| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 22886 SUNCREST 230 22832 SYCAMORE 230 1 1 | TL50001_Line ECO-ML 500kV ck 1 AND TL23055_Line SCR-SX 230kV ck 2 | P6 | N-1-1 | 127.5 | 128.3 | < 100 | < 100 | 124.4 | < 100 | < 100 | < 100 | < 100 | < 100 | 143.5 | 108.9 | 132.0 | < 100 | On the short and medium terms, 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. These could involve system adjustments, such as reducing generation output in the greater Imperial Valley area, dispatching conventional gas generation, preferred resources, and battery energy storage in the San Diego area, adjusting the Imperial Valley phase shifting transformers, and bypassing the series capacitor banks in the 500 kV transmission lines between Hassayampa and North Gila as needed.<br><br>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 | 103.5 | 106.4 | < 100 | < 100 | 101.1 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.9 | < 100 | 110.3 | < 100 | |
| 22886 SUNCREST 230 22832 SYCAMORE 230 2 1 | TL50001_Line ECO-ML 500kV ck 1 AND TL23054_Line SCR-SX 230kV ck 1 | P6 | N-1-1 | 127.5 | 128.3 | < 100 | < 100 | 124.4 | < 100 | < 100 | < 100 | < 100 | < 100 | 143.5 | 109.0 | 132.1 | < 100 | |
| | TL50001_Line ECO-ML 500kV ck 1 AND TL23054+RAS_Line SCR-SX 230kV ck 1 + RAS | P6 | N-1-1 | 103.5 | 106.4 | < 100 | < 100 | 101.2 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.9 | < 100 | 110.3 | < 100 | |
| 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 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.7 | < 100 | < 100 | < 100 | On the short and medium terms, rely on the 24-hr emergency ratings of the Suncrest banks (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 Suncrest – Sycamore Canyon overload issues.<br><br>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 1 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 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.7 | < 100 | < 100 | < 100 | |
| 22464 MIGUEL 230 22468 MIGUEL 500 2 1 | TL50003_Line OCO-SCR 500kV ck 1 AND ML_BK80_Tran ML 500/230kV ck 1 | P6 | N-1-1 | 109.9 | 111.3 | < 100 | < 100 | 109.2 | < 100 | < 100 | < 100 | < 100 | < 100 | 124.4 | < 100 | 114.5 | < 100 | On the short and medium terms, rely on the existing Miguel BK 80/81 RAS (if necessary, the 24-hr or 30-min emergency ratings 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 overload issues.<br><br>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. |
| 22464 MIGUEL 230 22472 MIGUELMP 500 1 1 | TL50003_Line OCO-SCR 500kV ck 1 AND ML_BK81_Tran ML 500/230kV ck 2 | P6 | N-1-1 | 108.3 | 109.7 | < 100 | < 100 | 108.7 | < 100 | < 100 | < 100 | < 100 | < 100 | 125.4 | < 100 | 113.4 | < 100 | |
| 223562 IMPRLVLY B 230 22362 IV BK82 MP 500 1 1 | Q1166_Gen Q1166 GEN1 ID 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.5 | < 100 | < 100 | < 100 | < 100 | Rely on the 30-min emergency rating to allow the operators to connect the normally open operated Imperial Valley 230 kV current limiting reactor after the first contingency for the P3 and P6 events. |
| | IV_GEN4_IV GEN4 ID 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 108.0 | < 100 | < 100 | < 100 | < 100 | |
| | DW_GEN8_Gen DW GEN8 ID 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 107.4 | < 100 | < 100 | < 100 | < 100 | |
| | GR1215_ALL_Gen GR1215 GEN1/GEN2 ID VS AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.2 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.0 | < 100 | < 100 | < 100 | < 100 | |
| | TL23043_Line IV-WCS-Q1166 230kV ck 1 AND IV-CLR-230_CLR IMPERIAL VALLEY 230KV | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.8 | < 100 | < 100 | < 100 | < 100 | |
| 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 | 100.9 | 105.5 | < 100 | < 100 | 103.0 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.6 | < 100 | 106.1 | < 100 | On the short and medium terms, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS. 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 |
| 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 | 115.3 | 121.4 | < 100 | < 100 | 117.5 | < 100 | < 100 | < 100 | < 100 | < 100 | 123.7 | < 100 | 122.1 | < 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 | 115.3 | 121.4 | < 100 | < 100 | 117.5 | < 100 | < 100 | < 100 | < 100 | < 100 | 123.7 | < 100 | 122.1 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 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 | 100.9 | 105.4 | < 100 | < 100 | 103.0 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.6 | < 100 | 106.1 | < 100 | described above for the TL23054/TL23055 overload issues.<br><br>The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term. |
| 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 | 136.4 | 138.7 | < 100 | < 100 | 136.4 | < 100 | < 100 | < 100 | < 100 | < 100 | 160.3 | 112.1 | 139.3 | < 100 | |
| | TL50001+GEN_DROP_RAS_Line ECO-ML 500kV ck 1 + GEN DROP RAS AND TL50003_Line OCO-SCR 500kV ck 1 | P6 | N-1-1 | 104.2 | 109.7 | < 100 | < 100 | 103.4 | < 100 | < 100 | < 100 | < 100 | < 100 | 113.5 | < 100 | 110.4 | < 100 | |
| | TL23041_Line SX-OM-ML 230kV ck 1 AND TL23042_Line BB-OM-ML 230kV ck 1 | P6 | N-1-1 | 103.6 | 102.4 | 103.2 | 103.5 | < 100 | 102.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.4 | 103.5 | 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 | 103.6 | 102.4 | 103.3 | 103.5 | < 100 | 102.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.4 | 103.5 | |
| 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 | 109.2 | 103.0 | < 100 | < 100 | 102.4 | < 100 | < 100 | < 100 | < 100 | < 100 | 121.6 | < 100 | 103.2 | < 100 | On the short and medium terms, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS.<br><br>The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term. |
| 20103 WIS-230 230 20100 ROA-TAP 230 1 1 | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV ck 1 | P6 | N-1-1 | 101.6 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 114.2 | < 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 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.8 | < 100 | < 100 | < 100 | |
| 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 | 100.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 112.1 | < 100 | < 100 | < 100 | |
| 22609 OTAYMESA 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 | 120.6 | 123.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 122.1 | < 100 | Rely on existing TL23041/TL23042 RAS. The 30-min emergency rating (6.8% higher than their normal rating) may also be utilized when RAS is not sufficient to mitigate the overloads, giving the market and operators enough time to eliminate the identified thermal overloads. The system adjustment that can be implemented is to reduce remaining generation output in Otay Mesa. |
