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	110.1	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_766_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	123.1	109.2	109.2	118.0	< 100	148.3	106.4	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_768_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	118.5	104.8	104.9	113.7	< 100	143.7	102.0	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
24115 PASTORIA 230 24217 WARNETAP 230 1 1	P1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	105.2	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	104.9	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_1077_P6.1.1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	105.9	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_2427_P6.1.1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	105.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_660_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	121.9	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_694_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	122.6	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_732_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	122.9	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_767_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PARDEE 230.0 to BAILEY 230.0 Circuit	P6	N-1-1	134.6	119.1	120.7	128.9	103.8	161.4	116.0	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
	P6.1.1_794_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	103.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_803_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	145.9	131.4	134.4	137.9	115.9	166.4	128.5	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
24141 SPRINGVL 230 24304 BIG CRK4 230 1 1	line_BCT_P7_02_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 1	P7	DCTL	101.1	101.1	102.1	102.4	106.4	111.3	101.0	105.1	103.6	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1949_P6.1.1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	< 100	< 100	100.3	100.3	103.4	109.9	< 100	102.3	101.8	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_2000_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	101.1	101.1	102.1	102.4	106.4	111.3	101.0	105.1	103.6	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24235 RECTOR 230 24303 BIG CRK3 230 2 1	line_BCT_P7_02_Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 1	P7	DCTL	115.8	115.8	113.8	117.2	115.7	105.3	116.4	115.6	112.2	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1259_P6.1.1 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_2000_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	115.8	115.8	113.8	117.2	115.7	105.3	116.4	115.6	112.2	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24301 BIG CRK1 230 24235 RECTOR 230 1 1	P6.1.1_1253_P6.1.1 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	110.1	110.4	110.0	112.0	111.5	110.6	110.5	110.9	110.2	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1259_P6.1.1 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	119.6	119.8	119.3	122.4	121.9	120.0	119.9	120.8	119.4	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1949_P6.1.1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line BIG CRK3 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	137.4	137.7	135.6	139.7	136.6	126.1	138.3	136.4	133.8	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_2146_P6.1.1 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK8 230.0 Circuit	P6	N-1-1	110.9	111.5	111.2	112.2	111.4	112.1	111.5	112.4	111.4	System re-dispatch after initial contingency
	P6.1.1_2149_P6.1.1 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit 1 Line BIG CRK8 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	128.1	128.6	128.2	129.5	128.7	128.9	128.6	129.6	128.5	System re-dispatch after initial contingency
24302 BIG CRK2 230 24303 BIG CRK3 230 1 1	P6.1.1_1999_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK8 230.0 Circuit	P6	N-1-1	109.6	110.1	109.7	110.6	110.3	110.8	110.0	111.1	110.2	System re-dispatch after initial contingency
	P6.1.1_2002_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK8 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	125.7	126.2	125.8	126.8	126.5	126.7	126.1	127.2	126.3	System re-dispatch after initial contingency
24302 BIG CRK2 230 24305 BIG CRK8 230 1 1	P6.1.1_1998_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	115.8	116.4	116.0	117.0	116.7	117.1	116.3	117.4	116.5	System re-dispatch after initial contingency
24303 BIG CRK3 230 24235 RECTOR 230 1 1	P6.1.1_1253_P6.1.1 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	124.7	125.1	124.7	126.9	126.3	125.2	125.2	125.6	124.8	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1254_P6.1.1 Line SPRINGVL 230.0 to BIG CRK4 230.0 Circuit 1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	127.1	127.4	126.9	129.8	130.1	127.5	127.5	128.5	126.9	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1944_P6.1.1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit	P6	N-1-1	144.4	145.0	142.6	146.8	143.5	131.9	145.7	143.5	140.3	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_1950_P6.1.1 Line RECTOR 230.0 to BIG CRK3 230.0 Circuit 2 Line BIG CRK4 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	110.8	111.3	111.0	112.3	111.5	110.9	111.3	111.5	110.7	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
	P6.1.1_2001_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK4 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	112.9	113.4	113.0	114.8	113.8	112.9	113.5	113.7	112.8	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24305 BIG CRK8 230 24303 BIG CRK3 230 1 1	P6.1.1_1998_P6.1.1 Line BIG CRK1 230.0 to RECTOR 230.0 Circuit 1 Line BIG CRK2 230.0 to BIG CRK3 230.0 Circuit	P6	N-1-1	132.8	133.4	133.0	134.0	133.7	133.9	133.3	134.4	133.4	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
24402 ANTELOPE 66.0 24401 ANTELOPE 230 1 1	P6.1.2_1108_P6.1.2 Line ANTELOPE 66.0 to PLAINVEW 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circu	P6	N-1-1	< 100	< 100	100.3	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.2.2_25_P6.2.2 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 2 0.00 Tran ANTELOPE 66.00 to ANTELO	P6	N-1-1	143.9	127.4	175.3	< 100	115.7	< 100	133.2	100.1	111.9	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.1.2_1012_P6.1.2 Line ANTELOPE 66.0 to ROSAMOND 66.0 Circuit eq Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circ	P6	N-1-1	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.1.2_1108_P6.1.2 Line ANTELOPE 66.0 to PLAINVEW 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circu	P6	N-1-1	< 100	< 100	106.8	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
24402 ANTELOPE 66.0 24401 ANTELOPE 230 2 1	P6.1.2_1276_P6.1.2 Line ROSAMOND 66.0 to R12TAP 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circu	P6	N-1-1	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.1.2_988_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circui	P6	N-1-1	< 100	< 100	100.8	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.2.2_3_P6.2.2 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 1 0.00 Tran ANTELOPE 66.00 to ANTELOP	P6	N-1-1	144.7	128.1	176.3	< 100	116.3	< 100	133.9	100.8	112.5	Energizing existing spare transformer after intial contingency and shed load after the second contingency
24402 ANTELOPE 66.0 24401 ANTELOPE 230 4 1	P6.1.2_1010_P6.1.2 Line ANTELOPE 66.0 to ROSAMOND 66.0 Circuit eq Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circ	P6	N-1-1	< 100	< 100	110.1	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.1.2_1105_P6.1.2 Line ANTELOPE 66.0 to PLAINVEW 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circu	P6	N-1-1	< 100	< 100	111.3	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.1.2_1106_P6.1.2 Line ANTELOPE 66.0 to PLAINVEW 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circu	P6	N-1-1	< 100	< 100	114.2	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.1.2_986_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circui	P6	N-1-1	< 100	< 100	108.4	< 100	< 100	< 100	< 100	< 100	< 100	Energizing existing spare transformer after intial contingency and shed load after the second contingency
	P6.2.2_1_P6.2.2 Tran ANTELOPE 66.00 to ANTELOPE 230.00 Circuit 1 0.00 Tran ANTELOPE 66.00 to ANTELOP	P6	N-1-1	148.3	129.9	181.1	< 100	116.2	< 100	135.9	105.5	112.0	Energizing existing spare transformer after intial contingency and shed load after the second contingency
24402 ANTELOPE 66.0 24420 NEENACH 66.0 1 1	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	146.1	< 100	< 100	< 100	< 100	< 100	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	< 100	< 100	148.0	< 100	< 100	< 100	< 100	< 100	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
24403 BAILEY 230 24115 PASTORIA 230 1 1	P6.1.1_623_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	114.0	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_694_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	112.9	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_695_P6.1.1 Line MAGUNDEN 230.0 to ANTELOPE 230.0 Circuit 2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	114.8	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_766_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	140.0	128.0	132.4	132.1	114.2	154.2	125.5	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_768_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit	P6	N-1-1	135.3	123.4	128.0	127.6	109.6	149.4	120.9	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_769_P6.1.1 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit	P6	N-1-1	103.1	< 100	101.0	< 100	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_839_P6.1.1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit	P6	N-1-1	104.9	< 100	102.7	< 100	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
	P6.1.1_864_P6.1.1 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit	P6	N-1-1	103.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Existing Pastoria Energy Facility RAS and/or system redispatch after initial contingency
24404 BAILEY 66.0 24452 TAP 85 66.0 1 1	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	101.6	110.4	158.4	112.4	< 100	< 100	111.6	105.1	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	101.4	110.4	162.5	116.8	< 100	< 100	111.6	106.8	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
24420 NEENACH 66.0 24452 TAP 85 66.0 1 1	P6.1.1_2427_P6.1.1 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.2	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	131.0	139.3	183.6	133.1	< 100	< 100	140.8	135.5	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	130.7	139.3	187.2	136.6	< 100	< 100	140.8	137.1	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
24435 WESTPAC 66.0 24452 TAP 85 66.0 1 1	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	107.2	119.9	< 100	< 100	< 100	< 100	120.0	118.6	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	107.0	119.9	< 100	< 100	< 100	< 100	120.0	116.7	< 100	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
29399 WINDHUB_B 230 29505 windhb3i 13.8 3 1	P6.1.2_1330_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	115.4	< 100	< 100	< 100	119.2	< 100	Tehachapi CRAS
	P6.1.2_1618_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	122.2	115.6	< 100	< 100	< 100	119.9	< 100	Tehachapi CRAS
	P6.1.2_1642_P6.1.2 Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	115.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_1666_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	122.2	115.7	< 100	< 100	< 100	120.3	100.4	Tehachapi CRAS

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
	P6.1.2_562_P6.1.2 Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	122.1	115.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.2.2_172_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	122.1	< 100	< 100	< 100	< 100	119.1	< 100	Tehachapi CRAS
	P6.2.2_173_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	122.1	< 100	< 100	< 100	< 100	119.1	< 100	Tehachapi CRAS
	P6.1.2_1329_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	115.4	< 100	< 100	< 100	119.2	< 100	Tehachapi CRAS
	P6.1.2_1617_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	122.2	115.6	< 100	< 100	< 100	119.9	< 100	Tehachapi CRAS
	P6.1.2_1641_P6.1.2 Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	115.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
29399 WINDHUB_B 230 29507 windhb4i 13.8 4 1	P6.1.2_1665_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	122.2	115.7	< 100	< 100	< 100	120.3	100.4	Tehachapi CRAS
	P6.1.2_561_P6.1.2 Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	122.1	115.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.2.2_158_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	122.1	< 100	< 100	< 100	< 100	119.1	< 100	Tehachapi CRAS
	P6.2.2_159_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	122.1	< 100	< 100	< 100	< 100	119.1	< 100	Tehachapi CRAS
	P3.3_1150_P3.3 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_10_P6.1.2 Line MAGUNDEN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit	P6	N-1-1	< 100	< 100	123.7	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6.1.2_1690_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	123.7	115.6	< 100	< 100	< 100	117.6	< 100	Tehachapi CRAS
	P6.1.2_1714_P6.1.2 Line NORTH BIGSKY 230.0 to POLARIS 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.6	< 100	Tehachapi CRAS
	P6.1.2_1930_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	116.2	< 100	< 100	< 100	117.9	100.5	Tehachapi CRAS
	P6.1.2_346_P6.1.2 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_370_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	123.7	< 100	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
29401 WINDHUB 500 29505 windhb3i 13.8 3 1	P6.1.2_442_P6.1.2 Line SYC CYN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6.1.2_538_P6.1.2 Line VESTAL 230.0 to ROBOT 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	123.6	< 100	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_970_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	123.8	< 100	< 100	< 100	< 100	117.7	< 100	Tehachapi CRAS
	P6.2.2_126_P6.2.2 Tran ANTELOPE 500.00 to ANTELOPE 230.00 Circuit 1ANTELP1T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6.2.2_142_P6.2.2 Tran ANTELOPE 500.00 to ANTELOPE 230.00 Circuit 2ANTELP2T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6_11011_P6 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Gen ANTLP2_P9_G1 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.6	< 100	Tehachapi CRAS
	P6_11040_P6 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P3.3_1035_P3.3 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_1689_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	123.7	115.6	< 100	< 100	< 100	117.6	< 100	Tehachapi CRAS
	P6.1.2_1713_P6.1.2 Line NORTH BIGSKY 230.0 to POLARIS 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.6	< 100	Tehachapi CRAS
	P6.1.2_1929_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	116.2	< 100	< 100	< 100	117.9	100.5	Tehachapi CRAS
	P6.1.2_345_P6.1.2 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS

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California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
29401 WINDHUB 500 29507 windhb4i 13.8 4 1	P6.1.2_369_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	123.7	< 100	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_441_P6.1.2 Line SYC CYN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6.1.2_537_P6.1.2 Line VESTAL 230.0 to ROBOT 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	123.6	< 100	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_9_P6.1.2 Line MAGUNDEN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit	P6	N-1-1	< 100	< 100	123.6	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6.1.2_969_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circui	P6	N-1-1	< 100	< 100	123.8	< 100	< 100	< 100	< 100	117.7	< 100	Tehachapi CRAS
	P6.2.2_125_P6.2.2 Tran ANTELOPE 500.00 to ANTELOPE 230.00 Circuit 1ANTELP1T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6.2.2_141_P6.2.2 Tran ANTELOPE 500.00 to ANTELOPE 230.00 Circuit 2ANTELP2T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.1	Tehachapi CRAS
	P6_10891_P6 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Gen ANTLP2_P9_G1 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.6	< 100	Tehachapi CRAS
	P6_10920_P6 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	115.6	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
29401 WINDHUB 500 29511 windhb1i 13.8 1 1	P3.3_1299_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 2WINDHB2T 13.80 Gen EASTWOOD 13.8 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.4	Tehachapi CRAS
	P3.3_1351_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 2WINDHB2T 13.80 Gen ANTLP2_P9_G1 0.6 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	160.6	< 100	Tehachapi CRAS
	P6.1.2_12_P6.1.2 Line MAGUNDEN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit	P6	N-1-1	< 100	104.5	109.1	< 100	< 100	100.3	104.3	< 100	< 100	Tehachapi CRAS
	P6.1.2_1692_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	104.5	109.1	105.1	< 100	100.3	104.3	160.6	< 100	Tehachapi CRAS
	P6.1.2_1716_P6.1.2 Line NORTH BIGSKY 230.0 to POLARIS 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	160.6	< 100	Tehachapi CRAS
	P6.1.2_1932_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	104.9	< 100	105.8	< 100	100.4	104.7	161.1	147.0	Tehachapi CRAS
	P6.1.2_348_P6.1.2 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_372_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	104.5	109.1	< 100	< 100	100.3	104.3	< 100	< 100	Tehachapi CRAS
	P6.1.2_444_P6.1.2 Line SYC CYN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	104.5	< 100	< 100	< 100	< 100	104.3	< 100	146.4	Tehachapi CRAS
	P6.1.2_540_P6.1.2 Line VESTAL 230.0 to ROBOT 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	109.1	< 100	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_780_P6.1.2 Line BIG CRK1 230.0 to EASTWOOD 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.4	Tehachapi CRAS
	P6.1.2_972_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	109.2	< 100	< 100	< 100	< 100	160.6	< 100	Tehachapi CRAS
	P6_11178_P6 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 2WINDHB2T 13.80 Gen MAMOTH2G 13.8 Unit ID 2	P6	N-1-1	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6_11179_P6 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 2WINDHB2T 13.80 Gen MAMOTH1G 13.8 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6_11199_P6 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 2WINDHB2T 13.80 Gen EASTWOOD 13.8 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.4	Tehachapi CRAS
	P6_11243_P6 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 2WINDHB2T 13.80 Gen TOT896_G2PV 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	100.3	< 100	< 100	< 100	Tehachapi CRAS
	P3.3_1163_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 1WINDHB1T 13.80 Gen MAMOTH2G 13.8 Unit ID 2	P3	G-1/N-1	< 100	< 100	< 100	105.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P3.3_1164_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 1WINDHB1T 13.80 Gen MAMOTH1G 13.8 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	105.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P3.3_1228_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 1WINDHB1T 13.80 Gen TOT896_G2PV 0.6 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.3	< 100	< 100	< 100	Tehachapi CRAS
	P3.3_1236_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 1WINDHB1T 13.80 Gen ANTLP2_P9_G1 0.6 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	160.6	< 100	Tehachapi CRAS

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
29401 WINDHUB 500 29513 windhb2i 13.8 2 1	P6.1.2_11_P6.1.2 Line MAGUNDEN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit	P6	N-1-1	< 100	104.6	109.1	< 100	< 100	100.3	104.4	< 100	146.0	Tehachapi CRAS
	P6.1.2_1691_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	104.6	109.1	105.3	< 100	100.3	104.4	160.6	< 100	Tehachapi CRAS
	P6.1.2_1715_P6.1.2 Line NORTH BIGSKY 230.0 to POLARIS 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	160.6	< 100	Tehachapi CRAS
	P6.1.2_1931_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	105.0	< 100	106.0	< 100	100.4	104.8	161.1	146.5	Tehachapi CRAS
	P6.1.2_347_P6.1.2 Line PASTORIA 230.0 to EDMONSTN 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	105.3	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_371_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	104.6	109.1	< 100	< 100	100.3	104.4	< 100	< 100	Tehachapi CRAS
	P6.1.2_443_P6.1.2 Line SYC CYN 230.0 to OMAR 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	104.6	< 100	< 100	< 100	< 100	104.4	< 100	146.0	Tehachapi CRAS
	P6.1.2_539_P6.1.2 Line VESTAL 230.0 to ROBOT 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	109.1	< 100	< 100	< 100	< 100	< 100	< 100	Tehachapi CRAS
	P6.1.2_971_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	109.2	< 100	< 100	< 100	< 100	160.6	< 100	Tehachapi CRAS
	P6.2.2_127_P6.2.2 Tran ANTELOPE 500.00 to ANTELOPE 230.00 Circuit 1ANTELP1T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.0	Tehachapi CRAS
	P6.2.2_143_P6.2.2 Tran ANTELOPE 500.00 to ANTELOPE 230.00 Circuit 2ANTELP2T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	146.0	Tehachapi CRAS
29402 WIRLWIND 500 29509 wirlwn1i 13.8 1 1	P6.1.2_1670_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	104.2	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_1694_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.0	< 100	Whirlwind RAS
	P6.1.2_1934_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	105.0	< 100	< 100	< 100	106.4	< 100	Whirlwind RAS
	P6.1.2_1935_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	104.9	< 100	< 100	< 100	106.3	< 100	Whirlwind RAS
	P6.1.2_974_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.1	< 100	Whirlwind RAS
	P6.2.2_222_P6.2.2 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 3WIRLWN3T 13.80 Tran WIRLWIND 500.00 to WIRLW	P6	N-1-1	137.8	179.4	188.6	211.2	< 100	124.0	179.4	215.7	< 100	Whirlwind RAS
	P6_11520_P6 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 3WIRLWN3T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	104.2	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
29402 WIRLWIND 500 29515 wirlwn3i 13.8 3 1	P6.1.2_1669_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	103.9	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_1693_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.1.2_1717_P6.1.2 Line NORTH BIGSKY 230.0 to POLARIS 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.1.2_1933_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	104.6	< 100	< 100	< 100	106.0	< 100	Whirlwind RAS
	P6.1.2_1935_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	104.1	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_973_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.2.2_212_P6.2.2 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 1WIRLWN1T 13.80 Tran WIRLWIND 500.00 to WIRLW	P6	N-1-1	137.8	179.4	188.6	211.3	< 100	124.0	179.4	215.9	< 100	Whirlwind RAS
	P6_11400_P6 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 1WIRLWN1T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	103.8	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P3.3_1495_P3.3 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 1WIRLWN1T 13.80 Gen WDT1515_G 0.6 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_1669_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	103.7	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_1693_P6.1.2 Line BIG SKY 230.0 to NORTH BIGSKY 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	Whirlwind RAS

