

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|--|--|---------------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| (New) Los Banos-C560SS 230 kV Line | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | Generation re | DCTL | 2.52 | 9.94 | 1.06 | 50.32 | 81.22 | 8.79 | 102.17 | 59.43 | Sensitivity only |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 2.27 | 8.63 | 0.53 | 50 | 80.67 | 7.48 | Diverge | 57.91 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 1.92 | 8.76 | 0.9 | 49.57 | 80.64 | 7.72 | Diverge | 57.99 | Sensitivity only |
| (New)Oro Loma-Mendota 115kV Line | PANOCH1 115KV SECTION 1D | P2 | Bus/Breaker | 45.32 | 45.2 | 48.3 | 89.51 | 96.75 | 46.03 | 16.95 | 102.45 | Sensitivity only |
| | DAIRYLAND-MENDOTA 115KV [1360] & PANOCH1-MENDOTA 115KV [3230] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 146.01 | <100 | <100 | 98.84 | Generation re-dispatch |
| | PANOCH1-ORO LOMA 115KV [3240] (PANOCH1-PANOCH2) | P2-1 | Line Section w/o Fault | 23.53 | 24.69 | 26.9 | 106.81 | 27.52 | 24.69 | 23.51 | 34.13 | Generation re-dispatch |
| | PANOCH2 115KV SECTION 2D | P2 | Bus/Breaker | 23.55 | 24.7 | 26.9 | 104.5 | 28.44 | 24.7 | 23.54 | 38.26 | Generation re-dispatch |
| (New)Woodward-Shepherd 115 kV Line (34414 34348) | HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180] | P7 | DCTL | 22.09 | 15.13 | 22.82 | 89.83 | 104.2 | 15.24 | 8.62 | 100.06 | Generation re-dispatch |
| | HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780] | P7 | DCTL | 32.96 | 24.85 | 32.04 | 76.92 | 105.31 | 25.14 | 10.1 | 93.62 | Generation re-dispatch |
| | BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180] | P7 | DCTL | 13.88 | 16.89 | 22.04 | 106.3 | 98.97 | 16.8 | 13.79 | 105.62 | Generation re-dispatch |
| Atwater-Merced 115 kV Line (34110 34144) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 23.62 | 38.78 | Diverge | 41.39 | 7.72 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 23.73 | 38.77 | Diverge | 41.4 | 7.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| Barton-Airways-Sanger 115 kV Line (34359 34408) | MUSTANG SW STA-GREGG 230KV [4700] & TRANQUILLITY SW STA-KEARNEY 230KV [5380] | P6 | N-1-1 | <100 | <100 | <100 | 107.62 | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | HERNDON 115KV SECTION 2D | P2 | Bus/Breaker | 38.66 | 26.76 | 34.64 | 78.58 | 111.47 | 27.04 | 6.18 | 105.26 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 103.93 | <100 | <100 | <100 | Generation re-dispatch |
| | TRANQUILLITY SW STA-KEARNEY 230KV [5380] (MCMULLN1-KEARNEY) | P2-1 | Line Section w/o Fault | 11.2 | 18.13 | 21.6 | Diverge | 56 | 18.45 | 4.91 | 83.81 | Generation re-dispatch |
| | MUSTANG SW STA-GREGG 230KV [4700] (GREGG-HENTAP1) | P2-1 | Line Section w/o Fault | 21.02 | 35.43 | 33.36 | Diverge | 58.53 | 35.92 | 14.09 | 87.6 | Generation re-dispatch |
| | HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYS- MCMULLN1 #1 230KV [0] | P7 | DCTL | 30.71 | 45.62 | 44.7 | 107.19 | 18.98 | 46.59 | 5.96 | 66.85 | Generation re-dispatch |
| | HENTAP1-MUSTANGSS #1 230KV [0] & HERNDON-KEARNEY 230KV [4900] | P7 | DCTL | 25.63 | 40.53 | 39.46 | 101.77 | 21.12 | 41.38 | 5.58 | 67.35 | Generation re-dispatch |
| Ballota - Warnerville 230 kV Line | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 28.5 | 25.55 | 16.59 | 53.4 | 54.28 | 25.19 | 100.83 | 97.63 | Sensitivity only |