| | TL23041+RAS_Line SX-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1 | P6 | N-1-1 | < 100 | 103.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.6 | < 100 | |
| 22609 OTAYMESA 230 22467 MLSXTAP 230 1 1 | TL23042_Line BB-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1 | P6 | N-1-1 | 119.6 | 122.6 | < 100 | 100.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 120.9 | 102.1 | |
| | TL23042+RAS_Line BB-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1 | P6 | N-1-1 | < 100 | 101.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.3 | < 100 | |
| 22464 MIGUEL 230 22467 MLSXTAP 230 1 1 | TL23042_Line BB-OM-ML 230kV ck 1 AND TL50001_Line ECO-ML 500kV ck 1 | P6 | N-1-1 | 118.8 | 123.4 | < 100 | 101.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 122.7 | 103.7 | |
| | TL23042+RAS_Line BB-OM-ML 230kV ck 1 + RAS AND TL50001_Line ECO-ML 500kV ck 1 | P6 | N-1-1 | 102.5 | 107.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.5 | < 100 | |
| 22430 SILVERGT 230 22596 OLD TOWN 230 1 1 | TL23028_Line SG-MS-OT 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1 | P6 | N-1-1 | 100.6 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | Rely on 2-hr short-term emergency ratings (29% higher than their normal ratings), giving the market and operators enough time to eliminate the identified thermal overloads. The system adjustments that can be implemented are to reduce generation output in Otay Mesa and/or Otay substations. |
| 22430 SILVERGT 230 22771 BAY BLVD 230 1 1 | TL23023_Line ML-MS 230kV ck 2 AND TL23071_Line SX-PQ 230kV ck 1 | P6 | N-1-1 | 100.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| 22420 SILVERGT 69.0 22144 CORONADO 69.0 1 1 | TL650_Line B-CR 69kV ck 1 | P1 | N-1 | < 100 | 122.9 | 131.2 | 137.7 | 122.3 | 118.0 | < 100 | < 100 | < 100 | 105.5 | < 100 | < 100 | 123.5 | 137.8 | Discuss with the PTO the potential for cost effective upgrade solutions. |
| | TL604_Line OT-VN 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | 100.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.2 | |
| | TL605_Line SG-UB 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | 107.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 107.6 | |
| 22024 B 69.0 22144 CORONADO 69.0 1 1 | TL655_Line SG-CR 69kV ck 1 | P1 | N-1 | < 100 | 117.0 | 125.0 | 130.0 | 116.6 | 112.2 | < 100 | < 100 | < 100 | 100.1 | < 100 | < 100 | 117.6 | 130.2 | |
| 22024 B 69.0 22420 SILVERGT 69.0 1 1 | TL604_Line OT-VN 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | 104.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.0 | |
| | TL605_Line SG-UB 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | 111.4 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 112.2 | |
| | OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL605_Line SG-UB 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.1 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 22576 NOISLMTR 69.0 22144 CORONADO 69.0 2 1 | TL6902_Line NIM-CR 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | 106.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.9 | |
| 22592 OLD TOWN 69.0 22596 OLD TOWN 230 1 1 | OT_BK71_Tran OT 230/69kV ck 2 | P1 | N-1 | < 100 | 101.1 | 111.7 | 115.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.4 | 115.0 | |
| | OT-230-2S_CB OLD TOWN 230KV 2S | P4 | Fault + Stuck Breaker | < 100 | 101.2 | 111.7 | 115.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.5 | 114.6 | |
| | OT-230-1S_CB OLD TOWN 230KV 1S | P4 | Fault + Stuck Breaker | < 100 | 100.1 | 110.8 | 114.6 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.4 | 114.2 | |
| 22592 OLD TOWN 69.0 22596 OLD TOWN 230 2 1 | OT_BK70_Tran OT 230/69kV ck 1 | P1 | N-1 | < 100 | 101.1 | 111.7 | 115.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.4 | 115.0 | |
| | OT-230-2N_CB OLD TOWN 230KV 2N | P4 | Fault + Stuck Breaker | < 100 | 100.4 | 110.5 | 113.6 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.6 | 113.4 | |
| | OT-230-1N_CB OLD TOWN 230KV 1N | P4 | Fault + Stuck Breaker | < 100 | 100.0 | 110.8 | 115.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.4 | 114.5 | |
| 22592 OLD TOWN 69.0 22871 VINE SUB 69.0 1 1 | SG_BK70_Tran SG 230/69kV ck 1 | P1 | N-1 | < 100 | < 100 | 103.8 | 101.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.2 | 100.9 | |
| | SG_BK72_Tran SG 230/69kV ck 2 | P1 | N-1 | < 100 | < 100 | 103.9 | 101.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.2 | 101.0 | |
| | BD_GEN1_Gen LRKSPBD1 ID 1 AND SG_BK72_Tran SG 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | 101.1 | 106.8 | 104.9 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.6 | 104.0 | Discuss with the PTO the potential for cost effective upgrade solutions. |
| | BD_GEN1_Gen LRKSPBD1 ID 1 AND SG_BK70_Tran SG 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | 101.1 | 106.8 | 104.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.6 | 103.9 | |
| | BD_GEN2_Gen LRKSPBD2 ID 1 AND SG_BK72_Tran SG 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | 100.7 | 106.8 | 104.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.3 | 103.9 | |
| | BD_GEN2_Gen LRKSPBD2 ID 1 AND SG_BK70_Tran SG 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | 100.7 | 106.8 | 104.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.2 | 103.9 | |
| | OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND SG_BK72_Tran SG 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | 100.7 | 106.4 | 105.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.2 | 104.3 | |
| | OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND SG_BK70_Tran SG 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | 100.7 | 106.4 | 105.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.2 | 104.3 | |
| | BD_GEN3_Gen CALPK_BD ID 1 AND SG_BK70_Tran SG 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | 107.1 | 105.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.4 | |
| | BD_GEN3_Gen CALPK_BD ID 1 AND SG_BK72_Tran SG 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | 107.2 | 105.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.4 | |
| | OY_GEN_Gen OY GEN ID 1 AND SG_BK70_Tran SG 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 105.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.6 | |
| | OY_GEN_Gen OY GEN ID 1 AND SG_BK72_Tran SG 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 105.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.6 | |
| | Base Case | P0 | Base Case | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 140.4 | < 100 | < 100 | |