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
29402 WIRLWIND 500 29522 wirlwn4i 13.8 4 1	P6.1.2_1717_P6.1.2 Line NORTH BIGSKY 230.0 to POLARIS 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	Whirlwind RAS
	P6.1.2_1933_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	104.4	< 100	< 100	< 100	105.9	< 100	Whirlwind RAS
	P6.1.2_1934_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	104.1	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_973_P6.1.2 Line ANTELOPE 230.0 to BIG SKY 230.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	< 100	Whirlwind RAS
	P6.2.2_211_P6.2.2 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 1WIRLWN1T 13.80 Tran WIRLWIND 500.00 to WIRLW	P6	N-1-1	137.8	179.4	188.6	211.3	< 100	124.0	179.4	215.9	< 100	Whirlwind RAS
29407 WINDHUB_A 230 29511 windhb1i 13.8 1 1	P6.1.2_1332_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	104.8	< 100	104.3	< 100	100.3	104.6	155.5	< 100	Tehachapi CRAS
	P6.1.2_1620_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	105.0	107.8	104.5	< 100	< 100	104.8	155.5	140.1	Tehachapi CRAS
	P6.1.2_1644_P6.1.2 Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	155.5	< 100	Tehachapi CRAS
	P6.1.2_1668_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	104.9	107.8	104.5	< 100	100.3	104.7	155.6	140.2	Tehachapi CRAS
	P6.1.2_1932_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.1	Tehachapi CRAS
	P6.1.2_564_P6.1.2 Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	104.8	107.7	104.3	< 100	100.3	104.6	155.5	< 100	Tehachapi CRAS
	P6.1.2_780_P6.1.2 Line BIG CRK1 230.0 to EASTWOOD 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.1	Tehachapi CRAS
	P6.1.2_924_P6.1.2 Line MAMMOTH 230.0 to BIG CRK3 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.1	Tehachapi CRAS
	P6.2.2_159_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	107.7	< 100	< 100	100.3	< 100	< 100	< 100	Tehachapi CRAS
	P6.2.2_173_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	104.7	107.7	104.3	< 100	100.3	104.5	< 100	< 100	Tehachapi CRAS
29407 WINDHUB_A 230 29513 windhb2i 13.8 2 1	P3.3_1184_P3.3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 1WINDHB1T 13.80 Gen EASTWOOD 13.8 Unit ID 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.1	Tehachapi CRAS
	P6.1.2_1331_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	105.0	< 100	104.4	< 100	100.3	104.8	< 100	< 100	Tehachapi CRAS
	P6.1.2_1619_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	105.1	107.8	104.6	< 100	< 100	105.0	155.5	< 100	Tehachapi CRAS
	P6.1.2_1643_P6.1.2 Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	155.5	< 100	Tehachapi CRAS
	P6.1.2_1667_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	105.1	107.8	104.7	< 100	100.3	104.9	155.6	140.2	Tehachapi CRAS
	P6.1.2_1931_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.2	Tehachapi CRAS
	P6.1.2_563_P6.1.2 Line VINCENT 500.0 to WIRLWIND 500.0 Circuit 3 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	105.0	107.7	104.4	< 100	100.3	104.8	155.5	< 100	Tehachapi CRAS
	P6.1.2_779_P6.1.2 Line BIG CRK1 230.0 to EASTWOOD 230.0 Circuit 1 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circui	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.1	Tehachapi CRAS
	P6.2.2_158_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 3WINDHB3T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	< 100	107.7	< 100	< 100	100.3	< 100	< 100	< 100	Tehachapi CRAS
	P6.2.2_172_P6.2.2 Tran WINDHUB 500.00 to WINDHUB_B 230.00 Circuit 4WINDHB4T 13.80 Tran WINDHUB 500.00 to WINDH	P6	N-1-1	< 100	105.0	107.7	104.4	< 100	100.3	104.8	155.4	< 100	Tehachapi CRAS
	P6_11079_P6 Tran WINDHUB 500.00 to WINDHUB_A 230.00 Circuit 1WINDHB1T 13.80 Gen EASTWOOD 13.8 Unit ID 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	140.1	Tehachapi CRAS
29408 WIRLWIND 230 29509	P6.1.2_1334_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	103.1	< 100	< 100	< 100	106.2	< 100	Whirlwind RAS
	P6.1.2_1335_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.1	< 100	Whirlwind RAS
	P6.1.2_1622_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	103.2	< 100	< 100	< 100	106.6	< 100	Whirlwind RAS

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)						Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
wirlwn1i 13.8 1 1	P6.1.2_1623_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	103.1	< 100	< 100	< 100	106.5	< 100	Whirlwind RAS
	P6.1.2_1934_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	103.1	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.2.2_222_P6.2.2 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 3WIRLWN3T 13.80 Tran WIRLWIND 500.00 to WIRLW	P6	N-1-1	137.4	176.3	186.0	206.4	< 100	123.6	176.4	212.9	< 100	Whirlwind RAS
29408 WIRLWIND 230 29515 wirlwn3i 13.8 3 1	P6.1.2_1333_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.7	< 100	< 100	< 100	105.8	< 100	Whirlwind RAS
	P6.1.2_1621_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.8	< 100	< 100	< 100	106.2	< 100	Whirlwind RAS
	P6.1.2_1623_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.1.2_1645_P6.1.2 Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.7	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_1669_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.1.2_1933_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.7	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.2.2_212_P6.2.2 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 1WIRLWN1T 13.80 Tran WIRLWIND 500.00 to WIRLW	P6	N-1-1	137.4	176.4	186.0	206.4	< 100	123.6	176.4	212.9	< 100	Whirlwind RAS
29408 WIRLWIND 230 29522 wirlwn4i 13.8 4 1	P6.1.2_1333_P6.1.2 Line MW_WRLWND_32 500.0 to WIRLWIND 500.0 Circuit 3 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.6	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.1.2_1621_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.6	< 100	< 100	< 100	106.0	< 100	Whirlwind RAS
	P6.1.2_1622_P6.1.2 Line ANTELOPE 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	Whirlwind RAS
	P6.1.2_1645_P6.1.2 Line ANTELOPE 500.0 to WIRLWIND 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.1.2_1669_P6.1.2 Line WIRLWIND 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.6	< 100	Whirlwind RAS
	P6.1.2_1933_P6.1.2 Line TOT915_GSU_H 500.0 to WINDHUB 500.0 Circuit 1 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circu	P6	N-1-1	< 100	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	Whirlwind RAS
	P6.2.2_211_P6.2.2 Tran WIRLWIND 500.00 to WIRLWIND 230.00 Circuit 1WIRLWN1T 13.80 Tran WIRLWIND 500.00 to WIRLW	P6	N-1-1	137.4	176.4	186.0	206.4	< 100	123.6	176.4	212.9	< 100	Whirlwind RAS

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
High/Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
ALAMO SC 66 kV	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.84	0.75	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.78	0.75	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1206_P6.1.2 Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.16	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1230_P6.1.2 Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1302_P6.1.2 Line WESTPAC 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_246_P6.1.2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_270_P6.1.2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_294_P6.1.2 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_318_P6.1.2 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_366_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_942_P6.1.2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	High/Low Voltage	0.84	0.75	1.18	1.18	0.9 < V < 1.05	0.9 < V < 1.05	0.81	0.75	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
ALPINE 66 kV	P3.3_682_P3.3 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P3	G-1/N-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
BAILEY 66 kV	P6.1.1_2763_P6.1.1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1 Line NEENACH 66.0 to TAP 85 66.0 Circuit	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.83	0.74	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.77	0.73	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1206_P6.1.2 Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.16	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1230_P6.1.2 Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.17	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1302_P6.1.2 Line WESTPAC 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.14	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_246_P6.1.2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.14	1.11	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_270_P6.1.2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_294_P6.1.2 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_366_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.11	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_942_P6.1.2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	High/Low Voltage	0.83	0.74	1.19	1.18	0.9 < V < 1.05	0.9 < V < 1.05	0.79	0.73	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
NEENACH 66 kV	P3.3_682_P3.3 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P3	G-1/N-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.11	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_2763_P6.1.1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1 Line NEENACH 66.0 to TAP 85 66.0 Circuit	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
High/Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
OSO 66 kV	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.84	0.75	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.78	0.74	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1206_P6.1.2 Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.16	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1230_P6.1.2 Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1302_P6.1.2 Line WESTPAC 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_246_P6.1.2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_270_P6.1.2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_294_P6.1.2 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_366_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_942_P6.1.2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	High/Low Voltage	0.84	0.75	1.18	1.18	0.9 < V < 1.05	0.9 < V < 1.05	0.80	0.74	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
TAP 85 66 kV	P3.3_682_P3.3 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P3	G-1/N-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_2763_P6.1.1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1 Line NEENACH 66.0 to TAP 85 66.0 Circuit	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.84	0.76	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.79	0.76	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1230_P6.1.2 Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.17	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1254_P6.1.2 Line NEENACH 66.0 to ALPINE 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1302_P6.1.2 Line WESTPAC 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1566_P6.1.2 Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1590_P6.1.2 Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 2 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_246_P6.1.2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_270_P6.1.2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_318_P6.1.2 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_942_P6.1.2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	High/Low Voltage	0.85	0.76	1.15	1.16	0.9 < V < 1.05	0.9 < V < 1.05	0.81	0.76	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_2763_P6.1.1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1 Line NEENACH 66.0 to TAP 85 66.0 Circuit	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.84	0.75	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.78	0.74	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1206_P6.1.2 Line BAILEY 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.16	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1230_P6.1.2 Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.17	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1302_P6.1.2 Line WESTPAC 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
High/Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
TAP 86 66 kV	P6.1.2_246_P6.1.2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_270_P6.1.2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_294_P6.1.2 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_366_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_942_P6.1.2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	High/Low Voltage	0.84	0.75	1.18	1.18	0.9 < V < 1.05	0.9 < V < 1.05	0.80	0.74	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
WESTPAC 66 kV	P3.3_682_P3.3 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P3	G-1/N-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_2763_P6.1.1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit 1 Line NEENACH 66.0 to TAP 85 66.0 Circuit	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.85	0.77	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.80	0.76	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1230_P6.1.2 Line NEENACH 66.0 to TAP 85 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.18	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1254_P6.1.2 Line NEENACH 66.0 to ALPINE 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1566_P6.1.2 Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_1590_P6.1.2 Line ANTELOPE 500.0 to VINCENT 500.0 Circuit 2 Tran BAILEY 66.00 to BAILEY 230.00 Circu	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_246_P6.1.2 Line PARDEE 230.0 to PASTORIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_270_P6.1.2 Line PARDEE 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_318_P6.1.2 Line PASTORIA 230.0 to WARNETAP 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_366_P6.1.2 Line PASTORIA 230.0 to PSTRIA 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_942_P6.1.2 Line ANTELOPE 230.0 to PARDEE 230.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.13	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.1.2_990_P6.1.2 Line ANTELOPE 66.0 to NEENACH 66.0 Circuit 1 Tran BAILEY 66.00 to BAILEY 230.00 Circui	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.10	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_87_P6.2.2 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 2 0.00 Tran BAILEY 66.00 to BAILEY	P6	N-1-1	High/Low Voltage	0.85	0.77	1.15	1.16	0.9 < V < 1.05	0.9 < V < 1.05	0.82	0.76	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6_10552_P6 Tran BAILEY 66.00 to BAILEY 230.00 Circuit 3 0.00 Gen ALPINE_G 0.3 Unit ID 1	P6	N-1-1	High Voltage	0.9 < V < 1.05	0.9 < V < 1.05	1.15	1.12	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
BAILEY 230 kV	P6.1.1_942_P6.1.1 Line PARDEE 230.0 to BAILEY 230.0 Circuit 1 Line BAILEY 230.0 to PASTORIA 230.0 Circuit	P6	N-1-1	High/Low Voltage	0.82	0.74	1.16	1.14	0.9 < V < 1.05	0.9 < V < 1.05	0.73	0.73	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
BIG CRK1 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.81	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
BIG CRK2 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.81	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
BIG CRK3 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.81	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.83	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.86	0.82	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.83	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
High/Low Voltages

California ISO

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Voltage PU (Baseline Scenarios)						Voltage PU (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
BIG CRK4 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.80	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.83	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.86	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.83	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
BIG CRK8 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.81	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
EASTWOOD 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.88	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.85	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.88	0.83	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.83	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.85	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
MAMMOTH 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.81	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.87	0.82	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.84	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
RECTOR 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.88	0.79	0.74	0.81	0.9 < V < 1.05	0.9 < V < 1.05	0.80	0.77	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.88	0.79	0.75	0.81	0.9 < V < 1.05	0.9 < V < 1.05	0.80	0.76	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.87	0.79	0.75	0.81	0.9 < V < 1.05	0.9 < V < 1.05	0.81	0.76	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
SPRINGVL 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.86	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.88	0.84	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.85	0.86	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.88	0.85	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.87	0.86	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
VESTAL 230 kV	P6.2.2_256_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.89	0.86	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.87	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_257_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 1 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.89	0.86	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.86	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue
	P6.2.2_262_P6.2.2 Tran RECTOR 66.00 to RECTOR 230.00 Circuit 2 0.00 Tran RECTOR 66.00 to RECTO	P6	N-1-1	Low Voltage	0.9 < V < 1.05	0.88	0.86	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.87	0.9 < V < 1.05	system adjustments after first contingency mitigates the issue

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **SCE Tehachapi & Big Creek Corridor**
Voltage Deviation

Substation	Contingency	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)						Post Cont. Voltage Deviation % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
No Voltage Deviations to report													

