**2015-2015 ISO Reliability Assessment - Study Results**

**Study Area:** **SCE Bulk**

***Thermal Overloads***

| ID | Overloaded Facility | Worst Contingency | Category | Category Description | Loading (%) | | | | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017 Summer Peak | 2020 Summer Peak | 2025 Summer Peak | 2017 Spring Off-Peak | 2020 Spring Light Load | 2025 Summer Partial Peak | 2020 SP Heavy Renewable & Min Gas Gen | N/A | |
| Bulk-SP-T-1 | Lugo-Victorville 500 kV | Lugo-Eldorado 500 kV | P1 | L-1 | <100 | <100 | <100 | <100 | <100 | 107.86 | <100 | | Increase line rating or Build new transmission facility |
| Bulk-SP-T-2 | Lugo-Victorville 500 kV | Lugo-Eldorado 500 kV and Eldorado-Mohave/Lugo-Mohave 500 kV lines | P6 | L-1/L-1 | 111.47 | 113.25 | 120.03 | <100 | <100 | 137.68 | 99.51 | | Increase line rating or Build new transmission facility |
| Bulk-SP-T-3 | Midway-Whirlwind 500 kV | N-2 Midway-Vincent 500kV lines with RAS | P7 | L-2 | 109.34 | 107.49 | 107.59 | <100 | <100 | 108.45 | 102.86 | | Reduce transfers on Path 26 within 30 minutes after the contingency. |
| Bulk-SP-T-4 | Otay Mesa-Tijuana 230 kV | Eco-Miguel 500 kV and Ocotillo-Suncrest 500 kV lines | P6 | L-1/L-1 | <100 | 124.70 | 131.70 | Diverge | <100 | Diverge | Diverge | | Systems adjustments after initial contingency including IV phase shifter adjustment and dispatching preferred resources. |
| Bulk-SP-T-5 | La Rosita-Imperial Valley 230 kV | Eco-Miguel 500 kV and Ocotillo-Suncrest 500 kV lines | P6 | L-1/L-1 | 116.76 | 116.34 | 115.37 | Diverge | <100 | Diverge | Diverge | | Systems adjustments after initial contingency including IV phase shifter adjustment and dispatching preferred resources. |
| Bulk-SP-T-6 | Barre-Ellis 230 kV lines #1-4 | Eco-Miguel 500 kV and Ocotillo-Suncrest 500 kV lines | P6 | L-1/L-1 | <100 | 102.32 | <100 | <100 | <100 | Diverge | Diverge | | Systems adjustments after initial contingency including IV phase shifter adjustment and dispatching preferred resources. |
| Bulk-SP-T-7 | N/A | Eco-Miguel 500 kV and Ocotillo-Suncrest 500 kV lines with Otay-Mesa-Tijuana 230 kV line tripped | P6 | L-1/L-1 | Diverge | Diverge | Diverge | Diverge | Converge | Diverge | Diverge | | Systems adjustments after initial contingency including IV phase shifter adjustment and dispatching preferred resources. |
| Bulk-SP-T-8 | N/A | Eco-Miguel 500 kV and Ocotillo-Suncrest 500 kV lines with La Rosita-Imperial Valley 230 kV line tripped | P6 | L-1/L-1 | Diverge | Diverge | Diverge | Diverge | Converge | Diverge | Diverge | | Systems adjustments after initial contingency including IV phase shifter adjustment and dispatching preferred resources. |
| Bulk-SP-T-9 | Delaney - Palo Verde 500 kV | Palo Verde - Colorado River 500 kV and N. Gila - Imperial Valley 500 kV | P6 | L-1/L-1 | <100 | <100 | <100 | <100 | <100 | 110.79 | <100 | | Reduce transfers on WOR/EOR after initial contingency |

**2015-2015 ISO Reliability Assessment - Study Results**

**Study Area:** **SCE Bulk**

***Voltage Deviations***

| ID | Substation | Worst Contingency | Category | Category Description | Post Cont. Voltage Deviation % | | | | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017 Summer Peak | 2020 Summer Peak | 2025 Summer Peak | 2017 Summer Off-Peak | 2020 Spring Light Load | N/A | N/A | N/A | |
| X-VD-1 | | | | | | | | | | | | | |

No voltage deviations identified.

**2015-2015 ISO Reliability Assessment - Study Results**

**Study Area:** **SCE Bulk**

***High/Low Voltage***

| ID | Substation | Worst Contingency | Category | Category Description | Voltage (PU) | | | | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017 Summer Peak | 2020 Summer Peak | 2025 Summer Peak | 2017 Summer Off-Peak | 2020 Spring Light Load | N/A | N/A | N/A | |
| X-V-1 | | | | | | | | | | | | | |

No high/low voltage violations identified.

**Study Area:** **SCE Bulk**

***Transient Stability***

| ID | Contingency | Category | Category Description | Transient Stability Performance | | | | | | | | Potential Mitigation Solutions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2017 Summer Peak | 2020 Summer Peak | 2025 Summer Peak | 2017 Summer Off-Peak | 2020 Spring Light Load | 2025 Summer Partial Peak | 2020 SP Heavy Renewable & Min Gas Gen | N/A | |
| Bulk-TS-1 | Palo Verde–Colorado River & Imperial Valley–N.Gila 500 kV lines (without reducing transfers on WOR & EOR after the initial contingency) | P6 | L-1/L-1 | Did not meet voltage dip requirements | | | | | | | | Reduce transfers on WOR/EOR after initial contingency, further evaluation |

**Study Area:** SCE Bulk

***Single Contingency Load Drop***

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

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

**2015-2015 ISO Reliability Assessment - Study Results**

**Study Area:** **SCE Bulk**

***Single Source Substation with more than 100 MW Load***

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

No single source substation with more than 100 MW Load