| | TL6926_Line RIN-VC 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 168.1 | < 100 | < 100 | |
| | TL683_Line RIN-LI 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 162.5 | < 100 | < 100 | |
| | TL688_Line ES-LI 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 162.5 | < 100 | < 100 | |
| | TL637_Line ST-CRE 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 145.9 | < 100 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 22870 VALCNTR 69.0 22012 ASH TP 69.0 1 1 | TL685_Line WR-ST 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 142.7 | < 100 | < 100 | On the short 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 P1, P3, and P6 events.<br><br>The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term. |
| | 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 | < 100 | < 100 | 137.9 | < 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 | < 100 | < 100 | 136.3 | < 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 | < 100 | < 100 | 135.9 | < 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 | < 100 | < 100 | 135.3 | < 100 | < 100 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6917_Line CRE-SX 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 134.7 | < 100 | < 100 | |
| | PA_U1_Gen PALA ID 88 AND TL698_Line AV-MN-PA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 134.7 | < 100 | < 100 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL635_Line CRE-LC 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 133.4 | < 100 | < 100 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23011_Line SA-EA-PEN 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 128.0 | < 100 | < 100 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL6956_Line ES-AS 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 125.0 | < 100 | < 100 | |
| | TL13821_Line SX-SN 138kV ck 1 AND TL13824_Line ML-TC-LC 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 137.9 | < 100 | < 100 | |
| 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 | < 100 | < 100 | 110.8 | < 100 | < 100 | On the short term, limit the charging of Valley Center battery energy storage outside daylight hours to avoid the P0, P1 and P3 concerns.<br><br>The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term. |
| | TL6926_Line RIN-VC 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 131.0 | < 100 | < 100 | |
| | TL688_Line ES-LI 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 127.7 | < 100 | < 100 | |
| | TL683_Line RIN-LI 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 127.2 | < 100 | < 100 | |
| | TL689_Line BE-FE-ES 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 115.7 | < 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 | < 100 | < 100 | 109.9 | < 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 | < 100 | < 100 | 108.8 | < 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 | < 100 | < 100 | 107.7 | < 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 | < 100 | < 100 | 106.0 | < 100 | < 100 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL682_Line WR-RIN 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.8 | < 100 | < 100 | |
| | 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 | < 100 | < 100 | 105.5 | < 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 | < 100 | < 100 | 104.9 | < 100 | < 100 | |
| 22256 ESCNDIDO 69.0 22404 LILAC 69.0 1 1 | TL681_Line AS-VC-FE 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 108.2 | < 100 | < 100 | On the short term, limit the charging of Valley Center battery energy storage outside daylight hours to avoid the previously mentioned P0 |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 22688 RINCON 69.0 22404 LILAC 69.0 1 1 | TL681_Line AS-VC-FE 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 127.4 | < 100 | < 100 | concerns. Additionally, rely on existing Valley Center RAS to further reduce the charging of Valley Center energy storage for P1 events. |
| 22688 RINCON 69.0 22870 VALCNTR 69.0 1 1 | TL681_Line AS-VC-FE 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 164.0 | < 100 | < 100 | The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term. |
| 22884 WARNERS 69.0 22736 SANTYSBL 69.0 1 1 | TL681_Line AS-VC-FE 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 127.0 | < 100 | < 100 | On the short term, limit the charging of Valley Center battery energy storage outside daylight hours to avoid the previously mentioned P0 concerns, which will protect TL685 Warners - Santa Ysabel against P1 and P3 contingencies. |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL681_Line AS-VC-FE 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 132.1 | < 100 | < 100 | |
| | Q1673_Gen Q1673 GEN1 ID 1 AND TL681_Line AS-VC-FE 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 129.6 | < 100 | < 100 | The ISO approved "Valley Center System Improvement" project (ISD 2028) solves this reliability issue in the long term. |
| 22256 ESCNDIDO 69.0 22260 ESCNDIDO 230 2 1 | ES-230-2N_CB ESCONDIDO 230KV 2N | P4 | Fault + Stuck Breaker | < 100 | < 100 | 110.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 109.9 | < 100 | < 100 | Rely on the dispatch of an Escondido gas fired unit in the 2034 Summer Peak case and limit the charging of Valley Center battery energy storage in the 2026 Spring Off Peak sensitivity case, as previously described. |
| 22540 NARROWS 69.0 22884 WARNERS 69.0 1 1 | Base Case | P0 | Base Case | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.0 | 101.1 | 100.5 | < 100 | < 100 | < 100 | < 100 | Rely on congestion management to mitigate the P0 overload and potentially relocate generic portfolio energy storage resources to Borrego substation. |
| 22046 BASILONE 69.0 22368 JAP MESA 69.0 1 1 | TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1 | P6 | N-1-1 | 110.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 198.0 | < 100 | < 100 | Rely on existing TL695 at TA overload scheme in the short-term. |
| | TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1 | P7 | DCTL | 110.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 198.0 | < 100 | < 100 | TL695B Japanese Mesa-Talega Tap Reconductor project (ISD May 2027) mitigates the overload in the long-term. |
| 22588 OCNSDETP 69.0 22808 STUARTTP 69.0 1 1 | TL23052_Line TA-SO 230kV ck 1 AND TL23007_Line CP-SO 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.0 | < 100 | < 100 | Rely on existing TL695 at TA overload scheme. |
| | TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1 | P7 | DCTL | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.0 | < 100 | < 100 | |