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
Transient Stability

California ISO

Contingency	Category	Category Description	Transient Stability Performance									Potential Mitigation Solutions
			Baseline Scenarios						Sensitivity Scenarios			
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
Magunden - Springville No.1 Fault: Magunden	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden - Springville No.2 Fault: Magunden	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden - Vestal No.1 Fault: Magunden	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden - Vestal No.2 Fault: Magunden	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 3 - Rector No.1 and Rector-Vestal No.2 230 kV and Loss of Rector SVC	P2	Line Section w/o Fault	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 1 - Rector and Rector-Vestal No.1 230 kV and Loss of Rector SVC	P2	Line Section w/o Fault	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 4 - Springville and Magunden - Springville No. 2 230 kV and Loss of Rector SVC	P2	Line Section w/o Fault	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 2-Big Creek 8 & Big Creek 3-Big Creek 8 and Loss of Rector SVC	P2	Line Section w/o Fault	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pardee-Sylmar No. 2 and Pardee-Moorpark No. 3 220 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pardee-Sylmar No. 1 and Pardee-Moorpark No. 2 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pardee-Saugus 1A and Pardee-Moorpark No. 4 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pardee leg of the Pardee-Pastoria-Warne and Pardee-Santa Clara 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pardee-Vincent No.1 and Pardee-Pastoria 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pardee-Bailey and Pardee-Vincent No. 2 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 3 - Rector No.1 and Rector-Vestal No.2 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 1 - Rector and Rector-Vestal No.1 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pastoria-Lebec and Pastoria-Edmonston 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pastoria-Magunden No.1 and Pastoria-Bailey 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pastoria-Magunden No.2 and Pastoria-Pardee 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Pastoria-Pardee-Warne and Pastoria-Magunden No.3 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 4 - Springville and Magunden - Springville No. 2 230 kV	P4	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Bailey 66 kV East Bus	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Neenach - Bailey-Westpac (Neenach-Bailey) Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Neenach - Bailey-Westpac (Neenach-Westpac) Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Bailey - Neenach-Westpac (Bailey-Neenach) Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Bailey - Neenach-Westpac (Bailey-Westpac) Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Westpac - Neenach-Bailey (Westpac-Bailey) Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Westpac - Neenach-Bailey (Westpac-Neenach) Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Antelope - Neenach Ckt 1 66 kV Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Neenach - Antelope Ckt 1 66 kV line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Vestal - Magunden Ckt 2 230 kv Line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Vestal - Magunden Ckt 1 230 kV line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Springville - Magunden Ckt 2 230 kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Springville - Magunden Ckt 1 230 kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pastoria - Pardee - Warne (Pastoria-Pardee) 230kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pastoria - Pardee - Warne (Pastoria-Warne) 230kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pardee - Pastoria - Warne (Pardee-Pastoria) 230kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pardee - Pastoria - Warne (Pardee-Warne) 230kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Warne - Pastoria - Pardee (Warne-Pastoria) 230kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Warne - Pastoria - Pardee (Warne-Pardee) 230kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pastoria - Pardee Ckt 1 230 kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pastoria - Edmonston 230 kV line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Pardee - Pastoria Ckt 1 230 kV line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Magunden - Vestal Ckt 2 230 kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Magunden - Vestal Ckt 1 230 kV line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Magunden - Springville Ckt 2 230 kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.b Magunden - Springville Ckt 1 230 kv line	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 1 - Big Creek 2 220 kv Line (Non Redundant Trip Coil Big Creek 1 CB# 612)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 1 - Rector 220 kv Line (Non Redundant Trip Coil Big Creek 1 CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 1 - Eastwood 220 kv Line (Non Redundant Trip Coil Big Creek 1 CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 2 - Big Creek 1 220 kv Line (Non Redundant Trip Coil Big Creek 2 CB# 422)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 2 - Big Creek 3 220 kv Line (Non Redundant Trip Coil Big Creek 2 CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 2 - Big Creek 8 220 kv Line (Non Redundant Trip Coil Big Creek 2 CB# 442)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 4 - Big Creek 3 220 kv Line (Non Redundant Trip Coil Big Creek 4 CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 4 - Big Creek 3 220 kv Line (Non Redundant Trip Coil Big Creek 4 CB# 622)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 4 - SpringVille 220 kv Line (Non Redundant Trip Coil Big Creek 4 CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 8 - Big Creek 2 220 kv Line (Non Redundant Trip Coil Big Creek 8 CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Big Creek 8 - Big Creek 3 220 kv Line (Non Redundant Trip Coil Big Creek 8 CB# 422)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Bailey 220 kv Line (Non Redundant Trip Coil Pastoria CB# 542)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Edmonston 220 kv Line (Non Redundant Trip Coil Pastoria CB# 552)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Lebec 220 kv Line (Non Redundant Trip Coil Pastoria CB# 552)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Magunden No. 1 220 kv Line (Non Redundant Trip Coil Pastoria CB# 542)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Magunden No. 2 220 kv Line (Non Redundant Trip Coil Pastoria CB# 532)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Magunden No. 3 220 kv Line (Non Redundant Trip Coil Pastoria CB# 512)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Pardee 220 kv Line (Non Redundant Trip Coil Pastoria CB# 532)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Pastoria - Pardee-Warne 220 kv Line (Non Redundant Trip Coil Pastoria CB# 512)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Rector - Big Creek 1 220 kv Line (Non Redundant Trip Coil Rector CB# 5032)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Rector - Big Creek 3 No. 1 220 kv Line (Non Redundant Trip Coil Rector CB# 5042)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Rector - Big Creek 3 No. 2 220 kv Line (Non Redundant Trip Coil Rector CB# 4022)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Rector - Springville 220 kv Line (Non Redundant Trip Coil Rector CB# 5012)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Rector - Vestal No. 1 220 kv Line (Non Redundant Trip Coil Rector CB# 5032)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Rector - Vestal No. 2 220 kv Line (Non Redundant Trip Coil Rector CB# 5042)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Vestal - Magunden No. 1 220 kv Line (Non Redundant Trip Coil Vestal CB# 452)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Vestal - Magunden No. 2 220 kv Line (Non Redundant Trip Coil Vestal CB# 662)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Vestal - Rector No. 1 220 kv Line (Non Redundant Trip Coil Vestal CB# 412)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Vestal - Rector No. 2 220 kv Line (Non Redundant Trip Coil Vestal CB# 622)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Antelope - Neenach 66 kv Line (Non Redundant Trip Coil Antelope CB# 49)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Bailey - Neenach-Westpac 66 kv Line (Non Redundant Trip Coil Bailey CB# 120)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Neenach - Antelope 66 kv Line (Non Redundant Trip Coil Neenach CB# 10)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
Neenach - Bailey-Westpac 66 kv Line (Non Redundant Trip Coil Neenach CB# 2)	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.3.13c Antelope 230 kV	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.3.13c Bailey 230 kV	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.3.13c Big Creek 1	P5	Non-Redundant Relay	Unstable				No issues		Unstable		Unstable	investigate options to address non redundant DC supply
P5.3.13c Big Creek 2	P5	Non-Redundant Relay	Unstable				Unstable		Unstable		Unstable	investigate options to address non redundant DC supply
P5.3.13c Big Creek 3	P5	Non-Redundant Relay	Unstable				Unstable		Unstable		No issues	investigate options to address non redundant DC supply
P5.3.13c Big Creek 4	P5	Non-Redundant Relay	WECC criteria not met				No issues		WECC criteria not met		No issues	investigate options to address non redundant DC supply
P5.3.13c Big Creek 8	P5	Non-Redundant Relay	Unstable				No issues		Unstable		No issues	investigate options to address non redundant DC supply
P5.3.13c Magunden 230 kV	P5	Non-Redundant Relay	No issues				No issues		No issues		No issues	No Violation
P5.3.13c Neenach 66 kV	P5	Non-Redundant Relay	No issues				No issues		No issues		WECC criteria not met	investigate options to address non redundant DC supply
P5.3.13c Pardee 230 kV	P5	Non-Redundant Relay	WECC criteria not met				WECC criteria not met		WECC criteria not met		WECC criteria not met	investigate options to address non redundant DC supply
P5.3.13c Pastoria 230 kV	P5	Non-Redundant Relay	WECC criteria not met				WECC criteria not met		WECC criteria not met		Unstable	investigate options to address non redundant DC supply
P5.3.13c Rector 230 kV	P5	Non-Redundant Relay	WECC criteria not met				Unstable		WECC criteria not met		No issues	investigate options to address non redundant DC supply
P5.3.13c Springville 230 kV	P5	Non-Redundant Relay	WECC criteria not met				No issues		WECC criteria not met		WECC criteria not met	investigate options to address non redundant DC supply
P5.3.13c Vestal 230 kV	P5	Non-Redundant Relay	No issues				WECC criteria not met		No issues		No issues	investigate options to address non redundant DC supply
BIG CREEK 1-RECTOR and BIG CREEK 3-RECTOR NO. 1, FAULT BIG CREEK 1	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	No issues	No issues	Unstable	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS
BIG CREEK 1-RECTOR and BIG CREEK 3-RECTOR NO. 1, FAULT BIG CREEK 1 - BC/SJV RAS armed to trip Eastwood and Mammoth	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 3-Rector No. 2 & Big Creek 1-Rector	P6	N-1-1	No issues	No issues	Unstable	Unstable	No issues	No issues	No issues	No issues	No issues	Existing Big Creek/San Joaquin Valley RAS
Big Creek 3-Rector No. 2 & Big Creek 1-Rector with RAS	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
BIG CREEK 3-RECTOR NO.2 and BIG CREEK 4-SPRINGVILLE, FAULT BIG CREEK 3	P6	N-1-1	Unstable	Unstable	No issues	Unstable	No issues	No issues	Unstable	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS
BIG CREEK 3-RECTOR NO.2 and BIG CREEK 4-SPRINGVILLE, FAULT BIG CREEK 3 with RAS	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
BIG CREEK 4-SPRINGVILLE and RECTOR-SPRINGVILLE, FAULT BIG CREEK 4	P6	N-1-1	No issues	No issues	Unstable	No issues	No issues	No issues	No issues	No issues	No issues	Existing Big Creek/San Joaquin Valley RAS
BIG CREEK 4-SPRINGVILLE and RECTOR-SPRINGVILLE, FAULT BIG CREEK 4 with RAS	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
RECTOR-VESTAL NOS. 1 & 2, FAULT RECTOR	P6	N-1-1	Unstable	Unstable	No issues	No issues	No issues	No issues	Unstable	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS
RECTOR-VESTAL NOS. 1 & 2, FAULT RECTOR with RAS	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-SPRINGVILLE NOS. 1 & 2, FAULT MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	Unstable	No issues	No issues	No issues	No issues	No issues	Existing Big Creek/San Joaquin Valley RAS
MAGUNDEN-SPRINGVILLE NOS. 1 & 2, FAULT MAGUNDEN with RAS	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-VESTAL NOS. 1 & 2, FAULT MAGUNDEN	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	No issues	Unstable	Unstable	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS and/or system redspatch after initial contingency
MAGUNDEN-VESTAL NOS. 1 & 2, FAULT MAGUNDEN with RAS	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 1-Rector & Big Creek 3-Big Creek 8, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Vestal No. 1 & Rector-Springville, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Vestal No. 2 & Rector-Springville, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector-Vestal No. 1 & Magunden-Springville No. 1, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector-Vestal No. 2 & Magunden-Springville No. 1, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Vestal No. 1 & Magunden-Springville No. 1, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Vestal No. 2 & Magunden-Springville No. 1, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector-Vestal No. 1 & Rector-Springville, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector-Vestal No. 2 & Rector-Springville, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 3-Rector No. 1 & Rector-Springville, Fault Location: Rector	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Pastoria Nos. 1 & 2, FAULT MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Pastoria Nos. 1 & 3, FAULT MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden-Pastoria Nos. 2 & 3, FAULT MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Bailey-Pastoria and Pardee-Pastoria, FAULT Pastoria	P6	N-1-1	Unstable	Unstable	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Existing Pastoria Energy Facility RAS
Bailey-Pastoria and Pardee-Pastoria-Warne, FAULT Pastoria	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS
Pardee-Pastoria and Pardee-Pastoria-Warne, FAULT Pastoria	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS
Pardee-Pastoria and Bailey-Pardee, FAULT Pardee	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Bailey-Pardee and Pardee-Pastoria-Warne, FAULT Pardee	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS
Antelope-Magunden Nos. 1 and 2, FAULT Magunden	P6	N-1-1	Unstable	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Existing Pastoria Energy Facility RAS
Antelope-Magunden No. 1 & Pardee-Pastoria-Warne, Fault Location: MAGUNDEN	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS
Antelope-Magunden No. 2 & Pardee-Pastoria-Warne, Fault Location: MAGUNDEN	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS
Antelope-Pardee & Pardee-Pastoria-Warne, Fault Location: PARDEE	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS and/or system redspatch after initial contingency
Bailey-Pastoria & Bailey-Pardee, FAULT AT PARDEE	P6	N-1-1	Unstable	No issues	Unstable	Unstable	No issues	No issues	No issues	No issues	No issues	Split Antelope–Bailey 66 kV System per existing SCE operating procedure after initial contingency
Big Creek 1-Rector & Big Creek 2-Big Creek 8, Fault Location: Rector	P6	N-1-1	Unstable	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Existing Big Creek/San Joaquin Valley RAS and/or system redspatch after initial contingency
Antelope-Pardee & Bailey-Pastoria, Fault Location: Pardee	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Bailey-Pardee & Pastoria-Edmonston, Fault Location: Pardee	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS and/or system redspatch after initial contingency
Bailey-Pardee & Pastoria-Edmonston with mitigation, Fault Location: Pardee	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS and/or system redspatch after initial contingency
Bailey-Pastoria & Pastoria-Edmonston, Fault Location: Pastoria	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS and/or system redspatch after initial contingency
Bailey-Pastoria & Pastoria-Edmonston with mitigation, Fault Location: Pastoria	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Unstable	Existing Pastoria Energy Facility RAS and/or system redspatch after initial contingency

2025-2026 ISO Reliability Assessment - Study Results
Study Area: SCE Tehachapi & Big Creek Corridor
Transient Stability

California ISO

Contingency	Category	Category Description	Transient Stability Performance									Potential Mitigation Solutions
			Baseline Scenarios						Sensitivity Scenarios			
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	
Pardee-Vincent and Pardee-Vincent2, Fault Location: Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Vestal No. 1, FAULT Magunden, Fault Location: Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Vestal No. 2, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Springville No. 1, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Springville No. 2, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Pastoria No. 1, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Pastoria No. 2, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Magunden-Pastoria No. 3, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Rector SVC and Antelope-Magunden No. 2, FAULT Magunden	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
ANTELOPE-MAGUNDEN NO.2 & RECTOR-VESTAL NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-PASTORIA NO. 1 & MAGUNDEN-SPRINGVILLE NO. 1, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
BIG CREEK 4-SPRINGVILLE & BIG CREEK 1-RECTOR, Fault Location: RECTOR	P6	N-1-1	Unstable	Unstable	Unstable	Unstable	No issues	No issues	Unstable	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS
BIG CREEK 4-SPRINGVILLE & BIG CREEK 1-RECTOR with mitigation, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-SPRINGVILLE NO. 1 & ANTELOPE-MAGUNDEN NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-SPRINGVILLE NO. 1 & BIG CREEK 4-SPRINGVILLE, Fault Location: MAGUNDEN	P6	N-1-1	No issues	Unstable	No issues	Unstable	No issues	No issues	No issues	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
BAILEY 1A & 2a, Fault Location: BAILEY	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & RECTOR-VESTAL NO. 1, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & MAGUNDEN-PASTORIA NO. 3, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & MAGUNDEN-SPRINGVILLE NO. 1, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & ANTELOPE-MAGUNDEN NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & RECTOR-SPRINGVILLE, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & BIG CREEK 4-SPRINGVILLE, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & BIG CREEK 3-RECTOR NO. 1, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & BIG CREEK 3-RECTOR NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & BIG CREEK 3-BIG CREEK 4, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & RECTOR SVC, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
ANTELOPE-MAGUNDEN NO. 2 & RECTOR-VESTAL NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-PASTORIA NO. 1 & MAGUNDEN-SPRINGVILLE NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-OMAR & PASTORIA-LEBEC, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & MAGUNDEN-SPRINGVILLE NO. 1, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & MAGUNDEN-SPRINGVILLE NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & MAGUNDEN-VESTAL NO. 1, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & MAGUNDEN-VESTAL NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & RECTOR-SPRINGVILLE, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & RECTOR-VESTAL NO. 1, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
PASTORIA-LEBEC & RECTOR-VESTAL NO. 2, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-SPRINGVILLE NO. 1 & RECTOR-SPRINGVILLE, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
MAGUNDEN-SPRINGVILLE NO. 1 & BIG CREEK 4-SPRINGVILLE, Fault Location: MAGUNDEN	P6	N-1-1	No issues	Unstable	No issues	Unstable	No issues	No issues	No issues	Unstable	No issues	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
MAGUNDEN-SPRINGVILLE NO. 1 & BIG CREEK 3-RECTOR NO. 2, Fault Location: MAGUNDEN	P6	N-1-1	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
BIG CREEK 4-SPRINGVILLE & RECTOR-VESTAL NO. 1, Fault Location: RECTOR	P6	N-1-1	No issues	No issues	No issues	Unstable	No issues	No issues	No issues	No issues	No issues	Existing Big Creek/San Joaquin Valley RAS and/or system redispatch after initial contingency
Big Creek 3 - Rector No.2 and Rector - Springville 230 kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Big Creek 3 - Rector No.1 and Big Creek 1 - Rector 230 kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation
Magunden - Omar and Magunden - Vestal No.1 230 kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No Violation

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **SCE Tehachapi & Big Creek Corridor**
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)									Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	