| | Lines #7 & #8 - Warnerville-Standiford 115kV Out | P7 | DCTL | 60.33 | 28.33 | 20.39 | 55.9 | 48.92 | 28.12 | 132.95 | 73.58 | Sensitivity only |

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| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Benito - Wampanoag 230 kV Line | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 35.54 | 28.57 | 18.43 | 56.86 | 61.2 | 28.05 | Diverge | 112 | Sensitivity only |
| Chowchilla-Kerckhoff #2 115 kV Line (34105 34121) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 47.47 | 48.65 | Diverge | 39.67 | 54.96 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 50.01 | 48.58 | Diverge | 40.15 | 56.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170] | P6 | N-1-1 | 103.8 | <100 | <100 | <100 | <100 | <100 | 196.23 | 80.07 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | HERNDON 115KV - SECTION 1D & 2D | P2 | Bus/Breaker | 70.57 | 42.77 | 66.04 | 6.53 | 116.6 | 43.48 | 3.29 | 58.85 | Generation re-dispatch |
| | HERNDON #1 115KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 69.57 | 41.82 | 65.04 | 6.51 | 117.53 | 42.52 | 4.02 | 59.67 | Continue to Monitor |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 5.45 | 28.17 | 5.55 | 38.3 | 97.27 | 26.97 | Diverge | 55.59 | Sensitivity only |
| | DAIRYLAND-MENDOTA 115KV [1360] & WILSON-LE GRAND 115KV [4170] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 104.77 | <100 | 80.6 | 133.38 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| Dairyland-Mendota 115 kV Line (34150 34154) | PANOCHÉ-MENDOTA 115KV [3230] | P1 | N-1 | 87.69 | 46.05 | 46.98 | 1.54 | 19.12 | 46.54 | 107.9 | 40.83 | Sensitivity only |
| | PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV | P2 | Bus/Breaker | 88.33 | 46.1 | 48.65 | 10.99 | 25.16 | 46.6 | 107.99 | 43.67 | Sensitivity only |
| Dos Amigos PP-Panoche #3 230 kV Line | PANOCHÉ 230KV - SECTION 1E & 1D | P2 | Bus/Breaker | 48.36 | 22.62 | 14.24 | 5.2 | 51.46 | 22.17 | 101.34 | 43.52 | Sensitivity only |
| | PADREFLATSSS 230KV - MIDDLE BREAKER BAY 1 | P2 | Bus/Breaker | 39.84 | 19.58 | 10.92 | 15.46 | 46.87 | 19.21 | 103.34 | 37.44 | Sensitivity only |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 36.04 | 20.42 | 12.42 | 10.34 | 51.91 | 19.95 | 106.55 | 43.22 | Sensitivity only |
| | LOS BANOS-PADRE FLAT SW STA 230KV [1092] | P1 | N-1 | 39.89 | 19.61 | 10.97 | 15.44 | 51.45 | 19.24 | 112.13 | 42.36 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 56.67 | 31.15 | 19.92 | 19.19 | 72.74 | 30.11 | Diverge | 64.36 | Sensitivity only |
| El Capitan-Wilson 115 kV Line (34136 34138) | ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & WILSON-ATWATER #2 115KV [4160] | P6 | N-1-1 | 114.4 | 116.07 | 118.81 | <100 | <100 | 117.26 | <100 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| Exchequer 115/70/13.8 kV Transformer (34112 34223) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 16.11 | 38.23 | Diverge | 25.12 | 12.35 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |

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|--|--|----------|----------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Exchequer 115/70/15.0 kV Transformer (34112-34202) | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 17.16 | 38.23 | Diverge | 25.13 | 13.04 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| Exchequer-Le Grand 115 kV Line (34112-34116) | WILSON-MERCED #1 115KV [4180] & EXCHEQUR 70/115KV TB 1 | P6 | N-1-1 | 100.07 | 100.08 | <100 | <100 | <100 | 100.07 | <100 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 16.76 | 105.11 | Diverge | 107.94 | 19.31 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 13.83 | 105.08 | Diverge | 107.85 | 17.13 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | MUSTANG SW STA-GREGG 230KV [4700] & EXCHEQUR 70/115KV TB 1 | P6 | N-1-1 | <100 | <100 | <100 | 117.52 | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | MERCED 115KV SECTION 1D | P2 | Bus/Breaker | 58.39 | 62.19 | 97.43 | 37.56 | 66.38 | 61.94 | 120.39 | 64.81 | Sensitivity only |
| | MERCED 115 KV #1 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 58.39 | 49.8 | 97.08 | 29.64 | 53.7 | 49.57 | 120.38 | 38.97 | Sensitivity only |
| | MERCED - 1D 115KV & ATWATER-LIVINGSTON-MERCED LINE | P2 | Bus/Breaker | 58.39 | 62.19 | 97.42 | 37.52 | 66.38 | 61.94 | 120.38 | 64.81 | Sensitivity only |
| | EXCHEQUR 70/115KV TB 1 | P1 | N-1 | 71.92 | 77.94 | 111.19 | 59.25 | 32.32 | 78.96 | 117.2 | 48.78 | Continue to Monitor future forecast |
| Gates-Gregg 230 kV Line | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | 6.21 | 19.77 | 11.41 | 49.5 | 86.32 | 18.33 | 110.3 | 71.17 | Sensitivity only |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 9.63 | 21.43 | 13.37 | 49.58 | 85.73 | 19.95 | 110.57 | 71.67 | Sensitivity only |
| | LOSBANOS 500/230KV TB 1 & GATES-MUSTANG SW STA #1 230KV [2604] | P6 | N-1-1 | <100 | <100 | <100 | 58.36 | 114.23 | <100 | 99.51 | 105.08 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 17.94 | 15.13 | 23.06 | 16.92 | 101.02 | 14.91 | 62.67 | 68.9 | Generation re-dispatch |
| | GATES-MUSTANG SW STA #1 230KV [2604] | P1 | N-1 | 14.53 | 39.61 | 29.27 | 56.18 | 107.88 | 37.64 | 137.06 | 99.25 | Generation re-dispatch |
| | GATES F 230KV - MIDDLE BREAKER BAY 5 | P2 | Bus/Breaker | 14.36 | 39.52 | 29.27 | 56.18 | 107.79 | 37.56 | 136.49 | 99.25 | Generation re-dispatch |
| | GATES F 230KV - MIDDLE BREAKER BAY 4 | P2 | Bus/Breaker | 14.25 | 39.8 | 29.1 | 56.05 | 107.95 | 37.85 | 136.7 | 99.18 | Generation re-dispatch |
| Gregg-Ashlan 230 kV Line (30810-30845) | GREGG-HERNDON #1 230KV [4830] & GREGG-HERNDON #2 230KV [4840] | P6 | N-1-1 | 99.49 | 99.55 | 99.52 | <100 | 130.73 | 99.54 | 93.55 | 72.63 | Generation re-dispatch |
| GWF-Kingsburg 115 kV Line (34429-34428) | MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 99.47 | Diverge | Sensitivity only |
| | MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 154.81 | <100 | <100 | <100 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 44.1 | 63.4 | 71.59 | 81.21 | 108.34 | 65.74 | 31.99 | 23.24 | Generation re-dispatch |

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|---|--|----------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Henrietta 230/115 kV Transformer #3 (34430 30881) | TRANQUILLITY SW STA-HELM 230KV [5370] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 127.61 | <100 | <100 | <100 | Generation re-dispatch |
| | Q1036SPV1 34.50KV GEN UNIT 1 & CHSR09SWSTA-MUSTANGSS 230KV [0] | P3 | G1/N1 | <100 | <100 | <100 | <100 | 111.21 | <100 | <100 | <100 | Generation re-dispatch |
| | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | 7.9 | 6.89 | 29.2 | 31.04 | 109.96 | 8.28 | 82.98 | 68.55 | Generation re-dispatch |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 8.47 | 5.56 | 27.68 | 30.39 | 109.44 | 6.93 | 82.88 | 69.02 | Generation re-dispatch |