| 22808 STUARTTP 69.0 22400 LASPULGS 69.0 1 1 | TL23007_Line CP-SO 230kV ck 1 AND TL23052_Line TA-SO 230kV ck 1 | P6 | N-1-1 | 126.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 208.4 | < 100 | < 100 | Rely on existing TL695 at TA overload scheme in the short-term. |
| | TL23007+23052_Lines CP-SO 230kV ck 1 + TA-SO 230kV ck 1 | P7 | DCTL | 126.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 208.4 | < 100 | < 100 | TL690E Stuart Tap-Las Pulgas 69 kV Reconductor project (ISD May 2028) mitigates the overload in the long-term. |
| 22844 TALEGA 230 24131 S.ONOFRE 230 1 1 | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL23007_Line CP-SO 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 107.6 | < 100 | < 100 | |
| | TL23007_Line CP-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 | < 100 | < 100 | 109.9 | < 100 | < 100 | |
| 22112 CAPSTRNO 138 22860 TRABUCO 138 1 1 | TL13831_Line TA-RMV 138kV ck 1 AND TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 145.4 | < 100 | < 100 | |
| | TL13830_Line MAR-TB 138kV ck 1 AND TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.9 | < 100 | 100.0 | < 100 | 118.6 | < 100 | < 100 | |
| 22112 CAPSTRNO 138 22895 Q1806_POI 138 2 1 | TL13834_Line CP-TB 138kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.0 | < 100 | < 100 | |
| | TB-138-S_Bus TRABUCO 138kV S | P2 | Bus Section Fault | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.3 | < 100 | < 100 | < 100 | 117.9 | < 100 | < 100 | |
| | TL13831_Line TA-RMV 138kV ck 1 AND TL13834_Line CP-TB 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 144.5 | < 100 | < 100 | Limit the charging of Q1806 battery energy storage that will connect to a new 138 kV substation (looping-in TL13833 Capistrano - Trabuco), particularly outside daylight hours, to avoid the P1 and P7 concerns. |
| | TL13830_Line MAR-TB 138kV ck 1 AND TL13834_Line CP-TB 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.3 | < 100 | < 100 | < 100 | 117.9 | < 100 | < 100 | Continue to monitor the P2 and P5 concerns identified in the Spring Off-Peak cases and discuss with the PTO the potential for cost effective upgrade solutions. |
| 22432 MARGARTA 138 22860 TRABUCO 138 1 1 | TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.1 | 100.1 | 100.5 | < 100 | 120.7 | < 100 | < 100 | |
| | TL13833_Loop-in1+13834_Lines CP-TB 138kV ck 1 + CP-Q1806POI 138kV ck 2 | P7 | DCTL | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.1 | 100.1 | 100.5 | < 100 | 120.7 | < 100 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 22678 R.MSNVJO 138 22432 MARGARTA 138 1 1 | TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 140.4 | < 100 | < 100 | |
| | TL13833_Loop-in1+13834_Lines CP-TB 138kV ck 1 + CP-Q1806POI 138kV ck 2 | P7 | DCTL | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 140.4 | < 100 | < 100 | |
| 22840 TALEGA 138 22678 R.MSNVJO 138 1 1 | TL13833_Loop-in1_Line CP-Q1806 138kV ck 2 AND TL13834_Line CP-TB 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 146.9 | < 100 | < 100 | |
| | TL13833_Loop-in1+13834_Lines CP-TB 138kV ck 1 + CP-Q1806POI 138kV ck 2 | P7 | DCTL | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 146.9 | < 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 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.7 | < 100 | < 100 | |
| 22124 CHCARITA 138 22578 NRTHCTYMTRTP 138 1 1 | SX_BK60_Tran SX 230/138kV ck 1 AND TL13822_Line MS-CH 138kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 121.6 | < 100 | < 100 | Rely on battery energy storage charging curtailment, at Sycamore Canyon connected to the 138 kV bus, after the first contingency for the P6 events. |
| 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 | < 100 | < 100 | 110.6 | < 100 | < 100 | |
| 22208 EL CAJON 69.0 22408 LOSCOCHS 69.0 1 1 | TL632_Line GR-LC-ML 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 113.2 | < 100 | < 100 | |
| | Q1673_Gen Q1673 GEN1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 124.3 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL620_Line MY-GA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 121.2 | < 100 | < 100 | |
| | VC_GEN1_Gen VC GEN1 ID GEN1/GEN2/GEN3 AND TL632_Line GR-LC-ML 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 116.5 | < 100 | < 100 | |
| | BD_GEN1_Gen LRKSPBD1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 116.3 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL6925_Line GA-EC 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 114.2 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL624_Line EC-JM 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 114.0 | < 100 | < 100 | Rely on pre-contingency congestion management to protect against the P1 contingency by limiting the charging of El Cajon battery energy storage. Further reduction of El Cajon battery energy storage is needed to mitigate the remaining P3 concerns. |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL618_Line MS-MY 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.8 | < 100 | < 100 | |
| | Q1673_Gen Q1673 GEN1 ID 1 AND TL620_Line MY-GA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.7 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL619_Line MS-MY 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.7 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND ML_BK70_Tran ML 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.7 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND ML_BK71_Tran ML 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.6 | < 100 | < 100 | |
| | BD_GEN1_Gen LRKSPBD1 ID 1 AND TL620_Line MY-GA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.4 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL630_Line EC-GR 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.1 | < 100 | < 100 | |
| | OMEC_ALL_Gen OTAYMGT1/GT2/ST1 ID 1 AND TL620_Line MY-GA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.6 | < 100 | < 100 | |
| | EC GEN2_Gen EC GEN2 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1 | P3 | G-1/N-1 | 105.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 133.7 | < 100 | < 100 | On the short term, rely on system adjustments after the first contingency for the P3 events by dispatching El Cajon battery energy storage. |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| | EC GEN1_Gen EC GEN1 ID 1 AND TL632_Line GR-LC-ML 69kV ck 1 | P3 | G-1/N-1 | 104.4 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.9 | < 100 | < 100 | < 100 | TL632 Granite Loop-In and TL6914 Reconfiguration project (ISD May 2027) mitigates the overload in the long-term. |