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

2025-2026 ISO Reliability Assessment - Study Results
Study Area: **SCE Tehachapi & Big Creek Corridor**
Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)										Potential Mitigation Solutions
	2026 Summer Peak	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2030 Summer-Off Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 SP Heavy Renewable & Min Gas Gen	2030 SP High CEC Forecast	2027 Spring OP Sensitivity	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: San Diego
Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22930 ECO 500 22468 MIGUEL 500 1 2	TL50003_Line OCO-SCR 500kV ck 1 AND TL23040_Line OM-TJI 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	100.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by reducing generation output in the greater Imperial Valley area and dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P6 event.
15090 HASSYAMP 500 22536 N.GILA 500 1 2	IV_GEN1_ALL_Gen IV GEN1 CT2/CT3/STG ID 1 AND HAA-HDW_Line HAA-HDW 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	< 100	< 100	Rely on the 30-min emergency rating of the series capacitors (35% higher than their continuous rating), to allow the market and operators to bring down the overloads that do not exceed 135% for the P3 and P6 contingencies within the continuous rating in 30 minutes as an operational mitigation measure. For the 2027 Spring Off Peak sensitivity case, the system adjustment that can be implemented is to reduce battery energy storage charging in the San Diego area. For the 2030 Summer Off Peak case and 2027 Summer Peak sensitivity case, the system adjustments could involve dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area and reducing solar generation output at Hoodoo Wash, and/or Hassayampa. The ISO approved "Upgrade series capacitors on HW-NG and HA-NG" project solves this reliability issue in the long term. The ISO is coordinating with the TO on this mitigation.
	HDW-NG_Line HDW-NG 500kV ck 1 AND TL23054+RAS_Line SCR-SX 230kV ck 1 + RAS	P6	N-1-1	< 100	< 100	< 100	< 100	107.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22342 HDWSH 500 22536 N.GILA 500 1 2	HAA-NG_Line HAA-NG 500kV ck 1 AND ML_BK80+RAS_Tran ML 500/230kV ck 1 + RAS	P6	N-1-1	< 100	< 100	< 100	< 100	112.0	< 100	< 100	< 100	106.5	< 100	< 100	< 100	
	TL23055_Line SCR-SX 230kV ck 2	P1	N-1	< 100	< 100	< 100	< 100	102.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23054/TL23055 RAS to trip generation in the greater Imperial Valley area.
	TL50001_Line ECO-ML 500kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23040 IV 500kV N-1 RAS to trip renewable generation in the greater Imperial Valley area.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23055_Line SCR-SX 230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23054/TL23055 RAS to trip generation in the greater Imperial Valley area.
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL23055_Line SCR-SX 230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL23055_Line SCR-SX 230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	105.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	106.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23040 IV 500kV N-1 RAS to trip renewable generation in the greater Imperial Valley area.
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	104.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	103.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	103.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	102.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: San Diego
Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22886 SUNCREST 230 22832 SYCAMORE 230 1 1	SX-230-22T_CB SYCAMORE CANYON 230kV 22T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	104.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23054/TL23055 RAS to trip generation in the greater Imperial Valley area.
	ML-500-8013_CB MIGUEL 500kV 8013	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23040 IV 500kV N-1 RAS to trip renewable generation in the greater Imperial Valley area.
	ML-500-8023_CB MIGUEL 500kV 8023	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ML-500-9013_CB MIGUEL 500kV 9013	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ECO-500-1T_CB EAST COUNTY 500kV 1T or 1E	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ML-500-7013_CB MIGUEL 500kV 7013	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ECO-500-4T_CB EAST COUNTY 500kV 4T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL23055_Line SCR-SX 230kV ck 2	P6	N-1-1	127.9	120.9	< 100	< 100	176.3	< 100	< 100	< 100	170.1	100.9	126.5	< 100	On the near term, rely on the existing TL23054/TL23055 RAS, along with the 30-minute short-term emergency ratings of the 230 kV lines (30% higher than their continuous ratings), to allow the market and operators to bring down the overloads that do not exceed 130% for the P6 contingencies within the continuous ratings in 30 minutes as operational mitigation measures. For the contingencies that exceed 130%, the operational mitigations would need to be performed after the first contingency. The system adjustments could involve the reduction of generation output in the greater Imperial Valley area, dispatch conventional gas generation, preferred resources, and battery energy storage in the San Diego area, adjust the Imperial Valley phase shifting transformers, and bypass the series capacitor banks in the 500 kV transmission lines between Hassayampa and North Gila as needed. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term.
	TL50001_Line ECO-ML 500kV ck 1 AND TL23055+RAS_Line SCR-SX 230kV ck 2 + RAS	P6	N-1-1	108.1	101.8	< 100	< 100	142.1	< 100	< 100	< 100	134.8	< 100	107.3	< 100	
	TL23054_Line SCR-SX 230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	102.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23054/TL23055 RAS to trip generation in the greater Imperial Valley area.
	TL50001_Line ECO-ML 500kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23040 IV 500kV N-1 RAS to trip renewable generation in the greater Imperial Valley area.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23054_Line SCR-SX 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23054/TL23055 RAS to trip generation in the greater Imperial Valley area.
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL23054_Line SCR-SX 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	106.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL23054_Line SCR-SX 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	105.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	106.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: San Diego
Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22886 SUNCREST 230 22832 SYCAMORE 230 2 1	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	106.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23040 IV 500kV N-1 RAS to trip renewable generation in the greater Imperial Valley area.
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	104.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	103.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	103.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	102.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ML-500-8013_CB MIGUEL 500kV 8013	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ML-500-8023_CB MIGUEL 500kV 8023	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ML-500-9013_CB MIGUEL 500kV 9013	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ECO-500-1T_CB EAST COUNTY 500kV 1T or 1E	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ML-500-7013_CB MIGUEL 500kV 7013	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ECO-500-4T_CB EAST COUNTY 500kV 4T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	SX-230-21T_CB SYCAMORE CANYON 230kV 21T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	101.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23054/TL23055 RAS to trip generation in the greater Imperial Valley area.
	TL50001_Line ECO-ML 500kV ck 1 AND TL23054_Line SCR-SX 230kV ck 1	P6	N-1-1	127.9	120.9	< 100	< 100	176.3	< 100	< 100	< 100	170.1	100.9	126.5	< 100	On the near term, rely on the existing TL23054/TL23055 RAS, along with the 30-minute short-term emergency ratings of the 230 kV lines (30% higher than their continuous ratings), to allow the market and operators to bring down the overloads that do not exceed 130% for the P6 contingencies within the continuous ratings in 30 minutes as operational mitigation measures. For the contingencies that exceed 130%, the operational mitigations would need to be performed after the first contingency. The system adjustments could involve the reduction of generation output in the greater Imperial Valley area, dispatch conventional gas generation, preferred resources, and battery energy storage in the San Diego area, adjust the Imperial Valley phase shifting transformers, and bypass the series capacitor banks in the 500 kV transmission lines between Hassayampa and North Gila as needed. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term.
	TL50001_Line ECO-ML 500kV ck 1 AND TL23054+RAS_Line SCR-SX 230kV ck 1 + RAS	P6	N-1-1	108.1	101.8	< 100	< 100	142.1	< 100	< 100	< 100	134.8	< 100	107.3	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22886 SUNCREST 230 22888 SNCRSMP1 500 1 1	TL50001_Line ECO-ML 500kV ck 1 AND SCR_BK81_Tran SCR 500/230kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	129.1	< 100	< 100	< 100	123.7	< 100	< 100	< 100	On the near term, rely on the 30-min emergency ratings of the Suncrest banks (25% higher than their 24-hr ratings). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 Suncrest – Sycamore Canyon P6 overload issues. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Suncrest 500/230 kV bank.
22886 SUNCREST 230 22889 SNCRSMP2 500 2 1	TL50001_Line ECO-ML 500kV ck 1 AND SCR_BK80_Tran SCR 500/230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	129.1	< 100	< 100	< 100	123.7	< 100	< 100	< 100	
22464 MIGUEL 230 22472 MIGUELMP 500 1 1	ML_BK81_Tran ML 500/230kV ck 2	P1	N-1	< 100	< 100	< 100	< 100	109.4	< 100	< 100	< 100	109.9	< 100	< 100	< 100	Rely on existing Miguel BK 80/BK 81 RAS to trip generation in the greater Imperial Valley area.
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	115.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	113.6	< 100	< 100	< 100	110.4	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	112.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	110.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	109.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	109.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	109.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EC GEN1_Gen EC GEN1 ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	109.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	KU_GEN_Gen KUMEYAAY ID 1 AND ML_BK81_Tran ML 500/230kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.5	< 100	< 100	< 100	
	ML-230-2T_CB MIGUEL 230kV 2T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	108.9	< 100	< 100	< 100	109.2	< 100	< 100	< 100	
	ML_BK81_Tran ML 500/230kV ck 2 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	111.1	107.1	< 100	< 100	154.4	< 100	< 100	< 100	151.6	< 100	112.1	< 100	On the near term, rely on the existing Miguel BK 80/BK 81 RAS (if necessary, the 30-min emergency rating may also be utilized). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 P6 overload issues. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Miguel 500/230 kV bank.
	ML_BK81+RAS_Tran ML 500/230kV ck 2 + RAS AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	127.0	< 100	< 100	< 100	122.9	< 100	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22464 MIGUEL 230 22455 ML MP BK81 500 2 1	ML_BK80_Tran ML 500/230kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	108.2	< 100	< 100	< 100	108.7	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	113.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	112.3	< 100	< 100	< 100	109.2	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	111.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing Miguel BK 80/BK 81 RAS to trip generation in the greater Imperial Valley area.
	BD_GEN1_Gen LRKSPBD1 ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EC GEN1_Gen EC GEN1 ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	108.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	KU_GEN_Gen KUMEYAAY ID 1 AND ML_BK80_Tran ML 500/230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.2	< 100	< 100	< 100	
	ML-230-3T_CB MIGUEL 230kV 3T and 3N	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	108.2	< 100	< 100	< 100	108.7	< 100	< 100	< 100	
	ML_BK80_Tran ML 500/230kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	109.8	105.9	< 100	< 100	152.7	< 100	< 100	< 100	149.9	< 100	110.9	< 100	On the near term, rely on the existing Miguel BK 80/BK 81 RAS (if necessary, the 30-min emergency rating may also be utilized). If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 P6 overload issues. The ISO approved "Miguel-Sycamore Canyon 230 kV line Loop-in to Suncrest" project (ISD 2032) solves this reliability issue in the long term since it includes a third Miguel 500/230 kV bank.
	ML_BK80+RAS_Tran ML 500/230kV ck 1 + RAS AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	125.6	< 100	< 100	< 100	121.6	< 100	< 100	< 100	
22356 IMPRLVLY 230 22361 IV BK80 MP 500 1 1	IV_BK81_Tran IV 500/230kV ck 2 AND IV_BK82_Tran IV 500/230kV ck 3	P6	N-1-1	< 100	< 100	< 100	121.9	104.8	< 100	< 100	< 100	< 100	< 100	< 100	104.3	Rely on the 30-min emergency ratings (20% higher than their 24-hr ratings), to allow the market and operators to bring down the overloads that do not exceed 120% for the P6 contingencies within the 24-hr ratings in 30 minutes as operational mitigation measures. For the contingencies that exceed 120%, the operational mitigations would need to be performed after the first contingency. The system adjustment would involve the reduction of the resources connected at Imperial Valley 230 kV substation.
22356 IMPRLVLY 230 22911 IV BK81 MP 500 2 1	IV_BK80_Tran IV 500/230kV ck 1 AND IV_BK82_Tran IV 500/230kV ck 3	P6	N-1-1	< 100	< 100	< 100	122.2	105.1	< 100	< 100	< 100	< 100	< 100	< 100	104.5	
22356 IMPRLVLY 230 22362 IV BK82 MP 500 3 1	IV_BK80_Tran IV 500/230kV ck 1 AND IV_BK81_Tran IV 500/230kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22355 IMPRLVLY WST 230 22362 IV BK82 MP 500 3 1	IV_BK80_Tran IV 500/230kV ck 1 AND IV_BK81_Tran IV 500/230kV ck 2	P6	N-1-1	< 100	< 100	< 100	124.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.8	
	IV-CLR-230_CLR IMPERIAL VALLEY 230KV AND TL23043_Line IV-WCS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.5	< 100	< 100	< 100	< 100	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22356 IMPRLVLY 230 22357 IV PFC1 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	109.8	105.4	< 100	< 100	142.2	< 100	< 100	< 100	136.6	< 100	106.9	< 100	On the near term, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS to trip generation in the greater Imperial Valley area. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 P6 overload issues. On the long term, rely on the ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD October 2032) along congestion management by reducing generation output in the greater Imperial Valley area and dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P6 events.
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	< 100	< 100	< 100	< 100	106.9	< 100	< 100	< 100	102.7	< 100	< 100	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	110.5	< 100	102.4	< 100	< 100	< 100	< 100	< 100	< 100	
22357 IV PFC1 230 22358 IV PFC 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	125.5	121.1	< 100	< 100	160.5	< 100	< 100	< 100	150.1	104.0	122.7	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	102.9	< 100	< 100	< 100	120.7	< 100	< 100	< 100	116.2	< 100	100.7	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	103.5	123.8	< 100	116.4	< 100	< 100	< 100	< 100	< 100	< 100	
22357 IV PFC1 230 22358 IV PFC 230 2 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	125.5	121.1	< 100	< 100	160.5	< 100	< 100	< 100	150.1	104.0	122.7	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	102.9	< 100	< 100	< 100	120.7	< 100	< 100	< 100	116.2	< 100	100.7	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	103.5	123.8	< 100	116.4	< 100	< 100	< 100	< 100	< 100	< 100	
22358 IV PFC 230 20118 ROA-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	109.7	105.4	< 100	< 100	142.1	< 100	< 100	< 100	136.6	< 100	106.9	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	110.4	< 100	102.3	< 100	< 100	< 100	< 100	< 100	< 100	
22609 OTAYMESA 230 20149 TJI-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	139.4	106.1	< 100	< 100	173.6	< 100	111.0	< 100	168.4	117.0	107.8	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	116.0	< 100	< 100	< 100	134.4	< 100	< 100	< 100	130.4	< 100	< 100	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	100.4	< 100	130.0	< 100	104.2	< 100	< 100	< 100	< 100	
	TL23041_Line SX-OM-ML 230kV ck 1 AND TL23042_Line BB-OM-ML 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	119.1	Rely on existing 230 kV Otay Mesa Gen Drop RAS.
	TL23041+23042_Lines SX-OM-ML 230kV ck 1 + BB-OM-ML 230kV ck 1	P7	DCTL	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	119.1	
20102 RUM-230 230 20118 ROA-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	113.8	108.1	< 100	< 100	140.9	< 100	< 100	< 100	133.4	< 100	109.2	< 100	On the near term, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS to trip generation in the greater Imperial Valley area. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 P6 overload issues.
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	< 100	< 100	< 100	< 100	114.7	< 100	< 100	< 100	108.4	< 100	< 100	< 100	
20238 HRA-230 230 20102 RUM-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	124.3	< 100	< 100	< 100	108.7	< 100	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
20238 HRA-230 230 20118 ROA-230 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	130.3	< 100	< 100	< 100	116.4	< 100	< 100	< 100	On the long term, the ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD October 2032) solves this reliability issue.
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	< 100	< 100	< 100	< 100	104.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
20900 CUC-400 400 20488 CUC-230 230 1 1	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	< 100	On the near term, rely on existing TL23040 IV 500kV N-1 RAS to trip renewable generation in the greater Imperial Valley area. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P3 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 P6 overload issues. On the long term, the ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD October 2032) solves this reliability issue.
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50001+IV_N-1_RAS_Line ECO-ML 500kV ck 1 + TL23040 IV 500kV N-1 RAS	P3	G-1/N-1	< 100	103.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.6	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	101.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50004+IV_N-1_RAS_Line IV-ECO 500kV ck 1 + TL23040 IV 500kV N-1 RAS	P3	G-1/N-1	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	152.5	< 100	< 100	144.1	< 100	< 100	< 100	< 100	< 100	154.2	< 100	On the near term, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS to trip generation in the greater Imperial Valley area. If this is not enough to mitigate the overloads, congestion management and additional system adjustments can be used after the first contingency for the P6 events. The system adjustments and mitigation solutions would be similar to the ones described above for the TL23054/TL23055 P6 overload issues. On the long term, rely on the ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD October 2032) along congestion management by reducing generation output in the greater Imperial Valley area and dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P6 events.
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003+GEN_DROP_RAS_Line OCO-SCR 500kV ck 1 + GEN DROP RAS	P6	N-1-1	< 100	130.4	< 100	< 100	107.1	< 100	< 100	< 100	< 100	< 100	132.1	< 100	
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	115.4	< 100	< 100	< 100	< 100	< 100	< 100	
20900 CUC-400 400 20488 CUC-230 230 2 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	115.4	< 100	< 100	< 100	< 100	< 100	< 100	
22609 OTAYMESA 230 22466 MLMS3TAP 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL23041_Line SX-OM-ML 230kV ck 1	P6	N-1-1	116.3	< 100	< 100	< 100	< 100	103.8	< 100	< 100	< 100	< 100	< 100	< 100	Rely on existing TL23041/TL23042 RAS to trip generation at Otay Mesa substation. If RAS is not sufficient to mitigate the overloads, rely on congestion management by reducing generation output in Otay Mesa substation after the first contingency for the P6 events.
22609 OTAYMESA 230 22467 MLSXTAP 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL23042_Line BB-OM-ML 230kV ck 1	P6	N-1-1	115.1	< 100	< 100	< 100	< 100	112.1	< 100	< 100	< 100	< 100	< 100	101.3	
22464 MIGUEL 230 22467 MLSXTAP 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL23042_Line BB-OM-ML 230kV ck 1	P6	N-1-1	117.4	< 100	< 100	< 100	102.4	110.9	< 100	< 100	< 100	< 100	100.2	103.5	
	TL50001_Line ECO-ML 500kV ck 1 AND TL23042+RAS_Line BB-OM-ML 230kV ck 1 + RAS	P6	N-1-1	103.7	< 100	< 100	< 100	102.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22771 BAY BLVD 230 22466 MLMS3TAP 230 1 1	TL23041_Line SX-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	107.0	< 100	< 100	< 100	< 100	< 100	< 100	
22500 MISSION 138 22496 MISSION 69.0 1 1	BUS-MS230-NS_MISSION 230 kV N+S BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	109.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Add a redundant bus differential relay at Mission 230 kV substation.
22430 SILVERGT 230 22381 VINE SUB 230 1 1	BUS-MS230-NS_MISSION 230 kV N+S BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	106.7	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23028_Line SG-MS-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	108.9	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to reduce generation output at Otay Mesa substation.

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22306 GARFIELD 69.0 22208 EL CAJON 69.0 1 1	BUS-MS230-NS_MISSION 230 kV N+S BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	103.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	119.3	Add a redundant bus differential relay at Mission 230 kV substation.
22430 SILVERGT 230 22596 OLD TOWN 230 1 1	BUS-MS230-NS_MISSION 230 kV N+S BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.8	< 100	< 100	110.6	
	TL50003_Line OCO-SCR 500kV ck 1 AND TL23028_Line SG-MS-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	100.0	< 100	< 100	< 100	113.1	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to reduce generation output at the greater Imperial Valley area and dispatch conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area north of the constraint.
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23028_Line SG-MS-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	125.0	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to reduce generation output at Otay Mesa and/or Silvergate substations.
22430 SILVERGT 230 22597 OLDTWNTP 230 1 1	TL23026_Line SG-BB 230kV ck 1 AND TL23029-Loop-in2_Line OT-VN 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	116.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to dispatch battery energy storage at Silvergate substation.
	TL23029-Loop-in1_Line SG-VN 230kV ck 1 AND IV-NSONGS_Line IV-NSONGS 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	103.3	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to reduce generation output at Otay Mesa substation.
	TL50003_Line OCO-SCR 500kV ck 1 AND TL23029_Line SG-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.9	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to reduce generation output at the greater Imperial Valley area and dispatch conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area north of the constraint.
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23029_Line SG-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.5	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to reduce generation output at Otay Mesa and/or Silvergate substations.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50003_Line OCO-SCR 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to reduce generation output in the greater Imperial Valley area and dispatch conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area north of the constraint.
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50003_Line OCO-SCR 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	101.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50005_Line IV-OCO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	100.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50005_Line IV-OCO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	100.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MS-230-5T_CB MISSION 230kV 5T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	107.5	100.7	< 100	< 100	< 100	< 100	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22430 SILVERGT 230 22771 BAY BLVD 230 1 1	TL23023_Line ML-MS 230kV ck 2 AND TL50003_Line OCO-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	110.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23041_Line SX-OM-ML 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	112.5	< 100	< 100	< 100	< 100	< 100	103.6	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to reduce generation output at Otay Mesa substation.
	TL23022+23023_Lines ML-MS 230kV ck 1 + ML-MS 230kV ck 2	P7	DCTL	< 100	< 100	< 100	< 100	107.5	100.7	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to reduce generation output in the greater Imperial Valley area and dispatch conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area north of the constraint.
22592 OLD TOWN 69.0 22596 OLD TOWN 230 1 1	OT_BK71_Tran OT 230/69kV ck 2	P1	N-1	< 100	< 100	100.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on the 30-min short-term emergency ratings (15% higher than their 24-hr ratings). If the overload persists for more than 30 minutes, then the operators could eliminate the identified thermal overload. The system adjustments that can be implemented is to open TL604 Old Town - Vine or TL613 Old Town - Pacific Beach 69 kV lines to reduce the loading on the remaining transformer. The ISO approved "Downtown Reliability Reinforcement" project (ISD 2037) will further reduce the loading of these 230/69 kV transformers due to the Vine substation expansion, that includes a new 230/69 kV transformer.
	OT-230-2S_CB OLD TOWN 230kV 2S	P4	Fault + Stuck Breaker	< 100	< 100	100.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22592 OLD TOWN 69.0 22596 OLD TOWN 230 2 1	OT_BK70_Tran OT 230/69kV ck 1	P1	N-1	< 100	< 100	100.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OT-230-1N_CB OLD TOWN 230kV 1N	P4	Fault + Stuck Breaker	< 100	< 100	100.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22596 OLD TOWN 230 22504 MISSION 230 1 1	TL23026_Line SG-BB 230kV ck 1 AND TL23028_Line SG-MS-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	113.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22597 OLDTWNTP 230 22504 MISSION 230 1 1	TL23026_Line SG-BB 230kV ck 1 AND TL23027_Line OT-MS 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	115.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on system adjustments by dispatch battery energy storage at Silvergate substation after the first contingency for the P6 event.
22596 OLD TOWN 230 22381 VINE SUB 230 1 1	TL23026_Line SG-BB 230kV ck 1 AND TL23028_Line SG-MS-OT 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	118.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL23020+23042_Lines BB-ML 230kV ck 1 + BB-OM-ML 230kV ck 1	P7	DCTL	< 100	< 100	< 100	106.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 2-hr short-term emergency rating (29% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to dispatch battery energy storage at Silvergate substation.
22476 MIGUELTP 69.0 22456 MIGUEL 69.0 1 1	TL23020_Line BB-ML 230kV ck 1 AND TL23042_Line BB-OM-ML 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	100.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concern identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions.
	TL23020+23042_Lines BB-ML 230kV ck 1 + BB-OM-ML 230kV ck 1	P7	DCTL	< 100	< 100	< 100	100.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22227 ENCINATP 230 22716 SANLUSRY 230 1 1	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23003_Line SA-EA 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	126.4	Rely on existing TL23003/TL23011 RAS to trip generation at Encina substation.
22716 SANLUSRY 230 22232 ENCINA 230 1 1	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23011_Line SA-EA-PEN 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.4	
22716 SANLUSRY 230 24131 S.ONOFRE 230 1 1	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL23007_Line SJC-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22844 TALEGA 230 24131 S.ONOFRE 230 1 1	ES_GEN2_Gen CALPK_ES ID 1 AND TL23007_Line SJC-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	On the 2027 Spring Off Peak sensitivity case, rely on congestion management by limiting the charging of battery energy storage in San Diego area after the first contingency for P3 events. On the long term, rely on congestion management by reducing generation output in the greater Imperial Valley area and dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P3 and P6 events.
	IV_GEN1_ALL_Gen IV GEN1 CT2/CT3/STG ID 1 AND TL23007_Line SJC-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL23007_Line SJC-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	102.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23007_Line SJC-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	100.9	110.6	< 100	< 100	< 100	< 100	< 100	105.2	< 100	< 100	
	SO_SC_Gen SONGS SC A1 ID 1 AND TL23007_Line SJC-SO 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	101.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	101.6	< 100	< 100	< 100	< 100	< 100	108.3	< 100	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
	TL50001_Line ECO-ML 500kV ck 1 AND TL50003-Loop2_Line GR1304_POI-SCR 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	114.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by reducing generation output in the greater Imperial Valley area and dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P6 events.
	TL23007_Line SJC-SO 230kV ck 1 AND TL50002_Line NG-IV 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.3	< 100	< 100	Rely on congestion management by limiting the charging of battery energy storage in San Diego area after the first contingency for P6 events.
	TL23007+23030_Lines SJC-SO 230kV ck 1 + ES-TA-SJC 230kV ck 1	P7	DCTL	< 100	< 100	< 100	101.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concern identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions.
228442 NSONGS 230 228444 NSONGSMP1 500 1 1	NSONGS_BK81_Tran NSONGS 500/230kV ck 2 AND NSONGS_BK82_Tran NSONGS 500/230kV ck 3	P6	N-1-1	< 100	< 100	< 100	103.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P6 events.
228442 NSONGS 230 228446 NSONGSMP2 500 2 1	NSONGS_BK80_Tran NSONGS 500/230kV ck 1 AND NSONGS_BK82_Tran NSONGS 500/230kV ck 3	P6	N-1-1	< 100	< 100	< 100	103.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
228442 NSONGS 230 228448 NSONGSMP3 500 3 1	NSONGS_BK80_Tran NSONGS 500/230kV ck 1 AND NSONGS_BK81_Tran NSONGS 500/230kV ck 2	P6	N-1-1	< 100	< 100	< 100	103.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22112 CAPSTRNO 138 22396 LAGNA NL 138 1 1	TL13847_Line SJC-LNL 138kV ck 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	102.2	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Winter Peak case and discuss with the PTO the potential for upgrade solutions.
	SJC-138-16T_CB CAPSTRNO 138kV 16T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	101.9	< 100	< 100	< 100	< 100	< 100	< 100	
22112 CAPSTRNO 138 22396 LAGNA NL 138 2 1	TL13837_Line SJC-LNL 138kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	102.2	< 100	< 100	< 100	< 100	< 100	< 100	
	SJC-138-14T_CB CAPSTRNO 138kV 14T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	102.4	< 100	< 100	< 100	< 100	< 100	< 100	
22840 TALEGA 138 22720 SANMATEO 138 1 1	TL13831_Line TA-RMV 138kV ck 1 AND TL13836_Line TA-PI 138kV ck 1	P6	N-1-1	< 100	< 100	106.2	115.5	< 100	118.7	< 100	< 100	< 100	< 100	< 100	125.6	For the 2035 Summer Peak, 2040 Summer Peak, and 2040 Winter Peak base cases, rely on congestion management by dispatching Capistrano 138 kV battery energy storage after the first contingency for the P6 event. For the 2035 Summer Peak sensitivity case, rely on congestion management by limiting the dispatch of Talega 138 kV battery energy storage after the first contingency for the P6 event.