| | MUSTANG SW STA-MCCALL 230KV [4710] (HENTAP2-MUSTANGSS) | P2-1 | Line Section w/o Fault | 9 | 7.03 | 28.18 | 27.2 | 109.69 | 8.64 | 67.24 | 64.61 | Generation re-dispatch |
| | MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | Diverge | Sensitivity only |
| | MC CALL-CHSR09SWSTA #1 230KV [0] & HELM-MCCALL 230KV [4860] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 125.15 | <100 | <100 | <100 | Generation re-dispatch |
| | HERNDON 230KV - SECTION 1E & 2E | P2 | Bus/Breaker | 19.41 | 29.21 | 49.97 | 9.91 | 103.71 | 30.53 | 39.84 | 67.67 | Generation re-dispatch |
| | HERNDON 115KV - SECTION 1D & 2D | P2 | Bus/Breaker | 18.81 | 24.8 | 46.48 | 14 | 109.28 | 26.18 | 47.7 | 68.54 | Generation re-dispatch |
| | HERNDON #1 115KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 18.54 | 24.47 | 46.12 | 13.82 | 109.56 | 25.84 | 47.94 | 68.76 | Continue to Monitor |
| | HELM-MCCALL 230KV [4860] & TRANQLTYSS-MCMULLN1 #1 230KV [0] | P7 | DCTL | 8.81 | 8.23 | 29.66 | 30.4 | 101.18 | 9.58 | 64.08 | 57.66 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 9.71 | 15.24 | 41.14 | 47.88 | 150.76 | 17.56 | 85.11 | 77.88 | Generation re-dispatch |
| | CHSR09SWSTA-MUSTANGSS 230KV [0] | P1 | N-1 | <100 | 7.06 | 28.23 | <100 | 109.77 | 8.66 | <100 | <100 | Generation re-dispatch |
| Henrietta-GWF 115 kV Line (34430 34519) | TRANQUILLITY SW STA-HELM 230KV [5370] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 125.09 | <100 | <100 | <100 | Generation re-dispatch |
| | Q1158S 0.42KV GEN UNIT 1 & CHSR09SWSTA-MUSTANGSS 230KV [0] | P3 | G1/N1 | <100 | <100 | <100 | <100 | 110.03 | <100 | <100 | <100 | Generation re-dispatch |
| | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | 7.86 | 6.46 | 28.1 | 30.15 | 108.87 | 7.93 | 82.89 | 67.31 | Generation re-dispatch |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 8.43 | 4.98 | 26.57 | 29.55 | 108.47 | 6.49 | 83.05 | 67.78 | Generation re-dispatch |
| | MUSTANG SW STA-MCCALL 230KV [4710] (HENTAP2-MUSTANGSS) | P2-1 | Line Section w/o Fault | 8.97 | 6.54 | 27.07 | 26.25 | 107.5 | 8.25 | 67.21 | 63.38 | Generation re-dispatch |
| | MC CALL-CHSR09SWSTA #1 230KV [0] & HELM-MCCALL 230KV [4860] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 122.61 | <100 | <100 | <100 | Generation re-dispatch |
| | HERNDON 230KV - SECTION 1E & 2E | P2 | Bus/Breaker | 19.34 | 28.66 | 48.56 | 8.93 | 101.98 | 29.97 | 39.72 | 66.59 | Generation re-dispatch |
| | HERNDON 115KV - SECTION 1D & 2D | P2 | Bus/Breaker | 18.75 | 24.44 | 45.14 | 13.75 | 107.69 | 25.8 | 47.79 | 67.46 | Generation re-dispatch |
| | HERNDON #1 115KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 18.49 | 24.11 | 44.79 | 13.44 | 107.97 | 25.47 | 48.03 | 67.67 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 9.67 | 14.94 | 39.95 | 46.91 | 148.27 | 17.27 | 85.18 | 76.47 | Generation re-dispatch |

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| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | HELM-MCCALL 230KV [4860] & CHSR09SWSTA-MUSTANGSS 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 141.25 | <100 | <100 | <100 | Generation re-dispatch |
| | CHSR09SWSTA-MUSTANGSS 230KV [0] | P1 | N-1 | <100 | 6.54 | 27.1 | <100 | 107.57 | 8.24 | <100 | <100 | Generation re-dispatch |
| | CHSR09SWSTA 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | <100 | 6.54 | 27.1 | <100 | 107.57 | 8.24 | <100 | <100 | Generation re-dispatch |
| | MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 154.89 | <100 | <100 | <100 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 7.98 | 9.08 | 27.13 | 33.7 | 108.34 | 11.33 | 31.99 | 23.3 | Generation re-dispatch |
| Herndon-Ashlan 230 kV Line | GREGG-HERNDON #2 230KV [4840] & GREGG-HERNDON #1 230KV [4830] | P6 | N-1-1 | 72.83 | 71.6 | 69.59 | <100 | 120.26 | 71.45 | <100 | 78.3 | Generation re-dispatch |
| Herndon-Barton 115 kV Line (34408 34412) | TRANQUILITY SW STA-HELM 230KV [5370] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 101.92 | <100 | <100 | <100 | Generation re-dispatch |
| | HERNDON 115KV SECTION 2D | P2 | Bus/Breaker | 78.68 | 67.62 | 75.46 | 58.78 | 117.61 | 68.18 | 32.43 | 102.92 | Generation re-dispatch |
| | HERNDON - 2D 115KV & HERNDON-WOODWARD LINE | P2 | Bus/Breaker | 78.26 | 67.2 | 75.02 | 59.13 | 117.98 | 67.77 | 32.05 | 103.32 | Generation re-dispatch |
| | HERNDON - 2D 115KV & HERNDON-BULLARD #2 LINE | P2 | Bus/Breaker | 78.71 | 67.63 | 75.49 | 58.73 | 117.61 | 68.19 | 32.42 | 102.92 | Project: Herndon-Bullard 115 kV Reconductor In-service date: 05/24 Short term: Action plan |
| | HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 110.21 | <100 | <100 | <100 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 58.69 | 49.84 | 60.43 | 29.15 | 104.54 | 51.1 | 8.42 | 64.02 | Generation re-dispatch |
| Herndon-Bullard #1 115 kV Line (34409 34416) | HERNDON-BULLARD #1 115KV [1760] (HERNDON-PNDLJ1) | P2-1 | Line Section w/o Fault | 119.58 | 66.53 | 72.27 | 43.73 | 13.75 | 67.04 | 70.63 | 18.48 | Project: Herndon-Bullard 115 kV Reconductor In-service date: 05/24 Short term: Action plan |
| | HERNDON 115KV SECTION 1D | P2 | Bus/Breaker | 119.65 | 66.57 | 72.23 | 43.99 | 13.82 | 67.08 | 70.53 | 18.55 | Project: Herndon-Bullard 115 kV Reconductor In-service date: 05/24 Short term: Action plan |
| Herndon-Manchester 115 kV Line (34410 34412) | HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 100.8 | <100 | <100 | <100 | Generation re-dispatch |
| Herndon-Woodward 115 kV Line (34414 34422) | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 25.57 | 96.74 | Diverge | 4.79 | 67.44 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180] | P7 | DCTL | 62.84 | 55.35 | 63.97 | 53.53 | 127.27 | 55.92 | 8.77 | 97.62 | Generation re-dispatch |
| | HERNDON-BARTON 115KV [1750] & HERNDON-MANCHESTER 115KV [1780] | P7 | DCTL | 76.54 | 69.21 | 78.2 | 41.14 | 128.46 | 69.9 | 17.84 | 91.17 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 109 | <100 | <100 | <100 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 50.86 | 47.88 | 57.73 | 20.13 | 103.61 | 48.96 | 17.64 | 56.15 | Generation re-dispatch |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|--|---|----------|----------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180] | P7 | DCTL | 43.06 | 36.06 | 43.96 | 69.32 | 121.88 | 36.48 | 1.08 | 103.22 | Generation re-dispatch |
| HW_TAP-RB_TAP8 115kV Line (CCSF) (36998 36975) | COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 69.48 | 29.59 | 22.22 | 25.46 | 61.65 | 29.31 | 123.42 | 86.48 | Sensitivity only |
| | BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 65.96 | 27.64 | 20.33 | 27.43 | 62.15 | 27.34 | 122.24 | 85.49 | Sensitivity only |