| | EC GEN1_Gen EC GEN1 ID 1 AND TL620_Line MY-GA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 100.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.1 | The thermal overload reappears in the 2039 Summer Peak scenarios, thus there would be a need to rely on system adjustments after the first contingency for the P3 events by dispatching El Cajon battery energy storage. The ISO will continue to monitor this thermal overload in future planning cycles. |
| | EC GEN1_Gen EC GEN1 ID 1 AND TL624_Line EC-JM 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 100.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.1 | |
| | EC GEN1_Gen EC GEN1 ID 1 AND TL632_Line GR-LC 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 102.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.4 | |
| | EC GEN1_Gen EC GEN1 ID 1 AND TL6985_Line GR-LC 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 104.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.2 | |
| 22604 OTAY 69.0 22616 OTAYLKTP 69.0 1 1 | BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6964_Line ML-SLT 69kV ck 1 | P3 | G-1/N-1 | < 100 | 120.0 | < 100 | 101.9 | 103.9 | < 100 | 130.1 | < 100 | < 100 | < 100 | < 100 | 128.9 | 125.2 | 101.9 | On the short and medium terms, rely on system adjustments after the first contingency for the P3 events by dispatching additional Border gas fired generation.<br><br>Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles or installing battery energy storage in the Border LCR subarea. |
| | BD_GEN2_Gen LRKSPBD2 ID 1 AND TL6964_Line ML-SLT 69kV ck 1 | P3 | G-1/N-1 | < 100 | 117.8 | < 100 | 101.5 | 100.9 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 123.0 | 101.5 | |
| | 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 | 109.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 109.4 | |
| | BD_GEN3_Gen CALPK_BD ID 1 AND TL6964_Line ML-SLT 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 108.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 147.3 | < 100 | < 100 | 108.3 | |
| | BD_GEN1_Gen LRKSPBD1 ID 1 AND TL6910_Line BD-SLT 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.9 | < 100 | < 100 | < 100 | < 100 | 100.9 | < 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 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 123.9 | < 100 | < 100 | < 100 | |
| 22768 BAY BLVD 69.0 22352 IMPRLBCH 69.0 1 1 | OY_GEN_Gen OY GEN ID 1 AND TL646_Line BB-OY 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 105.0 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.0 | |
| | BD_GEN3_Gen CALPK_BD ID 1 AND TL646_Line BB-OY 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 101.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.2 | |
| | BD_GEN1_Gen LRKSPBD1 ID 1 AND TL646_Line BB-OY 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 100.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.3 | 100.3 | |
| | BD_GEN2_Gen LRKSPBD2 ID 1 AND TL646_Line BB-OY 69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 100.2 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.2 | |
| 22828 SYCAMORE 69.0 22756 SCRIPPS 69.0 1 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 | 100.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.4 | For 2026, 2029 and 2034 Summer Peak case, rely on 30-min emergency rating and/or system adjustments after the first contingency for the P3 and P6 events by dispatching additional Miramar gas fired generation.<br><br>Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles. |
| | MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 103.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.3 | |
| | MEF_UNIT1_Gen MEF MR1 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 103.9 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.6 | |
| | MEF_UNIT1_Gen MEF MR1 ID 1 AND TL23071_Line SX-PQ 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 104.1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.7 | |
| | MEF_UNIT1_Gen MEF MR1 ID 1 AND TL668_Line MRGT-MR 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.5 | |
| | MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK70_Tran PQ 230/69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 103.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.1 | |
| | MEF_UNIT2_Gen MEF MR2 ID 1 AND PQ_BK71_Tran PQ 230/69kV ck 2 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 103.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.4 | |
| | MEF_UNIT2_Gen MEF MR2 ID 1 AND TL23071_Line SX-PQ 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | 103.9 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.5 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| | TL23026_Line SG-BB 230kV ck 1 AND TL23071_Line SX-PQ 230kV ck 1 | P6 | N-1-1 | 105.2 | < 100 | 102.4 | 105.4 | 104.9 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.8 | 107.2 | |
| | TL23071_Line SX-PQ 230kV ck 1 AND TL668_Line MRGT-MR 69kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | 109.3 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.7 | |
| 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 | 100.4 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 100.6 | |
| 22331 MIRASNTO 69.0 22644 PENSQTOS 69.0 1 1 | Base Case | P0 | Base Case | < 100 | < 100 | < 100 | 104.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.7 | Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles. |
| 22592 OLD TOWN 69.0 22660 POINTLMA 69.0 1 1 | TL612_Line OT-PL 69kV ck 2 | P1 | N-1 | < 100 | < 100 | < 100 | 102.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.8 | Continue to monitor the thermal overload concern identified in the 2039 Summer Peak cases and discuss with the PTO the potential for upgrade solutions in future planning cycles. |
| 22708 SANLUSRY 69.0 22582 OCEAN RANCH 69.0 1 1 | TL693_Line ME-SA 69kV ck 1 | P1 | N-1 | < 100 | < 100 | 101.9 | 105.9 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 116.5 | < 100 | 105.3 | For the 2034 and 2039 Summer 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 Pala gas fired generation or Avocado battery energy storage after the first contingency.<br><br>For the 2026 Spring Off-Peak sensitivity case, rely on pre-contingency congestion management to protect against the P1 outages by limiting the charging of Melrose battery energy storage. Furthermore, for P3 and P6 events, rely on additional Melrose battery energy storage charging curtailment after the first contingency.<br><br>Continue to monitor the P5 concern in the sensitivity case. |
| | TL680_Line SA-ME-SM 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.5 | < 100 | < 100 | |
| | TL6912_Line PN-SA 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.1 | < 100 | < 100 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL693_Line ME-SA 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | 109.6 | 113.5 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 123.9 | < 100 | 112.9 | |