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22500 MISSION 138 22120 CARLTNHS 138 1 1	SX_BK60_Tran SX 230/138kV ck 1 AND TL13811_Line SH-NCM-CC 138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.8	< 100	< 100	Rely on congestion management by curtailing the charging of Sycamore Canyon 138 kV battery energy storage after the first contingency for the P6 events.
22124 CHCARITA 138 22578 NRTHCTYMTRTP 138 1 1	TL13822_Line MS-CH 138kV ck 1 AND SX_BK60_Tran SX 230/138kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	130.9	< 100	< 100	
	TL23071_Line SX-PQ 230kV ck 1 AND IV-NSONGS_Line IV-NSONGS 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.3	Rely on congestion management by reducing the discharge of Sycamore Canyon 138 kV battery energy storage after the first contingency for the P6 events.
22831 SYCAMORE 138 22124 CHCARITA 138 1 1	TL23071_Line SX-PQ 230kV ck 1 AND IV-NSONGS_Line IV-NSONGS 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.2	
22192 DOUBLTTP 138 22300 FRIARS 138 1 1	PQ-138-8N_CB PENASQUITOS 138kV 8N	P4	Fault + Stuck Breaker	< 100	< 100	< 100	103.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions.
	TL13804_Line PQ-EA-BQ 138kV ck 1 AND PQ_BK60_Tran PQ 230/138kV ck 1	P6	N-1-1	< 100	< 100	< 100	103.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL23013_Line PQ-OT 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.6	Rely on congestion management by reducing the discharge of Silvergate battery energy storage after the first contingency for the P6 event.
22672 PRCTRVLY 138 22460 MIGUEL 138 1 1	ML_BK60_Tran ML 230/138kV ck 1 AND TL23026_Line SG-BB 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	102.4	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 30-min short-term emergency rating (17% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to reduce the output of Otay Mesa gas generation.
Valley Center System	TL681_Line AS-VC-FE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Diverge	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage, mainly outside daylight hours, to avoid the P0 concerns. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for the remaining P1, P2 and P6 events. The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
22870 VALCNTR 69.0 22012 ASH TP 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	138.0	< 100	< 100	
	TL688_Line ES-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	162.6	< 100	< 100	
	TL6926_Line RIN-VC 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	160.9	< 100	< 100	
	TL683_Line RIN-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	157.3	< 100	< 100	
	TL637_Line ST-CRE 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	144.7	< 100	< 100	
	ES-69-SW_Bus ESCONDIDO 69kV SW	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	160.6	< 100	< 100	
	LI-69-S_Bus LILAC 69kV S	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	157.9	< 100	< 100	
	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	161.6	< 100	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
	TL688_Line ES-LI 69kV ck 1 AND TL6932_Line LI-PA 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	174.3	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage, mainly outside daylight hours, to avoid the P0 concerns. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for the remaining P1, P2 and P6 events. The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22008 ASH 69.0 22012 ASH TP 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.0	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage, mainly outside daylight hours, to avoid the P0 concerns. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for the remaining P1, P2, P3, and P6 events. The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
	TL688_Line ES-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.8	< 100	< 100	
	TL6926_Line RIN-VC 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	125.6	< 100	< 100	
	TL683_Line RIN-LI 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	123.2	< 100	< 100	
	TL689_Line BE-FE-ES 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.2	< 100	< 100	
	ES-69-SW_Bus ESCONDIDO 69kV SW	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	127.6	< 100	< 100	
	LI-69-S_Bus LILAC 69kV S	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	124.4	< 100	< 100	
	PALL_BESS_PALL_BESS ID 1 AND TL688_Line ES-LI 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	130.1	< 100	< 100	
	PALL_BESS_PALL_BESS ID 1 AND TL679_Line ES-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	113.5	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL637_Line ST-CRE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.3	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL637_Line ST-CRE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.1	< 100	< 100	
	BR_U2_Gen BORREGO ID 60 AND TL637_Line ST-CRE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.0	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL679_Line ES-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.9	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL685_Line WR-ST 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.2	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL685_Line WR-ST 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.0	< 100	< 100	
	BR_U2_Gen BORREGO ID 60 AND TL685_Line WR-ST 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.9	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL23072_Line ARR-PEN 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.1	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL679_Line ES-FE 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.5	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND ARR_BK70_Tran ARR 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.6	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.0	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.5	< 100	< 100	

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND ARR_BK70_Tran ARR 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.2	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.2	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.0	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL6917_Line CRE-SX 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.0	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL694_Line ME-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.8	< 100	< 100	
	AV_GEN1_Gen AV GEN1 ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.7	< 100	< 100	
	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120.6	< 100	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
	TL688_Line ES-LI 69kV ck 1 AND TL6932_Line LI-PA 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	136.5	< 100	< 100	On the near term, limit the charging of Valley Center battery energy storage, mainly outside daylight hours, to avoid the P0 concerns mentioned above. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for the remaining P1, P2, P3, and P6 events. The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term.
22256 ESCNDIDO 69.0 22008 ASH 69.0 2 1	ES-69-SW_Bus ESCONDIDO 69kV SW	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120.1	< 100	< 100	
22256 ESCNDIDO 69.0 22404 LILAC 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	126.7	< 100	< 100	
22404 LILAC 69.0 22624 PALA 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.0	< 100	< 100	
22256 ESCNDIDO 69.0 22724 SANMRCOS 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	158.1	158.2	180.1	183.0	136.8	189.6	116.1	< 100	< 100	158.2	161.9	121.7	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
22624 PALA 69.0 22508 MNSRATTP 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	< 100	< 100	103.8	105.1	< 100	111.3	< 100	< 100	< 100	< 100	< 100	< 100	
22440 MELROSE 69.0 22442 MELRSETP 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	113.0	110.0	123.5	120.2	< 100	133.1	< 100	< 100	< 100	140.0	112.3	< 100	
22442 MELRSETP 69.0 22724 SANMRCOS 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	203.1	195.7	< 100	< 100	170.1	104.8	154.4	< 100	129.1	228.3	199.2	< 100	
	TL693_Line ME-SA 69kV ck 1	P1	N-1	< 100	< 100	107.0	103.3	< 100	105.0	< 100	< 100	< 100	130.8	< 100	< 100	
	TL6912_Line PN-SA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	119.5	< 100	< 100	
	TL691_Line MN-PN-AV 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.5	< 100	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	100.1	113.6	109.9	< 100	111.6	< 100	< 100	< 100	< 100	103.7	< 100	
22708 SANLUSRY 69.0 22582 OCEAN RANCH 69.0 1 1	PA_GEN2_Gen PA GEN2 ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	100.1	113.6	109.9	< 100	111.6	< 100	< 100	< 100	< 100	103.7	< 100	For the 2030 Summer Peak cases, rely on congestion management by dispatching Melrose battery energy storage after the first contingency for P3

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22700 SANLUSRY 69.0 22982 OCEANRANCH 69.0 1 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	113.5	109.8	< 100	111.4	< 100	< 100	< 100	137.0	103.2	< 100	events. For the 2035 Summer Peak and 2040 Summer Peak and Winter Peak cases, rely on pre-contingency congestion management to protect against the P1 outage by dispatching Melrose battery energy storage. Furthermore, for P3 events, rely on Avocado battery energy storage after the first contingency. For the 2027 Spring Off-Peak sensitivity case, rely on pre-contingency congestion management to protect against the P1 outages by limiting the charging of Melrose and Avocado battery energy storage. Furthermore, for the P3 and P6 events, rely on additional Avocado battery energy storage charging curtailment after the first contingency.
	ES_GEN2_Gen CALPK_ES ID 1 AND TL693_Line ME-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	109.2	105.5	< 100	107.2	< 100	< 100	< 100	< 100	< 100	< 100	
	PA_GEN1_Gen PA GEN1 ID 1 AND TL680_Line SA-ME-SM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.8	< 100	< 100	< 100	< 100	< 100	< 100	
	PA_GEN2_Gen PA GEN2 ID 1 AND TL680_Line SA-ME-SM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.8	< 100	< 100	< 100	< 100	< 100	< 100	
	TL23014_Line PEN-ES 230kV ck 1 AND TL23015_Line PEN-ES 230kV ck 2	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.0	< 100	< 100	
22440 MELROSE 69.0 22708 SANLUSRY 69.0 1 1	TL6966_Line OR-SA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.9	< 100	< 100	
	TL6979_Line ME-OR 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.3	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6966_Line OR-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.3	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6979_Line ME-OR 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.7	< 100	< 100	
22016 AVCADOTP 69.0 22020 AVOCADO 69.0 1 1	TL698_Line AV-MN-PA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.5	< 100	< 100	Rely on existing Avocado RAS that reduces the charging of Avocado battery energy storage.
	PA-69-W_Bus PALA 69kV W	P2	Bus Section Fault	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	132.5	< 100	< 100	
22640 PENDLETN 69.0 22016 AVCADOTP 69.0 1 1	TL694_Line ME-NORTHVALLEY 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.2	< 100	< 100	Rely on pre-contingency congestion management to protect against the P1 outage by limiting the charging of Avocado battery energy storage outside daylight hours. Furthermore, for P3 events, rely on additional Avocado battery energy storage charging curtailment after the first contingency.
	TL6901_Line MN-NORTHVALLEY 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.9	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL694_Line ME-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	110.4	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6901_Line MN-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.1	< 100	< 100	
	PA_U1_Gen PALA ID 88 AND TL694_Line ME-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.9	< 100	< 100	
22640 PENDLETN 69.0 22708 SANLUSRY 69.0 1 1	TL694_Line ME-NORTHVALLEY 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.8	< 100	< 100	
	TL6901_Line MN-NORTHVALLEY 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.7	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL694_Line ME-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	122.2	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6901_Line MN-NORTHVALLEY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.1	< 100	< 100	
	TL6912_Line PN-SA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	< 100	< 100	

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22512 MONSRATE 69.0 22528 NORTHVALLEY 69.0 1 1	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.7	< 100	< 100	energy storage charging curtailment after the first contingency.
	ME_BAT_Gen ME GEN 1 ID BS1/BS2 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.0	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	
22528 NORTHVALLEY 69.0 22440 MELROSE 69.0 1 1	TL6912_Line PN-SA 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.9	< 100	< 100	
	TL691_Line MN-PN-AV 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.1	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.0	< 100	< 100	
	ME_BAT_Gen ME GEN 1 ID BS1/BS2 AND TL6912_Line PN-SA 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.3	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.1	< 100	< 100	
	ME_BAT_Gen ME GEN 1 ID BS1/BS2 AND TL691_Line MN-PN-AV 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.5	< 100	< 100	
22256 ESCNDIDO 69.0 22260 ESCNDIDO 230 2 1	ES-230-2N_CB ESCONDIDO 230kV 2N	P4	Fault + Stuck Breaker	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.9	< 100	< 100	Limit the charging of battery energy storage installed at Escondido 69 kV substation outside daylight hours to avoid P4 concerns.
22708 SANLUSRY 69.0 22584 OCEANSDE 69.0 1 1	TL690_Line SA-OS-STU-LP 69kV ck 1	P1	N-1	< 100	< 100	106.5	134.8	< 100	110.5	< 100	< 100	< 100	< 100	< 100	106.9	TL690B and TL697 Reconductor project submitted by the PTO in the Request Window.
	TL23007_Line SJC-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	< 100	< 100	100.2	117.2	< 100	103.1	< 100	< 100	< 100	< 100	< 100	< 100	
	TL23007+23052_Lines SJC-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	< 100	< 100	100.2	117.2	< 100	103.1	< 100	< 100	< 100	< 100	< 100	< 100	
22588 OCNSDETP 69.0 22584 OCEANSDE 69.0 1 1	TL697_Line SA-OS 69kV ck 1	P1	N-1	< 100	< 100	106.3	134.3	< 100	110.0	< 100	< 100	< 100	< 100	< 100	106.5	
	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	107.0	128.3	143.0	159.0	102.0	138.3	< 100	< 100	< 100	119.9	132.1	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
22588 OCNSDETP 69.0 22808 STUARTTP 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	114.1	148.3	162.6	167.1	< 100	142.8	< 100	< 100	< 100	180.1	155.5	< 100	
	TL23007_Line SJC-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	106.7	< 100	101.1	< 100	< 100	< 100	108.0	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term. Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak and Winter Peak cases and discuss with the PTO the potential for upgrade solutions.
	TL23007+23052_Lines SJC-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	< 100	< 100	< 100	106.7	< 100	101.1	< 100	< 100	< 100	108.0	< 100	< 100	
22808 STUARTTP 69.0 22400 LASPULGS 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	252.8	102.1	111.7	114.1	< 100	< 100	133.4	< 100	101.9	388.9	107.0	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
	TL23007_Line SJC-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	159.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	224.0	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term. TL690E Stuart Tap-Las Pulgas 69 kV Reconductor project (ISD June 2029) mitigates the overload in the long term.
	TL23007+23052_Lines SJC-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	159.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.5	224.0	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22400 LASPULGS 69.0 22046 BASILONE 69.0 1 1	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	275.2	113.4	123.8	126.8	< 100	109.6	148.4	< 100	126.1	402.7	118.6	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
	TL23007_Line SJC-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	150.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	216.7	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term.
	TL23007+23052_Lines SJC-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	150.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	216.7	< 100	< 100	TL695B Japanese Mesa-Talega Tap Reconductor project (ISD January 2028) mitigates the overload in the long term.
22046 BASILONE 69.0 22836 TALEGA 69.0 1 1	Q1657_Gen Q1657_GEN ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.5	< 100	< 100	Rely on congestion management by limiting the charging of battery energy storage at Avocado and Melrose substations after the first contingency for P3 events.
	Q1657_Gen Q1657_GEN ID 1 AND SA_BK70_Tran SA 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.3	< 100	< 100	
	Q1657_Gen Q1657_GEN ID 1 AND SA_BK72_Tran SA 230/69kV ck 3	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	< 100	
	Q1657_Gen Q1657_GEN ID 1 AND SA_BK71_Tran SA 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.6	< 100	< 100	
	OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.1	< 100	< 100	
	IV_GEN1_ALL_Gen IV GEN1 CT2/CT3/STG ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.5	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.2	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL50002_Line NG-IV 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.8	< 100	< 100	
	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	384.9	118.1	128.8	132.9	< 100	113.1	209.1	< 100	183.1	549.8	123.4	< 100	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
	TL23007_Line SJC-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1	P6	N-1-1	185.7	< 100	< 100	< 100	< 100	< 100	111.3	< 100	118.1	278.3	< 100	< 100	Rely on existing TL695 at TA overload scheme in the near term.
	TL23007+23052_Lines SJC-SO 230kV ck 1 + TA-SO 230kV ck 1	P7	DCTL	185.7	< 100	< 100	< 100	< 100	< 100	111.3	< 100	118.1	278.3	< 100	< 100	TL695B Japanese Mesa-Talega Tap Reconductor project (ISD January 2028) mitigates the overload in the long term.
22380 KETTNER 69.0 22024 B 69.0 1 1	BD_GEN3_Gen CALPK_BD ID 1 AND SG_BK72_Tran SG 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by dispatching Otay or Border battery energy storage after the first contingency for the P3 event.
	TL623_Line OY-IB-SYO 69kV ck 1	P1	N-1	< 100	< 100	< 100	103.5	< 100	< 100	< 100	126.2	< 100	< 100	< 100	< 100	For the 2040 Summer Peak case, rely on 30-min short-term emergency rating (22% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to dispatch Border battery energy storage. For the 2035 Spring Off Peak case, rely on pre-contingency congestion management to protect against the P1 outage by limiting the charging of Border battery energy storage.
	TL6910_Line BD-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	225.9	< 100	< 100	< 100	< 100	
	TL6964_Line ML-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	109.0	< 100	< 100	< 100	227.0	< 100	< 100	< 100	< 100	
	ML_BK70_Tran ML 230/69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	< 100	< 100	< 100	< 100	
	ML_BK71_Tran ML 230/69kV ck 2	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.4	< 100	< 100	< 100	< 100	
	TL6935_Line BD-BD GEN1&2 69kV ck 1	P1	N-1	< 100	< 100	< 100	109.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22604 OTAY 69.0 22616 OTAYLKTP 69.0 1 1	BD_GEN3_Gen CALPK_BD ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	132.8	191.4	128.9	107.5	< 100	< 100	< 100	< 100	< 100	< 100	For the 2030 Summer Peak and 2040 Winter Peak cases, and some contingencies for the 2035 Summer Peak and 2040 Summer Peak cases, rely on 30-min short-term emergency rating (22% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to dispatch Border battery energy storage. For the contingencies that exceed 122% in the 2035 Summer Peak case, rely on congestion management by dispatching Border battery energy storage after the first contingency for P3 events. Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions since energy storage cannot be completely charged to solve the worst P3 contingencies. For the 2030 Summer Off Peak base case, 2027 Spring Off Peak base case and 2027 Summer Peak sensitivity case, rely on congestion management by dispatching additional Border gas generation after the first contingency for P3 events. For the 2035 Spring Off Peak base case and 2027 Spring Off Peak sensitivity case, rely on congestion management by limiting the charging of Border battery energy storage after the first contingency for P3 and P6 events.
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	116.6	174.2	118.2	< 100	123.7	< 100	132.5	146.4	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	116.6	174.2	118.1	< 100	< 100	< 100	< 100	146.4	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6935_Line BD-BD GEN1&2 69kV ck 1	P3	G-1/N-1	< 100	100.3	121.6	152.2	< 100	111.3	< 100	< 100	< 100	< 100	103.3	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL623_Line OY-IB-SYO 69kV ck 1	P3	G-1/N-1	< 100	< 100	109.2	152.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	141.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL623_Line OY-IB-SYO 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	141.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL623_Line OY-IB-SYO 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	141.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	125.5	< 100	< 100	< 100	< 100	104.1	116.6	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6910_Line BD-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	125.5	< 100	< 100	< 100	< 100	< 100	116.6	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND BD_GEN1_Gen LRKSPBD1 ID 1	P3	G-1-1	< 100	< 100	< 100	117.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND BD_GEN2_Gen LRKSPBD2 ID 1	P3	G-1-1	< 100	< 100	< 100	117.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND BD_GEN3_Gen CALPK_BD ID 1	P3	G-1-1	< 100	< 100	< 100	117.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND BD_GEN3_Gen CALPK_BD ID 1	P3	G-1-1	< 100	< 100	< 100	117.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6936_Line BD-BD GEN3 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	111.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6936_Line BD-BD GEN3 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	111.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND BD_GEN2_Gen LRKSPBD2 ID 1	P3	G-1-1	< 100	< 100	< 100	109.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND BD_GEN1_Gen LRKSPBD1 ID 1	P3	G-1-1	< 100	< 100	< 100	109.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND ML_BK70_Tran ML 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND ML_BK71_Tran ML 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	Q1045_Gen Q1045_GEN ID 1 AND ML_BK70_Tran ML 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.4	< 100	< 100	< 100	< 100	