| Intake-MOC_TAP5 230kV Line (CCSF) | PANOCHÉ-MENDOTA 115KV [3230] & Line #6-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | Diverge | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | BARTON-AIRWAYS-SANGER 115KV [1060] & Line #6-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | 95.7 | <100 | <100 | <100 | Diverge | Sensitivity only |
| | PANOCHÉ-MENDOTA 115KV [3230] & Line #5-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | Diverge | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | BARTON-AIRWAYS-SANGER 115KV [1060] & Line #5-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | 95.7 | <100 | <100 | <100 | Diverge | Sensitivity only |
| JACKSONSWSTA-Kingsburg #1 115 kV | MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 152.55 | <100 | <100 | <100 | Generation re-dispatch |
| Kerckhoff - Clovis - Sanger #1 115 kV Line (Woodward-Shepherd) (34360 34348) | MUSTANG SW STA-GREGG 230KV [4700] & TRANQUILLITY SW STA-KEARNEY 230KV [5380] | P6 | N-1-1 | <100 | <100 | <100 | 101.5 | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & CHOWCHILLA-KERCKHOFF 115KV [1250] MOAS OPENED ON SHARON T_OAKH_JCT | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 100.72 | <100 | Sensitivity only |
| | HERNDON-BARTON 115KV [1750] & MANCHESTER-AIRWAYS-SANGER 115KV [2180] | P7 | DCTL | 4.93 | 10.34 | 5.38 | 98.17 | 93.07 | 10.2 | 5.98 | 101.32 | Generation re-dispatch |
| | BARTON-AIRWAYS-SANGER 115KV [1060] & MANCHESTER-AIRWAYS-SANGER 115KV [2180] | P7 | DCTL | 21.62 | 29.46 | 24.73 | 114.32 | 87.84 | 29.47 | 15.62 | 106.94 | Generation re-dispatch |
| Kingsriver-Sanger-Reedley 115 kV Line (34366 34389) | MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY | P6 | N-1-1 | 147.49 | 140.03 | 159.29 | 99.59 | <100 | 144.61 | <100 | <100 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| Le Grand-Dairyland 115 kV Line | PANOCHÉ-MENDOTA 115KV [3230] | P1 | N-1 | 89.25 | 67.23 | 69.58 | 12.8 | 36.19 | 68.12 | 123.97 | 59.57 | Sensitivity only |
| | PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV | P2 | Bus/Breaker | 89.55 | 67.26 | 71.28 | 25.76 | 42.49 | 68.15 | 123.94 | 62.61 | Sensitivity only |
| | PANOCHÉ1 115KV SECTION 1D | P2 | Bus/Breaker | 89.97 | 67.22 | 69.59 | 13.54 | 36.92 | 68.11 | 123.93 | 59.43 | Sensitivity only |
| | PANOCHÉ1 - 1D 115KV & PANOCHÉ-MENDOTA LINE | P2 | Bus/Breaker | 89.99 | 67.22 | 69.59 | 13.52 | 36.96 | 68.11 | 123.97 | 59.43 | Sensitivity only |
| | KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & PANOCHÉ-MENDOTA 115KV [3230] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 115.59 | <100 | Sensitivity only |
| Los Banos-Dos Amigos 230 kV Line | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 30.42 | 27.78 | 8.07 | 57 | 102.26 | 25.92 | Diverge | 92.35 | Install Redundant protection |
| | LOSBANOS 230KV SECTION 2D | P2 | Bus/Breaker | 34.57 | 26.96 | 11.83 | 52.8 | 102.54 | 26.09 | 131.97 | 84.51 | Generation re-dispatch |
| | LOS BANOS-PADRE FLAT SW STA 230KV [1092] | P1 | N-1 | 30.05 | 24.62 | 9.53 | 35.02 | 80.29 | 23.97 | 101.44 | 66.3 | Sensitivity only |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|--|--|----------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Los Banos-Panoche #2 230 kV Line | GATES SECTION D & E 230 kV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 46.67 | 44.66 | 25.12 | 41.53 | 117.41 | 42.83 | Diverge | 104.57 | Install Redundant protection |