| | PEC_ALL_Gen PEN_CT1/CT2/ST ID 1 AND TL680_Line SA-ME-SM 69kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.7 | < 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 | < 100 | < 100 | 107.8 | < 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 | 102.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 112.6 | < 100 | 102.3 | |
| | Bus-PEN230-EW_PALOMAR ENERGY 230 kV E+W BUS | P5 | Non-Redundant Relay | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.5 | < 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 | < 100 | < 100 | 101.6 | < 100 | < 100 | |
| 22440 MELROSE 69.0 22708 SANLUSRY 69.0 1 1 | 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 | < 100 | < 100 | 104.1 | < 100 | < 100 | |
| 22528 NORTHVALLEY 69.0 22440 MELROSE 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 | < 100 | < 100 | 100.7 | < 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 | < 100 | < 100 | 101.5 | < 100 | < 100 | Rely on pre-contingency congestion management to protect against the P1 outage by limiting the charging of Avocado battery energy storage. Furthermore, for P3 events, rely on additional Avocado battery energy storage charging curtailment after the first contingency. |
| | 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 | < 100 | < 100 | 102.7 | < 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 | < 100 | < 100 | 106.8 | < 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 | 100.2 | < 100 | < 100 | < 100 | < 100 | Rely on existing Avocado RAS that reduces the charging of Avocado battery energy storage. |
| 22020 AVOCADO 69.0 22508 MNSRATTP 69.0 1 1 | TL691_Line MN-PN-AV 69kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.2 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.1 | 127.0 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.7 | 117.2 | < 100 | < 100 | < 100 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| 21072 YUCCA161 161 21059 PILOT_KNB161 161 1 1 | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 114.9 | < 100 | < 100 | < 100 | < 100 | < 100 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of the S-Line. Additional system adjustments in IID area would be needed for the P3 and P6 events. |
| | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.4 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 132.3 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 122.5 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.1 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 132.0 | < 100 | < 100 | < 100 | < 100 | |
| | RMN-DEV_1_Line RAMON-DEVERS 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 116.7 | 132.3 | < 100 | < 100 | < 100 | < 100 | |
| | JHND-MRG_Line J.HINDS-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 116.1 | 132.4 | < 100 | < 100 | < 100 | < 100 | |
| | HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1 | P6 | N-1-1 | < 100 | < 100 | 107.2 | 111.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 109.1 | IID would need to rely on system adjustments 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 | 105.7 | < 100 | < 100 | < 100 | < 100 | < 100 | Diverge | < 100 | < 100 | < 100 | 101.9 | Rely on a new operational procedure that will connect the normally open operated Imperial Valley 230 kV current limiting reactor after the first contingency for the P6 event. |
| 21331 EC161_SS 161 21059 PILOT_KNB161 161 1 1 | IV_BK82_Tran IV 500/230kV ck 3 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 107.0 | < 100 | < 100 | < 100 | < 100 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of the S-Line and Imperial Valley 500/230 kV Bank 82. Additional system adjustments in IID area would be needed for the P3 and P6 events. |
| | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | 107.2 | 119.2 | < 100 | 150.8 | 163.8 | 179.2 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | 104.0 | < 100 | 133.9 | 148.7 | 163.5 | < 100 | < 100 | < 100 | < 100 | |
| | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 166.4 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 151.2 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 182.8 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 167.0 | < 100 | < 100 | < 100 | < 100 | |
| | DW_GEN8_Gen DW GEN8 ID 1 AND IV_BK82_Tran IV 500/230kV ck 3 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.3 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND IV_BK82_Tran IV 500/230kV ck 3 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 109.4 | < 100 | < 100 | < 100 | < 100 | |
| | IV_GEN4_IV GEN4 ID 1 AND IV_BK82_Tran IV 500/230kV ck 3 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.6 | < 100 | < 100 | < 100 | < 100 | |
| | Q1166_Gen Q1166 GEN1 ID 1 AND IV_BK82_Tran IV 500/230kV ck 3 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 112.0 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | 107.2 | 119.2 | < 100 | 150.8 | 163.8 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-17T_CB IMPERIAL VALLEY 230KV 17T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 112.2 | < 100 | < 100 | < 100 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 182.4 | < 100 | < 100 | < 100 | < 100 | |
| | IV-500-8032_CB IMPERIAL VALLEY 500KV 8032 | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 107.0 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 AND CVSUB-MRG_Line CVSUB230-MIRAGE 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | 115.1 | 124.3 | 101.2 | 161.9 | 171.3 | 186.8 | < 100 | 100.3 | < 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 | 116.2 | < 100 | < 100 | < 100 | < 100 | < 100 | Diverge | < 100 | < 100 | < 100 | 113.4 | Rely on a new operational procedure that will connect the normally open operated Imperial Valley 230 kV current limiting reactor after the first contingency for the P6 event. |
| 21072 YUCCA161 161 84846 YUCCA W 69.0 1 1 | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.2 | 120.5 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.2 | 113.1 | < 100 | < 100 | < 100 | < 100 | |
| | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 114.7 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.7 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 124.7 | < 100 | < 100 | < 100 | < 100 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of the S-Line. Additional system adjustments in IID area would be needed for the P3 and P6 events. |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 117.5 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 111.2 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 124.1 | < 100 | < 100 | < 100 | < 100 | |