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
	Q1045_Gen Q1045_GEN ID 1 AND ML_BK71_Tran ML 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.4	< 100	< 100	< 100	< 100	
	Q1045_Gen Q1045_GEN ID 1 AND TL50001_Line ECO-ML 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.6	< 100	< 100	< 100	< 100	
	Q1045_Gen Q1045_GEN ID 1 AND TL50004_Line IV-ECO 500kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.6	< 100	< 100	< 100	< 100	
	Q1045_Gen Q1045_GEN ID 1 AND TL623_Line OY-IB-SYO 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	135.7	< 100	< 100	< 100	< 100	
	ML_BK70_Tran ML 230/69kV ck 1 AND TL23026_Line SG-BB 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	
22616 OTAYLKTP 69.0 22080 BORDERTP 69.0 1 1	TL6964_Line ML-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.1	< 100	< 100	< 100	< 100	Rely on pre-contingency congestion management to protect against the P1 outage by limiting the charging of Border battery energy storage.
	TL6910_Line BD-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.6	< 100	< 100	< 100	< 100	
22076 BORDER 69.0 22080 BORDERTP 69.0 1 1	TL6964_Line ML-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.1	< 100	< 100	< 100	< 100	
	TL6910_Line BD-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.6	< 100	< 100	< 100	< 100	
22076 BORDER 69.0 22698 SALT CREEK 69.0 1 1	TL649_Line OY-OL-SYO-BD 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.5	< 100	< 100	< 100	< 100	
22456 MIGUEL 69.0 22698 SALT CREEK 69.0 1 1	TL649_Line OY-OL-SYO-BD 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.0	< 100	< 100	< 100	< 100	
22768 BAY BLVD 69.0 22604 OTAY 69.0 1 1	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.3	< 100	< 100	Rely on congestion management by limiting the charging of Otay or Border battery energy storage after the first contingency for P3 events.
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.3	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	100.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by dispatching Otay or Border battery energy storage after the first contingency for P3 events.
22768 BAY BLVD 69.0 22604 OTAY 69.0 2 1	TL6964_Line ML-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	107.1	< 100	< 100	< 100	< 100	Rely on pre-contingency congestion management to protect against the P1 outage by limiting the charging of Otay or Border battery energy storage.
	TL6910_Line BD-SLT 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	106.7	< 100	< 100	< 100	< 100	
	TL645_Line BB-OY 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.2	< 100	102.6	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.8	< 100	< 100	Rely on congestion management by limiting the charging of Otay or Border battery energy storage after the first contingency for P3 events.
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	117.8	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.5	< 100	< 100	

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by dispatching Otay or Border battery energy storage after the first contingency for P3 events.
	OY_GEN_Gen OY GEN ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	106.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22768 BAY BLVD 69.0 22352 IMPRLBCH 69.0 1 1	TL646_Line BB-OY 69kV ck 2	P1	N-1	< 100	< 100	< 100	101.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on 30-min short-term emergency rating (27% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustments that can be implemented are to dispatch battery energy storage at Otay or Border substations. Continue to monitor the thermal overload concerns identified in the 2040 Winter Peak case due TL623 Otay-Imperial Beach-San Ysidro contingency and discuss with the PTO the potential for upgrade solutions.
	TL623_Line OY-IB-SYO 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	100.2	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	103.6	115.8	< 100	112.0	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	101.0	113.1	< 100	109.4	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	110.7	< 100	107.1	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL646_Line BB-OY 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	110.7	< 100	107.1	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	107.1	< 100	105.2	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.1	< 100	103.3	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.0	< 100	101.3	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL645_Line BB-OY 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.0	< 100	101.3	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	102.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	102.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND TL6964_Line ML-SLT 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	100.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND TL6935_Line BD-BD GEN1&2 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.9	< 100	< 100	< 100	< 100	< 100	< 100	
	BD_GEN3_Gen CALPK_BD ID 1 AND TL6935_Line BD-BD GEN1&2 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	
	OY_GEN_Gen OY GEN ID 1 AND TL649_Line OY-OL-SYO-BD 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	103.9	< 100	< 100	< 100	< 100	< 100	< 100	
22352 IMPRLBCH 69.0 22608 OTAY TP 69.0 1 1	TL647_Line BB-IB 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	101.6	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concern identified in the 2040 Winter Peak case and discuss with the PTO the potential for upgrade solutions.
22740 SANYSDRO 69.0 22608 OTAY TP 69.0 1 1	TL649_Line OY-OL-SYO-BD 69kV ck 1	P1	N-1	< 100	< 100	< 100	103.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	TL623C Reconductor project submitted by the PTO in the Request Window.

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				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22208 EL CAJON 69.0 22408 LOSCOCHS 69.0 1 1	EC-69-S_Bus EL CAJON 69kV S	P2	Bus Section Fault	< 100	< 100	< 100	109.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concern identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions.
	EC GEN1_Gen EC GEN1 ID 1 AND TL6985_Line GR- LCS 69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on congestion management by dispatching El Cajon battery energy storage after the first contingency for the P3 event.
22136 CLAIRMNT 69.0 22140 CLARMTTP 69.0 1 1	TL670_Line MS-CM 69kV ck 1	P1	N-1	< 100	< 100	100.0	105.9	< 100	117.9	< 100	< 100	< 100	< 100	< 100	< 100	TL600B Reconductor project submitted by the PTO in the Request Window.
22160 DEL MAR 69.0 22644 PENSQTOS 69.0 2 1	TL6952_Line NCW-PQ 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	114.9	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Winter Peak case and discuss with the PTO the potential for upgrade solutions.
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6952_Line NCW-PQ 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	117.7	< 100	< 100	< 100	< 100	< 100	< 100	
	PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL610_Line DM-PQ 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	102.8	< 100	< 100	< 100	< 100	< 100	< 100	
22252 ENCNITAS 69.0 22160 DEL MAR 69.0 1 1	TL616_Line SF-ARR-LHM 69kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	107.0	< 100	< 100	< 100	< 100	< 100	< 100	
22644 PENSQTOS 69.0 22164 DELMARTP 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	101.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL662_Line PQ-TP 69kV ck 1	P1	N-1	< 100	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL6959_Line MTO-PQ 69kV ck 1	P1	N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22188 DOUBLTTP 69.0 22164 DELMARTP 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	101.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL662_Line PQ-TP 69kV ck 1	P1	N-1	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL6959_Line MTO-PQ 69kV ck 1	P1	N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22331 MIRASNTO 69.0 22644 PENSQTOS 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	116.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	New Penasquitos – Mira Sorrento 69 kV #2 line project submitted by the PTO in the Request Window.
	TL6943_Line TP-UCM 69kV ck 1	P1	N-1	< 100	< 100	< 100	109.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL6905_Line GE-PQ 69kV ck 2	P1	N-1	< 100	< 100	< 100	108.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22856 TOREYPNS 69.0 22200 DUNHILTP 69.0 1 1	TL662_Line PQ-TP 69kV ck 1	P1	N-1	< 100	< 100	< 100	101.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22856 TOREYPNS 69.0 22864 UCM 69.0 1 1	TL6959_Line MTO-PQ 69kV ck 1	P1	N-1	< 100	< 100	< 100	105.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22200 DUNHILTP 69.0 22188 DOUBLTTP 69.0 1 1	TL662_Line PQ-TP 69kV ck 1	P1	N-1	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL6959_Line MTO-PQ 69kV ck 1	P1	N-1	< 100	< 100	< 100	100.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
22644 PENSQTOS 69.0 22444 MESA RIM 69.0 1 1	TL668_Line MRGT-MR 69kV ck 1 AND TL6916_Line SX-SS 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	103.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions.

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22540 NARROWS 69.0 22884 WARNERS 69.0 1 1	Base Case	P0	Base Case	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.7	< 100	< 100	< 100	Rely on congestion management to mitigate the P0 overload by reducing the solar generation output at Borrego 69 kV substation.
	BR_U2_Gen BORREGO ID 60	P1	G-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.7	< 100	< 100	< 100	< 100	Rely on existing TL686 RAS that reduces the solar generation output at Borrego 69 kV substation.
22668 POWAY 69.0 22664 POMERADO 69.0 1 1	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23051_Line SX-ARR 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.8	Rely on 30-min short-term emergency rating (13% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload. The system adjustment that can be implemented is to reduce the dispatch of Pomerado battery energy storage.
	TL23071_Line SX-PQ 230kV ck 1	P1	N-1	< 100	< 100	< 100	108.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	108.1	
	PQ_BK71_Tran PQ 230/69kV ck 2	P1	N-1	< 100	< 100	< 100	106.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	PQ_BK70_Tran PQ 230/69kV ck 1	P1	N-1	< 100	< 100	< 100	106.5	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL668_Line MRGT-MR 69kV ck 1	P1	N-1	< 100	< 100	< 100	106.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.8	
	MRGT-69_Bus MIRAMAR GT 69kV	P2	Bus Section Fault	< 100	< 100	< 100	108.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	105.1	
	MR-69-W_Bus MIRAMAR 69kV W	P2	Bus Section Fault	< 100	< 100	< 100	106.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	116.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	115.0	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	116.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	114.9	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	114.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.4	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	114.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.4	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	113.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.1	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	113.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	103.1	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	112.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	111.7	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL668_Line MRGT-MR 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	108.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.8	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL668_Line MRGT-MR 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	108.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on the 30-min short-term emergency rating (20% higher than its normal rating), giving the market and operators enough time to eliminate the identified P1, P2, P3 and P4 thermal overloads. For the 2035 Summer Peak sensitivity case, the system adjustments that can be implemented are to reduce Pomerado and Goalline battery energy storage and/or Sycamore Canyon long duration energy storage.
	MEF_UNIT1_Gen MEF MR1 ID 1 AND MEF_UNIT2_Gen MEF MR2 ID 1	P3	G-1-1	< 100	< 100	< 100	106.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND MEF_UNIT1_Gen MEF MR1 ID 1	P3	G-1-1	< 100	< 100	< 100	106.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
22828 SYCAMORE 69.0 22756 SCRIPPS 69.0 1 1	MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK60_Tran PQ 230/138kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	106.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak case and discuss with the PTO the potential for upgrade solutions.
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL675_Line PQ-MRM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	106.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK60_Tran PQ 230/138kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	106.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL675_Line PQ-MRM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	106.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL6906_Line MRM-PQ 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	106.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL6906_Line MRM-PQ 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL639_Line SX-EL 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT1_Gen MEF MR1 ID 1 AND TL616_Line SF-ARR-LHM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL639_Line SX-EL 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MEF_UNIT2_Gen MEF MR2 ID 1 AND TL616_Line SF-ARR-LHM 69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	105.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	EA_ALL_Gen EA GEN1 U6/U7/U8/U9/U10 ID 1 AND PQ_BK60_Tran PQ 230/138kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	101.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	MRGT_GEN1_Gen MRGT GEN1 ID 1 AND TL23071_Line SX-PQ 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	112.8	
	MRGT_GEN1_Gen MRGT GEN1 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	101.1	
	MRGT_GEN1_Gen MRGT GEN1 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.8	
	PQ-138-8N_CB PENASQUITOS 138kV 8N	P4	Fault + Stuck Breaker	< 100	< 100	< 100	106.9	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	TL23026_Line SG-BB 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	118.6	105.4	101.5	< 100	< 100	< 100	< 100	< 100	117.6	For the 2030 Summer Off Peak case, rely on 30-min short-term emergency rating (20% higher than its normal rating), giving the market and operators enough time to eliminate the identified thermal overload by increasing the dispatch of Miramar gas units.
	TL23071_Line SX-PQ 230kV ck 1 AND TL668_Line MRGT-MR 69kV ck 1	P6	N-1-1	< 100	< 100	< 100	120.8	< 100	101.7	< 100	< 100	< 100	< 100	< 100	120.9	For the 2035 Summer Peak sensitivity case, after the system adjustments made to mitigate the P1 contingencies, rely on congestion management by curtailing battery energy storage in San Diego area and increasing the dispatch of battery energy storage in SCE Metro area.
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	117.0	< 100	102.3	< 100	< 100	< 100	< 100	< 100	121.6	Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak and 2040 Winter Peak cases and discuss with the PTO the potential for upgrade solutions.

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
19020 BLYTHE 161 19105 GLT TAP 161 1 1	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.7	< 100	< 100	Rely on congestion management by limiting the charging of battery energy storage at Hoodoo Wash substation after the first contingency for the P6 event.
19041 PARKER 161 19046 BOUSE 161 1 1	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	109.6	< 100	< 100	
19041 PARKER 161 19020 BLYTHE 161 1 1	HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	102.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.7	< 100	Rely on congestion management by dispatching battery energy storage at Imperial Valley substation after the first contingency for the P6 event.
19020 BLYTHE 161 21731 VEGA_3_SS 161 1 1	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P1	N-1	< 100	< 100	< 100	104.4	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	104.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	161.8	< 100	145.4	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1 AND DEL-CIELO AZUL_Line DELANY-CIELO AZUL 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	114.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1 AND VAL-ALB_Line VAL-ALB 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	112.9	< 100	110.5	< 100	102.6	< 100	< 100	< 100	< 100	
19020 BLYTHE 161 24017 BLYTHESC 161 1 1	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P1	N-1	< 100	< 100	< 100	110.7	< 100	102.0	< 100	< 100	< 100	< 100	< 100	< 100	
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	107.6	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-NSONGS_Line IV-NSONGS 500kV ck 1	P1	N-1	< 100	< 100	< 100	106.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Rely on pre-contingency congestion management to protect against the P1 outage by reducing generation output at Imperial Valley substation and dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area.
	IV_BK82_Tran IV 500/230kV ck 3	P1	N-1	< 100	< 100	< 100	103.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	109.6	< 100	101.2	< 100	< 100	< 100	< 100	< 100	< 100	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	IV-500-8032_CB IMPERIAL VALLEY 500kV 8032	P4	Fault + Stuck Breaker	< 100	< 100	< 100	106.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak case and discuss with the PTO and affected TO the potential for upgrade solutions.
	IV-230-17T_CB IMPERIAL VALLEY 230KV 17T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	103.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	ECO-500-1T_CB EAST COUNTY 500kV 1T or 1E	P4	Fault + Stuck Breaker	< 100	< 100	< 100	102.3	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	125.2	< 100	< 100	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
19045 COOLIDGE 230 19502 ROGSWAPA 230 1 1	HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	101.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.3	Rely on congestion management by reducing the generation dispatch of SunZia wind after the first contingency for the P6 events.
	MNKP-ELDR_Line MOENKOPI-ELDORDO 500kV ck 1 AND TL50002_Line NG-IV 500kV ck 1	P6	N-1-1	< 100	100.0	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	100.2	< 100	
21331 EC161_SS 161 21025 ELCENTSW 230 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	102.9	< 100	< 100	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.

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Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
21331 EC161_SS 161 21059 PILOT_KNB161 161 1 1	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P1	N-1	< 100	< 100	< 100	116.2	< 100	110.6	< 100	124.6	< 100	< 100	< 100	< 100	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	101.6	< 100	< 100	< 100	117.8	< 100	< 100	< 100	< 100	
	PV_UNIT1_Gen PALOVRD1 ID 1 AND S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P3	G-1/N-1	< 100	< 100	100.7	118.4	< 100	113.6	< 100	126.7	< 100	< 100	< 100	< 100	
	PV_UNIT1_Gen PALOVRD1 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P3	G-1/N-1	< 100	< 100	< 100	103.8	< 100	< 100	< 100	119.9	< 100	< 100	< 100	< 100	
	IV_GEN1_ALL_Gen IV GEN1 CT2/CT3/STG ID 1 AND S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P3	G-1/N-1	< 100	< 100	100.0	< 100	< 100	112.7	< 100	< 100	< 100	< 100	< 100	< 100	
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	118.8	< 100	112.1	< 100	127.5	< 100	< 100	< 100	< 100	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	101.1	Diverge	< 100	200.5	< 100	191.5	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1 AND DEL-CIELO AZUL_Line DELANY-CIELO AZUL 500kV ck 1	P6	N-1-1	< 100	< 100	102.4	127.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1 AND HDW-NG_Line HDW-NG 500kV ck 1	P6	N-1-1	< 100	< 100	104.4	123.8	< 100	118.4	< 100	131.4	< 100	< 100	< 100	< 100	
21072 YUCCA161 161 21059 PILOT_KNB161 161 1 1	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	121.2	< 100	< 100	Rely on congestion management by limiting the charging of battery energy storage at Hoodoo Wash substation after the first contingency for the P6 event.
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	102.5	< 100	107.5	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
19051 KNOB 161 21059 PILOT_KNB161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	104.3	< 100	< 100	< 100	< 100	< 100	Diverge	
21072 YUCCA161 161 84846 YUCCA W 69.0 1 1	HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	104.4	< 100	< 100	< 100	< 100	< 100	100.6	< 100	For the 2030 Summer Off Peak case, rely on congestion management by reducing generation output at Hoodoo Wash substation and dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area. For the 2030 Summer Peak sensitivity case, rely on congestion management by dispatching battery energy storage at Imperial Valley substation after the first contingency for the P6 event. For the 2027 Spring Off Peak sensitivity case, rely on congestion management by limiting the charging of battery energy storage at Hoodoo Wash substation after the first contingency for the P6 event.
	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	116.5	100.9	< 100	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	104.9	< 100	108.5	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
21072 YUCCA161 161 84846 YUCCA W 69.0 2 1	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.2	< 100	< 100	Rely on congestion management by limiting the charging of battery energy

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
19105 GLT TAP 161 19051 KNOB 161 1 1	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	< 100	< 100	storage at Hoodoo Wash substation after the first contingency for the P6 event.
21331 EC161_SS 161 21334 ECSS_EAST 92.0 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	133.2	< 100	129.3	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
21047 NILAND161 161 21808 CVSUB161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	105.8	< 100	115.9	< 100	< 100	< 100	Diverge	
21361 NILAND 92.0 21047 NILAND161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	< 100	< 100	113.0	< 100	< 100	< 100	Diverge	
21731 VEGA_3_SS 161 21047 NILAND161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	121.5	< 100	131.5	< 100	< 100	< 100	Diverge	
21204 ARKANSAS_SS 161 21047 NILAND161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	128.7	< 100	124.0	< 100	< 100	< 100	Diverge	
21204 ARKANSAS_SS 161 21203 ALHAMBRA_SS 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	111.0	< 100	< 100	< 100	< 100	< 100	Diverge	
21331 EC161_SS 161 21203 ALHAMBRA_SS 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	102.5	< 100	< 100	< 100	< 100	< 100	Diverge	
21090 IPP-130-TAP 161 21806 AVE58TP1 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	119.2	< 100	115.4	< 100	< 100	< 100	Diverge	
21805 AVE58 161 21806 AVE58TP1 161 1 1	S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P1	N-1	< 100	< 100	< 100	126.0	< 100	121.7	< 100	130.2	< 100	< 100	< 100	101.5	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1	P1	N-1	< 100	< 100	< 100	112.8	< 100	108.4	< 100	124.1	< 100	< 100	< 100	< 100	
	IV-NSONGS_Line IV-NSONGS 500kV ck 1	P1	N-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	104.4	Rely on pre-contingency congestion management to protect against the P1 outage by reducing generation output at Imperial Valley substation and dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area.
	IV-230-19T_CB IMPERIAL VALLEY 230KV 19T	P4	Fault + Stuck Breaker	< 100	< 100	< 100	125.0	< 100	121.0	< 100	129.1	< 100	< 100	< 100	101.1	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	IV-500-8032_CB IMPERIAL VALLEY 500kV 8032	P4	Fault + Stuck Breaker	< 100	< 100	< 100	100.1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	Continue to monitor the thermal overload concerns identified in the 2040 Summer Peak case and discuss with the PTO and affected TO the potential for upgrade solutions.
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	206.2	< 100	192.6	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	130.0	< 100	127.0	< 100	132.7	< 100	< 100	< 100	108.3	IID is planning a new RAS that will drop generation for the loss of the S-LINE or transformation at El Centro substation. This RAS would mitigate the thermal overloads.
	NG-IV-2_Line NG-IV 500kV ck 2 AND S-LINE1_Line WIXOM_SS-IV_WST 230kV ck 1	P6	N-1-1	< 100	< 100	< 100	128.3	< 100	124.5	< 100	133.3	< 100	< 100	< 100	< 100	
	IV-NSONGS_Line IV-NSONGS 500kV ck 1 AND IV_BK82_Tran IV 500/230kV ck 3	P6	N-1-1	< 100	< 100	< 100	108.8	< 100	< 100	< 100	< 100	< 100	< 100	< 100	118.3	Rely on additional congestion management by reducing generation output at Imperial Valley substation and dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area after the first contingency for the P6 event.
21805 AVE58 161 21807 AVE58TP2 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	102.8	< 100	< 100	< 100	< 100	< 100	Diverge	

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Thermal Overloads

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
21807 AVE58TP2 161 21808 CVSUB161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	102.6	< 100	< 100	< 100	< 100	< 100	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
21279 CVSUB92 92.0 21808 CVSUB161 161 1 1	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	< 100	< 100	< 100	Diverge	< 100	107.3	< 100	111.5	< 100	< 100	< 100	Diverge	
	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	102.6	< 100	< 100	Rely on congestion management by limiting the charging of battery energy storage at Hoodoo Wash substation after the first contingency for the P6 event.

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Study Area: San Diego
High/Low Voltages

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
SUNCREST 500 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL23040_Line OM-TJI 230kV ck 1	P6	N-1-1	0.945 < V < 1.1	0.945 < V < 1.1	0.945 < V < 1.1	0.945 < V < 1.1	0.91	0.945 < V < 1.1	0.945 < V < 1.1	0.945 < V < 1.1	0.87	0.945 < V < 1.1	0.945 < V < 1.1	0.945 < V < 1.1	Rely on congestion management by reducing generation output in the greater Imperial Valley area and dispatching conventional gas generation, preferred resources, and/or battery energy storage in the San Diego area after the first contingency for the P6 event.
SUNCREST 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL23040_Line OM-TJI 230kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
SNCRS SVC HV 230 kV	TL50001_Line ECO-ML 500kV ck 1 AND TL23040_Line OM-TJI 230kV ck 1	P6	N-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.90	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
AV GEN_HV 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.79	0.83	0.81	0.79	0.88	0.80	0.88	0.9 < V < 1.05	0.87	0.72	0.81	0.9 < V < 1.05	
AVOCADO 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.79	0.83	0.81	0.79	0.88	0.80	0.88	0.9 < V < 1.05	0.87	0.72	0.81	0.9 < V < 1.05	
BASILONE 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.88	0.9 < V < 1.05	0.9 < V < 1.05	
LASPULGS 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.86	0.87	0.84	0.82	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.80	0.86	0.9 < V < 1.05	
LILAC 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.9 < V < 1.05	0.9 < V < 1.05	
ME GEN 1 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.77	0.80	0.78	0.76	0.86	0.78	0.87	0.9 < V < 1.05	0.87	0.72	0.79	0.9 < V < 1.05	
MELROSE 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.77	0.80	0.78	0.76	0.86	0.78	0.87	0.9 < V < 1.05	0.87	0.72	0.79	0.9 < V < 1.05	
MONSRATE 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.79	0.83	0.81	0.79	0.89	0.81	0.88	0.9 < V < 1.05	0.88	0.73	0.82	0.9 < V < 1.05	
NORTHVALLEY 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.78	0.81	0.79	0.77	0.87	0.79	0.87	0.9 < V < 1.05	0.87	0.73	0.80	0.9 < V < 1.05	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
OCEAN RANCH 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.77	0.80	0.78	0.76	0.86	0.78	0.87	0.9 < V < 1.05	0.87	0.72	0.79	0.9 < V < 1.05	
OCEANSDE 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.78	0.79	0.76	0.74	0.85	0.77	0.88	0.9 < V < 1.05	0.87	0.72	0.78	0.9 < V < 1.05	
PA GEN 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.85	0.9 < V < 1.05	0.89	0.88	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.78	0.90	0.9 < V < 1.05	
PALA 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.85	0.9 < V < 1.05	0.89	0.88	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.78	0.89	0.9 < V < 1.05	
PENDLETN 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.79	0.82	0.80	0.78	0.88	0.80	0.88	0.9 < V < 1.05	0.88	0.74	0.81	0.9 < V < 1.05	
SANLUSRY 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.78	0.80	0.78	0.76	0.86	0.78	0.88	0.9 < V < 1.05	0.87	0.73	0.79	0.9 < V < 1.05	
SANMRCOS 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.89	0.9 < V < 1.05	0.89	0.88	0.9 < V < 1.05	0.89	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.86	0.90	0.9 < V < 1.05	
STUART 69 kV	BUS-SA230-EW_SAN LUIS REY 230 kV E+W BUS	P5	Non-Redundant Relay	0.80	0.81	0.78	0.76	0.87	0.79	0.89	0.9 < V < 1.05	0.89	0.73	0.80	0.9 < V < 1.05	
BORREGO 69 kV	BR_GEN1_Gen BR GEN1 ID 1 AND TL23066_Line IV-DW 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL23066_Line IV-DW 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL50005_Line IV-OCO 500kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND PV_UNIT1_Gen PALOVRD1 ID 1	P3	G-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL23067_Line DW-DW GEN1 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	Verify PV resources connected to the distribution system are

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL23011_Line SA-EA-PEN 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	properly regulating voltage. If the distribution connected resources are properly regulating voltage, then rely on system adjustments by charging the Borrego WDAT energy storage after the first contingency for the P3 events.
BR GEN HV 69 kV	BR_GEN1_Gen BR GEN1 ID 1 AND TL23066_Line IV-DW 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL50005_Line IV-OCO 500kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND PV_UNIT1_Gen PALOVRD1 ID 1	P3	G-1-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL23067_Line DW-DW GEN1 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL23011_Line SA-EA-PEN 230kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
	BR_GEN1_Gen BR GEN1 ID 1 AND TL683_Line RIN-LI 69kV ck 1	P3	G-1/N-1	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	1.05	0.9 < V < 1.05	0.9 < V < 1.05	0.9 < V < 1.05	
ALHAMBRA 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
ALHAMBRA_SS 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
ARKANSAS 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
ARKANSAS_SS 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
AVE58 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.81	0.9 < V < 1.1	0.84	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
CVSUB161 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.83	0.9 < V < 1.1	0.85	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
VEGA_3_SS 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.85	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
NILAND161 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.85	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
BLYTHEAZ 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.83	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	Rely on congestion management by limiting the charging of battery energy storage in San Diego area after the first contingency for the P6 events.
BLYTHE 161 kV	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.83	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
GILA 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.86	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	Rely on congestion management by limiting the charging of battery energy storage in San Diego area after the first contingency for the P6 events.
KNOB 161 kV	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.82	0.9 < V < 1.1	0.85	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
KOFA 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.86	0.9 < V < 1.1	0.89	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	Rely on congestion management by limiting the charging of battery energy storage in San Diego area after the first

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Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Voltage PU (Baseline Scenarios)								Voltage PU (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
PILOT_KNB161 161 kV	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	battery energy storage in San Diego area after the first contingency for the P6 events.
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.81	0.9 < V < 1.1	0.84	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.
WLTNMOHK 161 kV	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.85	0.9 < V < 1.1	0.88	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	
	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.86	0.9 < V < 1.1	0.9 < V < 1.1	Rely on congestion management by limiting the charging of battery energy storage in San Diego area after the first contingency for the P6 events.
YUCCA161 161 kV	HAA-HDW_Line HAA-HDW 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	0.87	0.9 < V < 1.1	0.9 < V < 1.1	
	IV_BK82_Tran IV 500/230kV ck 3 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV	P6	N-1-1	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	0.9 < V < 1.1	0.81	0.9 < V < 1.1	0.84	0.9 < V < 1.1	0.9 < V < 1.1	0.9 < V < 1.1	Diverge	The revised scope of the "Short Circuit Mitigation for Imperial Valley 230 kV Circuit Breakers" project (ISD 2035) will mitigate this reliability concern as both CLRs will be normally closed.

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Voltage Deviation

Overloaded Facility	Contingency (P1 and P3)	Category	Category Description	Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)				Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	

No P1 and P3 contingency resulted in a voltage deviation above 8%

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Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios			
			2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
SLO 3PH Fault at DEVERS 500, trip DEVERS - VALLEYSC 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PALO VERDE 500kV, trip PALO VERDE - COLRIVER 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - ECO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - N.GILA 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at HAA 500kV, trip HAA - HDWSH 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at NG 500kV, trip NG - HAA 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at HDWSH 500kV, trip HDWSH - NG 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at ML 500kV, trip MIGUEL - ECO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - OCOTILLO 500kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SCR 500kV, trip SUNCREST - OCOTILLO 500kV ck 1	P1	N-1	No issues	-	No issues	No issues	No issues	-	No violation
SLO 3PH Fault at SCR 500kV, trip SUNCREST - GR1304 500kV ck 1	P1	N-1	-	No issues	-	-	-	No issues	No violation
SLO 3PH Fault at PEN 230kV, trip PEN - ESCNDIDO 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - OLD TOWN 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at TA 230kV, trip S.ONOFRE - TALEGA 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - SYCAMORE 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SG 230kV, trip SILVERGT - BAY BLVD 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at PQ 230kV, trip PENSQTOS - SYCAMORE 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at SG 230kV, trip SILVERGT - BAY BLVD 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY PFC - ROA-230 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at TA 230kV, trip TALEGA - ESCNDIDO - CAPSTRNO 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at ML 230kV, trip MIGUEL - BAY BLVD - OTAY MESA 230kV ck 1	P1	N-1	No issues	-	No issues	No issues	No issues	-	No violation
SLO 3PH Fault at OM 230kV, trip MIGUEL - BAY BLVD - OTAY MESA 230kV ck 1	P1	N-1	-	No issues	-	-	-	No issues	No violation
SLO 3PH Fault at OT 230kV, trip OLD TOWN - MISSION - SILVERGT 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at OM 230kV, trip OTAYMESA - TJI-230 230kV ck 1	P1	N-1	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY - ELCENTSW 230kV ck 1	P1	N-1	No issues	-	No issues	No issues	No issues	-	No violation
SLO 3PH Fault at IV 230kV, trip IMPRLVLY WST - WIXOM_SS 230kV ck 1	P1	N-1	-	No issues	-	-	-	No issues	No violation
SLO 3PH Fault at IV 500kV, trip IMPRLVLY - NSONGS 500kV ck 1	P1	N-1	-	No issues	-	-	-	No issues	No violation
SLO 3PH Fault at NSONGS 500kV, trip NSONGS - SERRANO 500kV ck 1	P1	N-1	-	No issues	-	-	-	No issues	No violation
SLO 3PH Fault at NSONGS 230kV, trip NSONGS - VIEJO 230kV ck 1	P1	N-1	-	No issues	-	-	-	No issues	No violation
BQ-138 Bus BATIQUITOS 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
BUE-138 BUS BOULEVARD EAST 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
CAN-138 BUS CANNON 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
ECO-138 BUS EAST COUNTY 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
FR-138 BUS FRIARS 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
GHL-138 BUS GRANT HILL 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
MS-230 Bus MISSION 230kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
MS-138 Bus MISSION 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
PAR-138 BUS PALOMAR AIRPORT 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
PEN-230 BUS PALOMAR ENERGY 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
PI-138 BUS PICO 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
PV-138 BUS PROCTOR VALLEY 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
RMV-138 BUS RANCHO MISSION VIEJO 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: San Diego Area
Transient Stability

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios			Sensitivity Scenarios			
			2030 Summer Peak	2035 Summer Peak	2027 Spring Off-Peak	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	
SA-230 BUS SAN LUIS REY 230kV E+W	P5.5	Non-Redundant Relay	No issues	TPL-001-WECC-CRT-4 WR1 1.4 criteria violation	No issues	TPL-001-WECC-CRT-4 WR1 1.4 criteria violation	No issues	No issues	Add a redundant bus differential relay at San Luis Rey 230 kV substation.
SN-138 BUS SANTEE 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SH-138 BUS SHADOWRIDGE 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SG-230 BUS SILVERGATE 230kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
SX-138 BUS SYCAMORE CANYON 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
TA-138 BUS TALEGA 138kV E+W	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
TC-138 BUS TELEGRAPH CANYON 138kV N+S	P5.5	Non-Redundant Relay	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip both lines MIGUEL - MISSION 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SA 230kV, trip TL23002 and TL23010 SANLUSRY - S.ONOFRE 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SO 230kV, trip both lines S.ONOFRE - SANTIAGO 230kV	P7	DCTL	No issues	-	No issues	No issues	No issues	-	No violation
DLO 3PH Fault at NSONGS 230kV, trip both lines NSONGS - SANTIAGO 230kV	P7	DCTL	-	No issues	-	-	-	No issues	No violation
DLO 3PH Fault at SA 230kV, trip both lines SANLUSRY SC - MISSION 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at OM 230kV, trip MIGUEL - BAY BLVD - OTAYMESA and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SYCAMORE 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	No issues	-	No issues	No issues	No issues	-	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SUNCREST 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	-	No issues	-	-	-	No issues	No violation
DLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV and SANLUSRY - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at ML 230kV, trip MIGUEL - SUNCREST 230kV and MIGUEL - SYCAMORE - OTAYMESA 230kV	P7	DCTL	-	No issues	-	-	-	No issues	No violation
DLO 3PH Fault at SA 230kV, trip SANLUSRY - ENCINA 230kV and SANLUSRY - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at PEN 230kV, trip PEN - ARTESN 230kV and PEN - ENCINATP 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at SCR 230kV, trip both lines SUNCREST - SYCAMORE 230kV	P7	DCTL	No issues	No issues	No issues	No issues	No issues	No issues	No violation
DLO 3PH Fault at NSONGS 230kV, trip two lines S.ONOFRE - NSONGS 230kV	P7	DCTL	-	No issues	-	-	-	No issues	No violation
DLO 3PH Fault at SO 230kV, trip S.ONOFRE - NSONGS ck 3 230kV and S.ONOFRE - SERRANO 230kV ck 1	P7	DCTL	-	No issues	-	-	-	No issues	No violation

2025-2026 ISO Reliability Assessment - Final Study Results
Study Area: San Diego Area
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)												Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	

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

2025-2026 ISO Reliability Assessment - Final Study Results

Study Area: San Diego Area

Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)												Potential Mitigation Solutions
	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2030 Summer Off-Peak	2040 Winter Peak	2027 Spring Off-Peak	2035 Spring Off-Peak	2027 Summer Peak Heavy Renewable & Minimum Gas Generation	2027 Spring Off-Peak Storage charging in load pockets	2030 Summer Peak 1-in-20 load forecast	2035 Summer Peak with high South to North power flow from SDG&E to SCE	

No single source substation with more than 100 MW

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **Valley Electric Association**
Thermal Overloads