| | RMN-DEV_1_Line RAMON-DEVERS 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 115.7 | 123.8 | < 100 | < 100 | < 100 | < 100 | |
| | TL23066_Line IV-DW 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 115.4 | 124.1 | < 100 | < 100 | < 100 | < 100 | |
| | HDW-NG_Line HDW-NG 500kV ck 1 AND HAA-NG_Line HAA-NG 500kV ck 1 | P6 | N-1-1 | < 100 | < 100 | 110.8 | 112.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 109.9 | IID would need to rely on system adjustments 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 | 105.6 | < 100 | < 100 | < 100 | < 100 | < 100 | Diverge | < 100 | < 100 | < 100 | 102.8 | Rely on a new operational procedure that will connect the normally open operated Imperial Valley 230 kV current limiting reactor after the first contingency for the P6 event. |
| 21072 YUCCA161 161 84846 YUCCA W 69.0 2 1 | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.6 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.4 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.0 | < 100 | < 100 | < 100 | < 100 | |
| | TL23066_Line IV-DW 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.0 | < 100 | < 100 | < 100 | < 100 | |
| 21281 AVE58 92.0 21380 OASIS_RTAP 92.0 1 1 | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.7 | < 100 | 107.1 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.2 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.7 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | | | | | | Loading % (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.8 | < 100 | < 100 | < 100 | < 100 | |
| | JHND-MRG_Line J.HINDS-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.3 | 109.4 | < 100 | < 100 | < 100 | < 100 | |
| 21379 DSERT_SHORES 92.0 21380 OASIS_RTAP 92.0 1 1 | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.8 | < 100 | 107.2 | < 100 | < 100 | < 100 | < 100 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of the S-Line. Additional system adjustments in IID area would be needed for the P3 and P6 events. |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.3 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.8 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.9 | < 100 | < 100 | < 100 | < 100 | |
| | JHND-MRG_Line J.HINDS-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.4 | 109.5 | < 100 | < 100 | < 100 | < 100 | |
| 21731 VEGA_3_SS 161 21047 NILAND161 161 1 1 | CVSUB-MRG_Line CVSUB230-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 106.8 | 101.2 | 107.3 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 132.0 | 129.6 | 136.7 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 121.2 | 120.9 | 127.4 | < 100 | < 100 | < 100 | < 100 | |
| 19020 BLYTHE 161 21731 VEGA_3_SS 161 1 1 | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 137.0 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 132.0 | 129.6 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | CVSUB-MRG_Line CVSUB230-MIRAGE 230kV ck 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 144.3 | 137.7 | 145.0 | < 100 | < 100 | < 100 | < 100 | |
| 19050 GILA 161 19051 KNOB 161 1 1 | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.7 | 107.4 | < 100 | < 100 | < 100 | < 100 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of the S-Line. Additional system adjustments in IID area would be needed for the P3 and P6 events. |
| | GR1207_ALL_Gen GR1207 GEN1/GEN2 ID 1 AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 103.7 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.2 | < 100 | < 100 | < 100 | < 100 | |
| | GR1214_ALL_Gen GR1214 GEN1/GEN2/GEN3 ID VS AND S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P3 | G-1/N-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 102.3 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-14T_CB IMPERIAL VALLEY 230KV 14T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 101.7 | < 100 | < 100 | < 100 | < 100 | < 100 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 110.0 | < 100 | < 100 | < 100 | < 100 | |
| | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 AND RMN-DEV_1_Line RAMON-DEVERS 230kV ck 1 | P6 | N-1-1 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | 105.8 | 111.7 | < 100 | < 100 | < 100 | < 100 | |

| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | | | | | | Voltage PU (Sensitivity Scenarios) | | | | Project & Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| HRA-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | |
| MEP-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | |
| MIS-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | On the short and medium terms, rely on existing TL50001 Gen Drop RAS or TL50003 Gen Drop RAS. |
| RUM-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | The ISO approved "Imperial Valley–North of SONGS 500 kV Line and Substation" project (ISD 2034) solves this reliability issue in the long term. |
| SAM-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | |
| TJI-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | |
| TOY-230 230 kV | TL50001_Line ECO-ML 500kV ck 1 AND TL50003_Line OCO-SCR 500kV 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 | 0.9 < V < 1.05 | 0.9 < 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 | 0.9 < V < 1.05 | |
| KNOB 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 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 | 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 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 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 | 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 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < 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 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | |
| PILOT_KNB161 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 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 | 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 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 and P4 outages of the S-Line. |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 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 | 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 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < 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 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | |
| YUCCA161 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 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 | 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 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 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 | 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 | |