California ISO

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
				2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Spring Off-Peak	2035 Spring Off-Peak	2040 Winter Peak	2027 SP with Forecasted Load Addition	2030 SP with Forecasted Load Addition	2027 OP BESS Charging	
18022 NWEST 230 189021 DESERT VIEW 230 1 1	P1_2_Line NWEST 230.0 to DESERT VIEW 230.0 Circuit 2	P1	N-1	<100	<100	<100	109.7	<100	<100	<100	<100	<100	<100	<100	Congestion management
18022 NWEST 230 189021 DESERT VIEW 230 2 1	P1_2_Line NWEST 230.0 to DESERT VIEW 230.0 Circuit 2	P1	N-1	<100	<100	<100	109.7	<100	<100	<100	<100	<100	<100	<100	Congestion management
18073 IS TAP 138 18698 SIL FLG 138	P4-2-32_SLOAN_CYN_5 500.0 to TROUT CANYON 500.0 #1 & SLOAN_CYN_5 500.0 to TROUT CANYON 500.0 #2; BKR SC8112	P4	Stuck Brk	<100	<100	<100	<100	<100	<100	103.2	123.4	<100	<100	<100	Existing TC RAS
189000 PAHRUMP 230 189007 PAHRUMP 138 1 1	P1_53_PAHR_230PAHR_138_Ckt_2+P1_55_GAMEB_230GAMEB_138_Ckt_1_	P6	N-1-1	<100	<100	121.0	147.7	<100	<100	<100	133.82	105.0	116.0	<100	Congestion management
189000 PAHRUMP 230 189007 PAHRUMP 138 2 1	P1_52_PAHR_230PAHR_138_Ckt_1+P1_55_GAMEB_230GAMEB_138_Ckt_1_	P6	N-1-1	<100	<100	<100	130.6	<100	<100	<100	117.68	<100	103.0	<100	Congestion management
189008 SANDY 138 189020 GAMEBIRD 138 1 1	P4-2-32_SLOAN_CYN_5 500.0 to TROUT CANYON 500.0 #1 & SLOAN_CYN_5 500.0 to TROUT CANYON 500.0 #2; BKR SC8112	P4	N-1-1	<100	<100	<100	<100	<100	<100	<100	102.8	<100	<100	<100	Existing TC RAS
189020 GAMEBIRD 138 189007 PAHRUMP 138 1 1	P1_41_S_CYN_5_ELD_500_Ckt_1+P1_55_GAMEB_230GAMEB_138_Ckt_1_	P6	N-1-1	<100	<100	<100	104.2	<100	<100	<100	<100	<100	<100	<100	Existing UVLS scheme
189043 GAMEBIRD 230 189020 GAMEBIRD 138 1 1	P1_52_PAHR_230PAHR_138_Ckt_1+P1_53_PAHR_230PAHR_138_Ckt_2_	P6	N-1-1	<100	<100	<100	106.7	<100	<100	<100	<100	<100	<100	<100	Congestion management
189043 GAMEBIRD 230 189020 GAMEBIRD 138 1 1	P7-1-2_PAHRUMP-WHEELER_PASS 1 230 & PAHRUMP-WHEELER_PASS 2 230	P7	DCTL	<100	<100	<100	106.7	<100	<100	<100	<100	<100	<100	<100	Existing Gamebird RAS
189043 GAMEBIRD 230 189020 GAMEBIRD 138 1 1	P7-1-6_TROUT CANYON-SLOAN_CYN #1 500 & TROUT CANYON-SLOAN_CYN_#2 500	P7	DCTL	<100	<100	106.8	Diverge	<100	<100	<100	<100	<100	<100	<100	Existing TC RAS and congestion management.
189301 VEA_PST_2 138 18073 IS TAP 138 1 1	P4-2-32_SLOAN_CYN_5 500.0 to TROUT CANYON 500.0 #1 & SLOAN_CYN_5 500.0 to TROUT CANYON 500.0 #2; BKR SC8112	P4	Stuck Brk	<100	<100	106.3	<100	<100	<100	112.5	132.0	<100	<100	<100	Existing TC RAS
189301 VEA_PST_2 138 18073 IS TAP 138 1 1	P7-1-4_INNOVATION-DESERT VIEW 1 230 & INNOVATION-DESERT VIEW 2 230	P7	DCTL	<100	<100	<100	Diverge	<100	<100	<100	105.5	<100	<100	<100	Existing Innovation RAS and congestion management.
189301 VEA_PST_2 138 18073 IS TAP 138 1 1	P7-1-5_NWEST-DESERT VIEW 1 230 & NWEST-DESERT VIEW 2 230	P7	DCTL	<100	<100	<100	Diverge	<100	<100	<100	127.5	<100	<100	<100	Existing Innovation RAS and congestion management.
Sloan Canyon 500/230 TRF	P1_5_HAE_SVCL_S_CYN_5_500_Ckt_1+P1_41_S_CYN_5_ELD_500_Ckt_1_	P6	N-1-1	<100	<100	<100	123.4	<100	<100	<100	<100	<100	<100	<100	Congestion management
Trout Canyon 500/230 Ckt_1	P1_60_TC_500TC_230_Ckt_2+P1_61_TC_500TC_230_Ckt_3_	P6	N-1-1	<100	<100	<100	136.5	<100	<100	<100	<100	<100	<100	<100	Congestion management
System	P1_111_ELD2_PRIMM_230_CKT_1_+P1_112_ELD2_IVANPAH_230_CKT_1_	P6	N-1-1	Diverge	Diverge	<100	<100	<100	Diverge	<100	Diverge	Diverge	Diverge	<100	Existing Ivanpah RAS
System	P1_6_ELD2_S_CANYON_230_Ckt_1+P1_113_ED_500_230_CKT_5_5T_13.8_	P6	N-1-1	Diverge	Diverge	<100	<100	<100	Diverge	<100	Diverge	Diverge	Diverge	<100	Existing Ivanpah RAS

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: Valley Electric Association
High/Low Voltages

Substation	Contingency (All and Worst P6)	Category	Category Description	High/Low Voltage	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)			Project & Potential Mitigation Solutions
					2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Spring Off-Peak	2035 Spring Off-Peak	2040 Winter Peak	2027 SP with Forecasted Load Addition	2030 SP with Forecasted Load Addition	2027 OP BESS Charging	
CHARLSTN, GAMEBIRD, SANDY, THSNDAIR 138kV	P1_27_GAMEB_PAHRUMP_138_Ckt_1+P1_55_GAMEB_230GAMEB_138_Ckt_1_	P6	N-1-1	Low Voltage	<0.9	<0.9	<0.9	0.9<P.U.<1.1	0.9<P.U.<1.1	<0.9	0.9<P.U.<1.1	<0.9	<0.9	<0.9	0.9<P.U.<1.1	Existing UVLS scheme
		P4	Stuck Brk	Low Voltage	<0.9	<0.9	<0.9	0.9<P.U.<1.1	0.9<P.U.<1.1	<0.9	0.9<P.U.<1.1	<0.9	<0.9	<0.9	0.9<P.U.<1.1	Existing UVLS scheme
SLOAN_CYN_5 500kV, TROUT CANYON 230kV	P1_5_HAE_SVCL_S_CYN_5_500_Ckt_1+P1_41_S_CYN_5_ELD_500_Ckt_1_	P6	N-1-1	High Voltage	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	>1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	0.9<P.U.<1.1	>1.1	S.C. reactor (previously approved project)

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **Valley Electric Association**
Voltage Deviation

				b1	b2	b3	b4	b7	b5	b8	b6	s1	s2	s3	
				Post Cont. Voltage Deviation % (Baseline Scenarios)								Post Cont. Voltage Deviation % (Sensitivity Scenarios)			
Substation	Contingency (All and Worst P6)	Category	Category Description	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Spring Off-Peak	2035 Spring Off-Peak	2040 Winter Peak	2027 SP with Forecasted Load Addition	2030 SP with Forecasted Load Addition	2027 OP BESS Charging	Project & Potential Mitigation Solutions

No P1 or P3 contingencies resulted in voltage deviation greater than 8%

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: Valley Electric Association
Transient Stability

California ISO

Contingency	Category	Category Description	Transient Stability Performance						Potential Mitigation Solutions
			Baseline Scenarios				Sensitivity Scenarios		
			2027 Spring Off-Peak	2030 Summer Peak	2035 Summer Peak	2035 Off-Peak	2027 OP BESS Charging	2030 SP with Forecasted Load Addition	
Amargosa-Sandy 138kV Fault-Armargosa Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump-Vista 138kV Fault-Pahrump Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump-Gamebird 138kV Fault-Pahrump Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Vista-Valley Switch- Johnnie 138kV Fault-Vista Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Vista 230kV line Fault-Pahrump-Vista 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Vista 230kV line Fault-Johnnie-Vista 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
CMTY_SOL_SW-VI-MBUS 24.94kV Fault-CMTY_SOL_SW Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Beatty isolated 138kV Fault-Beatty Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells isolated 138kV Fault-Lathrop Wells Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Jackass Flats 138kV Fault-Lathrop Wells-Jackass Flats line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sandy isolated 138kV Fault-Sandy Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Sub isolated 138kV Fault-Valley Sub Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Sub - Valley Switch 138kV Fault-Valley Sub - Valley Switch 138kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch 138kV isolated Fault-Valley Switch Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird 230/138kV trf Fault-Gamebird Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Sandy 138kV Fault-Gamebird Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Thousandaire 138kV Fault-Gamebird-Thousandaire 138kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Thousandaire 138kV isolated Fault-Thousandaire Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Charleston Park- 138kV isolated Fault-Charleston Park Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Charleston Park-Thousandaire 138kV Fault-Charleston Park-Thousandaire 138kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Bondgap 230kV line Fault-Lathrop Wells-Bondgap 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Valley Switch 230kV line Fault-athrop Wells-Valley Switch 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Valley Switch 230kV line Fault-Johnnie-Valley Switch 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Innovation 230kV line Fault-Johnnie-Innovation 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Desert View-Northwest 230kV line Fault-Desert View-Northwest 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Desert View-Innovation 230kV line Fault-Desert View-Innovation 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation 230/138kV trf Fault-Innovation 230kV bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
VEA_PST_2-IS Tap line Fault-VEA_PST_2-IS Tap line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Mercury Switch 138kV line Fault-Innovation-Mercury Switch 138kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Wheeler Pass 230kV line Fault-Johnnie-Wheeler Pass 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Wheeler Pass 230kV line Fault-Gamebird-Wheeler Pass 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #1 Fault-Pahrump 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 138/230kV Tran Bnk. 2 Fault-Pahrump 230kV bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump-Wheeler Pass 230kV line Fault-Pahrump-Wheeler Pass 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Trout Canyon 230kV line Fault-Gamebird-Trout Canyon 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon-Sloan Canyon5 500kV line Fault Trout Canyon 500kV bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon 500/230kV trf #2 Fault-Trout Canyon 500kV bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Yellow Pine 2-Trout Canyon 230kV line Fault-Yellow Pine 2-Trout Canyon 230kV line 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon-Eldorado2 230kV line Fault-Sloan Canyon 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon-Mead 230kV line Fault-Sloan Canyon 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon-Eldorado 500kV line Fault-HAE SVC 500kV bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon 500-230kV trf #3 Fault-Trout Canyon 500kV bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sunshine Valley PV Gen Fault-VALLEYVE Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Purple Sage 1 PV1&ES1 Gen Fault-TROUT CANYON Bus slg	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Purple Sage 2 PV2&ES2 Gen Fault-TROUT CANYON Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
CMTY_SOL_SOL_1A&1B Gen Fault- 24.94kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Yellow Pine PV&ES Gen Fault-TROUT CANYON Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Yellow Pine 3 PV1&ES1 Gen Fault-TROUT CANYON Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Yellow Pine 3 PV2&ES2 Gen Fault-TROUT CANYONBus slg*	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Beatty GeoThermal RPS gen and Beatty-Bondgap 230kV line Fault-Beatty 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells PV-BESS RPS gen Fault-Lathrop WEls 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan WD and PV2 RPS gen Fault-Sloan Canyon 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
GAMEBIRD PV RPS gen Fault-GAMEBIRD 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation PV-BESS RPS gen Fault-Innovation 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout PV1-BESS#1#2 RPS gen Fault-Trout Canyon 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation PV-BESS RPS gen and Innovation-Johnnie 230kV line Fault-Desert View 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley PV-BESS RPS gen Fault-Valley Switch 230kV Bus 3pb	P1	N-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innocation-Desert View and Desert View-Northwest 230kV lines Fault-Desert View 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Desert View #2 and Desert View-Northwest 230kV #2 lines Fault-Desert View 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Desert View #2 and Desert View-Northwest 230kV #1 lines Fault-Desert View 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Desert View #1 and Desert View-Northwest 230kV #2 lines Fault-Desert View 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Desert View #2 and Innovation-Johnnie 230kV lines Fault-Innovation 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Desert View #2 line and Innovation 230/138kV trf Fault-Innovation 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation 138kV bus isolated Fault-Innovation 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Mercury Switch 138kV line and Innovation 230/138kV trf Fault-Innovation 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-VEA_PST_2 138kV line and VEA_PST_2-IS Tap 138kV line Fault-Innovation 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Vista and Johnnie-Valley Switch 230kV lines Fault-Johnnie 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Valley Switch #2 and Johnnie-Innovation 230kV #2 lines Fault-Johnnie 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Wheeler Pass and Johnnie-Innovation 230kV lines Fault-Johnnie 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump-Vista and Gambird-Pahrump 138kV lines Fault-Pahrump-Vista 138kV line slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #2 and Pahrump-Vista 138kV line Fault-Pahrump 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230/138kV trf #1 and Pahrump-Gamebird 138kV line Fault-Pahrump 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230-138kV trf #1 and Pahrump-Wheeler_Pass 230kV line Fault-Pahrump 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Pahrump 230-138kV trf #2 and Pahrump-Wheeler_Pass 230kV #2 line Fault-Pahrump 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Johnnie #1 & Wheeler Pass-Gambird #1 230kV fault-Wheeler Pass 230kV bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Vista #1 & Wheeler Pass-Pahump #1 230kV fault-Wheeler Pass 230kV bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Pahrump #1 & Wheeler Pass-Gamebird #2 230kV fault-Wheeler Pass 230kV bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird 230-138kV trf and Gamebird-Wheeler Pass 230kV line Fault-Gamebird 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird 230/138kV trf and Gamebird-Pahrump 138kV line Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Pahrump and Gamebird-Thousandair 138kV lines Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Sandy 138kV line and Gamebird-Thousandair 138kV lines Fault-Gambird 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird 230/138kV trf and Gamebird-Sandy 138kV line Fault-Gamebird 138kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon 500/230kV trf #2 and Trout Canyon-Sloan Canyon5 500kV line Fault-Trout Canyon5 500kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon 500/230kV trf #3 and Trout Canyon-Sloan Canyon5 500kV line Fault-Trout Canyon5 500kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird-Trout Canyon and Yellow Pine 2-Trout Canyon 230kV lines Fault-Trout Canyon 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon5 500/230kV trf and HAE SVCL-Sloan Canyon5 500kV line Fault-Sloan Canyon5 500kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon-Trout Canyon #1 and Sloan Canyon-Trout Canyon #2 500kV lines Fault-Sloan Canyon 500kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Valley Switch #1 and Johnnie-Lathrop Wells 230kV #1 lines Fault-Valley Switch 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Valley Switch #2 and Johnnie-Lathrop Wells 230kV #2 lines Fault-Valley Switch 230kV Bus slg	P4	Stuck breaker	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sandy-Amargosa 138kV line Fault-Sandy-Amargosa 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sandy-Gamebird 138kV line Fault-Sandy-Gamebird 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Johnnie-Valley Switch 138kV line Fault-Johnnie-Valley Switch 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch-Lathrop Wells 138kV line Fault-Valley Switch-Lathrop Wells 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch-Valley Sub 138kV line Fault-Valley Switch-Valley Sub 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Sub 138kV isolated Fault-Valley Sub 138kV Bus slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Bondgap 138kV line Fault-Lathrop Wells-Bondgap 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells-Jackass Flats 138kV line Fault-Lathrop Wells-Jackass Flats 138kV line slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Lathrop Wells 138kV isolated Fault-Lathrop Wells 138kV Bus slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Thousandairs 138kV isolated Fault-Thousandairs 138kV Bus slg	P5	Non-redundant protection	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon500-Eldorado 500kV and HAE SVCL-Sloan Canyon5 500kV line Fault-Sloan Canyon5 500kV Bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Divergence	Stable/WECC criteria met	Reduce BESS charging
Sloan Canyon-Mead and Sloan Canyon-Eldorado 230kV lines Fault-Sloan Canyon 230kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Eldorado2-Primm & Eldorado2-Ivanpah 230kV lines Fault-Sloan Canyon 230kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Sloan Canyon-Eldorado 500kV and Sloan Canyon-Eldorado 230kV lines Fault-Sloan Canyon 500kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Divergence	Stable/WECC criteria met	Reduce BESS charging
Trout Canyon-Sloan Canyon 500kV and Sloan Canyon-Eldorado 500kV lines Fault-Sloan Canyon 500kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Divergence	Stable/WECC criteria met	Reduce BESS charging
Trout Canyon-Sloan Canyon 500kV and Trout Canyon-Gamebird 230kV lines Fault-Trout Canyon 500kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Gamebird - Trout Canyon 230kV and Gamebird - Wheeler Pass 230kV lines Fault-Gamebird 230kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Desert View-Northwest 230kV and Gamebird - Wheeler Pass 230kV lines Fault-Gamebird 230kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Desert View-Northwest 230kV and Gamebird - Trout Canyon 230kV lines Fault-Gamebird 230kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Yellow Pine 2 and Trout Canyon-Gamebird 230kV lines Fault-Trout Canyon 230kV bus 3pb	P6	N-1-1	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Desert View 230kV line #1 and Innovation-Desert View 230kV line #2 Fault-Innovation-Desert View 230kV line #1 230kV line slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon-Sloan Canyon5 500kV #1 and Trout Canyon-Sloan Canyon5 500kV #2 lines Fault-Trout Canyon-Sloan Canyon5 500kV line #	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Trout Canyon-Gamebird 230kV #1 and Trout Canyon-Gamebird 230kV #2 lines Fault-Trout Canyon-Gamebird 230kV #1 slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Desert View-Northwest 230kV #1 and Desert View-Northwest 230kV #2 lines Fault-Desert View-Northwest 230kV #1 slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Gamebird 230kV #1 and #2 lines Fault-Pahrump2 230kV bus slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Pahrump 230kV #1 and #2 lines Fault-Pahrump 2230kV bus slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Innovation-Johnnie 230kV #1 and #2 lines Fault-Johnnie 230kV bus slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch-Johnnie #1 230kV #1 and #2 lines Fault-Valley Switch bus slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Valley Switch-Lathrop Wells #1 230kV #1 and #2 lines Fault-Valley Switch bus slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	
Wheeler Pass-Johnnie 230kV and Vistat 230kV lines Fault-Wheeler Pass 2230kV bus slg	P7	DCTL	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	Stable/WECC criteria met	

2025-2026 ISO Reliability Assessment - Preliminary Study F
Study Area: Valley Electric Association
Single Contingency Load Drop

Worst Contingency	Category	Category Description	Amount of Load Drop (MW)											Potential Mitigation Solutions
			2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Spring Off-Peak	2035 Spring Off-Peak	2040 Winter Peak	2027 SP with Forecasted Load Addition	2030 SP with Forecasted Load Addition	2027 OP BESS Charging	

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

2025-2026 ISO Reliability Assessment - Preliminary Study Results
Study Area: **Valley Electric Association**
Single Source Substation with more than 100 MW Load

Substation	Load Served (MW)											Potential Mitigation Solutions
	2027 Summer Peak	2030 Summer Peak	2035 Summer Peak	2040 Summer Peak	2027 Spring Off-Peak	2030 Spring Off-Peak	2035 Spring Off-Peak	2040 Winter Peak	2027 SP with Forecasted Load Addition	2030 SP with Forecasted Load Addition	2027 OP BESS Charging	

No single source substation with more than 100 MW