| | IV-230-19T_CB IMPERIAL VALLEY 230KV 19T | P4 | Fault + Stuck Breaker | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | 0.9 < 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 | 0.9 < V < 1.05 | 0.9 < V < 1.05 | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| KOFA 69 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.56 | < 8 | < 8 | < 8 | < 8 | Since there is a high export from IID area to SDG&E and SCE Eastern areas, IID would need to rely on pre-contingency congestion management to protect against the P1 of the S-Line. |
| GILA 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.60 | < 8 | < 8 | < 8 | < 8 | |
| KNOB 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.23 | 8.38 | 9.76 | < 8 | < 8 | < 8 | < 8 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.54 | < 8 | < 8 | < 8 | < 8 | |
| KOFA 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.33 | < 8 | < 8 | < 8 | < 8 | |
| PILOT_KNB161 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.53 | 8.72 | 10.22 | < 8 | < 8 | < 8 | < 8 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 9.01 | < 8 | < 8 | < 8 | < 8 | |
| WLTNMOHK 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.60 | < 8 | < 8 | < 8 | < 8 | |
| YUCCA161 161 kV | S-LINE1_Line IV-WIXOM_SS 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.47 | 8.62 | 10.18 | < 8 | < 8 | < 8 | < 8 | |
| | S-LINE2_Line WIXOM_SS-ELCENTSW 230kV ck 1 | P1 | N-1 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | < 8 | 8.96 | < 8 | < 8 | < 8 | < 8 | |

| Contingency | Category | Category Description | Transient Stability Performance | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|
| | | | Baseline Scenarios | | | Sensitivity Scenarios | | |
| | | | 2029 Summer Peak | 2034 Summer Peak | 2026 Spring Off-Peak | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | |
| 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 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 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 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 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 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 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 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 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 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 - GR1204 500kV ck 1 | P1 | N-1 | - | 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 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 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 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 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 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 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 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 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 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 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 violation |
| SLO 3PH Fault at IV 230kV, trip IMPRLVLY - WIXOM_SS 230kV ck 1 | P1 | N-1 | No issues | No issues | No issues | No issues | No issues | No violation |
| SLO 3PH Fault at IV 500kV, trip IMPRLVLY - NSONGS 500kV ck 1 | P1 | N-1 | - | No issues | - | - | - | No violation |
| SLO 3PH Fault at NSONGS 500kV, trip NSONGS - SERRANO 500kV ck 1 | P1 | N-1 | - | No issues | - | - | - | No violation |
| SLO 3PH Fault at NSONGS 230kV, trip NSONGS - VIEJO 230kV ck 1 | P1 | N-1 | - | 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 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 violation |
| CAN-138 BUS CANNON 138kV E+W | P5.5 | Non-Redundant Relay | 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 violation |
| FR-138 BUS FRIARS 138kV E+W | P5.5 | Non-Redundant Relay | 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 violation |
| MS-230 Bus MISSION 230kV N+S | P5.5 | Non-Redundant Relay | 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 violation |

| Contingency | Category | Category Description | Transient Stability Performance | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|
| | | | Baseline Scenarios | | | Sensitivity Scenarios | | |
| | | | 2029 Summer Peak | 2034 Summer Peak | 2026 Spring Off-Peak | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | |
| PAR-138 BUS PALOMAR AIRPORT 138kV E+W | P5.5 | Non-Redundant Relay | 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 violation |
| PI-138 BUS PICO 138kV E+W | P5.5 | Non-Redundant Relay | 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 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 violation |
| SA-230 BUS SAN LUIS REY 230kV E+W | P5.5 | Non-Redundant Relay | No issues | No issues | No issues | No issues | No issues | No violation |
| SN-138 BUS SANTEE 138kV E+W | P5.5 | Non-Redundant Relay | 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 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 violation |
| TA-138 BUS TALEGA 138kV E+W | P5.5 | Non-Redundant Relay | 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 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 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 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 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 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 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 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 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 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 violation |
| DLO 3PH Fault at NSONGS 230kV, trip two lines S.ONOFRE - NSONGS 230kV | P7 | DCTL | - | 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 violation |

| Worst Contingency | Category | Category Description | Amount of Load Drop (MW) | | | | | | | | | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| | | | | | | | | | | | | | | | | | |

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

| Substation | Load Served (MW) | | | | | | | | | | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2026 Summer Peak | 2029 Summer Peak | 2034 Summer Peak | 2039 Summer Peak | 2029 Summer Off-Peak | 2034 Winter Peak | 2026 Spring Off-Peak | 2029 Spring Off-Peak | 2034 Spring Off-Peak | 2039 Spring Off-Peak | 2026 Summer Peak Heavy Renewable & Minimum Gas Generation | 2026 Spring Off-Peak Storage charging in load pockets | 2029 Summer Peak 1-in-20 load forecast | 2039 Summer Peak High gas retirement portfolio | |
| | | | | | | | | | | | | | | | |

No single source substation with more than 100 MW