| Manchester - Airways - Sanger 115 kV Line (34410 34368) | MUSTANG SW STA-GREGG 230KV [4700] & TRANQUILLITY SW STA-KEARNEY 230KV [5380] | P6 | N-1-1 | <100 | <100 | <100 | 109.41 | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & BARTON-AIRWAYS-SANGER 115KV [1060] | P6 | N-1-1 | <100 | <100 | <100 | Diverge | <100 | <100 | <100 | 99.61 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & MC CALL-CHSR09SWSTA #1 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 111.41 | <100 | <100 | <100 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 28.85 | 17.59 | 30.89 | 9.33 | 105.39 | 18.66 | 31.6 | 72.05 | Generation re-dispatch |
| McCall 230/115 kV Transformer #2 | MC CALL 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 83.95 | 78.04 | 83.76 | 108.89 | 4.95 | 78.95 | 35.67 | 50.8 | Generation re-dispatch |
| McCall 230/115 kV Transformer #3 | MC CALL 115KV - MIDDLE BREAKER BAY 3 | P2 | Bus/Breaker | 83.34 | 82.2 | 91.15 | 125.44 | 19.95 | 83.56 | 38.65 | 44.77 | Generation re-dispatch |
| McCall-Kingsburg #1 115 kV Line (34370 34385) | MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 82.02 | Diverge | Sensitivity only |
| | MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 144.61 | <100 | <100 | <100 | Generation re-dispatch |
| McCall-Kingsburg #2 115 kV Line | MUSTANG SW STA-GREGG 230KV [4700] & MUSTANG SW STA-MCCALL 230KV [4710] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 76.41 | Diverge | Sensitivity only |
| | MUSTANG SW STA-GREGG 230KV [4700] & CHSR09SWSTA-MUSTANGSS 230KV [0] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 140.6 | <100 | <100 | <100 | Generation re-dispatch |
| McCall-Reedley 115 kV Line (Reedley-Wahtoke) (34382 34380) | KINGS RIVER-SANGER-REEDLEY 115KV [2030] & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY | P6 | N-1-1 | 111.63 | 107.48 | 112.71 | <100 | <100 | 109.81 | <100 | <100 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| McCall-Sanger #2 115 kV Line (34366 34370) | MCCALL-REEDLEY 115KV [2320] & MCCALL-SANGER #3 115KV [2350] | P7 | DCTL | 44.48 | 50.81 | 57.18 | 100.56 | 5.79 | 51.96 | 21.85 | 47.44 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| McCall-Sanger #3 115 kV Line (34366 34370) | MUSTANG SW STA-GREGG 230KV [4700] (GREGG-HENTAP1) | P2-1 | Line Section w/o Fault | 30.73 | 41.63 | 44.16 | Diverge | 9.94 | 42.63 | 12.95 | 51.86 | Generation re-dispatch |
| | MCCALL-SANGER #1 115KV [2330] & MCCALL-SANGER #2 115KV [2340] | P7 | DCTL | 43.48 | 52.99 | 60.41 | 125.69 | 10.04 | 54.21 | 25.99 | 65.49 | Generation re-dispatch |
| | MC CALL 115KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 49.54 | 56.57 | 63.7 | 111.97 | 6.44 | 57.85 | 24.48 | 52.82 | Generation re-dispatch |
| | HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0] | P7 | DCTL | 37.17 | 49.11 | 51.92 | 101.26 | 21.27 | 50.47 | 16.11 | 36.95 | Generation re-dispatch |
| | TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0] | P7 | DCTL | 2.74 | 2.74 | 0.49 | 58.14 | 105.39 | 2.74 | 2.73 | 59.71 | Generation re-dispatch |
| | TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3 | P2 | Bus/Breaker | 2.74 | 2.74 | 0.49 | 54.3 | 101.44 | 2.74 | 2.73 | 60.44 | Generation re-dispatch |
| | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | 2.74 | 2.74 | 0.49 | 71.74 | 134.36 | 2.74 | 2.74 | 77.91 | Generation re-dispatch |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|---|---|----------|----------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Mendota-San Joaquin-Helm 70 kV Line | PANOCHÉ-MENDOTA 115KV [3230] & LE GRAND-DAIRYLAND 115KV [2100] MOAS OPENED ON CHWCHLASLRJT_DAIRYLND | P6 | N-1-1 | <100 | <100 | <100 | 108.15 | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV | P2 | Bus/Breaker | 42.78 | 9.36 | 28.77 | 134.09 | 74.21 | 9.68 | 39.52 | 51.94 | Generation re-dispatch |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 2.74 | 2.74 | 0.48 | 61.93 | 134.02 | 2.74 | 2.74 | 78.14 | Generation re-dispatch |
| | NORTHSTAR 0.36KV GEN UNIT 1 & TRANQUILLITY SW STA-HELM 230KV [5370] | P3 | G1/N1 | <100 | <100 | <100 | <100 | 104.32 | <100 | <100 | <100 | Generation re-dispatch |
| Merced 115/70 kV Transformer #2 (34202 34146) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 29.11 | 92.33 | Diverge | 73.68 | 62.14 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 32.91 | 92.31 | Diverge | 73.69 | 64.8 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 106.95 | <100 | Sensitivity only |
| Merced Falls-Exchequer 70 kV Line (34321 34230) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 55.6 | 196.93 | Diverge | 142.21 | 59.22 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 60.77 | 196.92 | Diverge | 142.22 | 62.85 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170] | P6 | N-1-1 | 65.31 | <100 | <100 | <100 | <100 | <100 | 144.87 | <100 | Sensitivity only |
| | DAIRYLAND-MENDOTA 115KV [1360] & WILSON-LE GRAND 115KV [4170] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 90.15 | 103.69 | Sensitivity only |
| Merced-Merced Falls 70 kV Line (34202 34230) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 44.41 | 192.19 | Diverge | 147.9 | 68.97 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 49.56 | 192.19 | Diverge | 147.91 | 72.76 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | PANOCHÉ-MENDOTA 115KV [3230] & WILSON-LE GRAND 115KV [4170] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | 144.17 | <100 | Sensitivity only |
| MOC_TAP5-Warnerville 230kV Line (CCSF) | WOODWARD-SHEPHERD 115KV [1895] & Line #6-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | Diverge | Sensitivity only |
| | PANOCHÉ-MENDOTA 115KV [3230] & Line #6-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | Diverge | <100 | <100 | <100 | <100 | Generation re-dispatch |
| | WOODWARD-SHEPHERD 115KV [1895] & Line #5-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | Diverge | Sensitivity only |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|---|--|----------|----------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | PANOCHÉ-MENDOTA 115KV [3230] & Line #5-Intake-Warnerville 230kV Line Out | P6 | N-1-1 | <100 | <100 | <100 | Diverge | <100 | <100 | <100 | <100 | Generation re-dispatch |
| MOSSLNSW-LASAGUILASS #2 230KV | PANOCHÉ 230KV - SECTION 2E & 1E | P2 | Bus/Breaker | 23.71 | 14.47 | 7.46 | 32.38 | 66.13 | 14.49 | 105.56 | 70.84 | Sensitivity only |
| | LOSBANOS 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 18.37 | 10.73 | 4.99 | 41.16 | 75.95 | 10.77 | 120.03 | 80.85 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 25.39 | 20.6 | 9.98 | 34.72 | 88.59 | 20.02 | Diverge | 97.3 | Sensitivity only |
| NORTHSTAR-Mendota 115 kV Line | Q1127-MENDOTA #1 115KV [0] | P1 | N-1 | 86.62 | 9.31 | 15.75 | 0.98 | 72.99 | 10.08 | 101.02 | 72.32 | Sensitivity only |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] (2) | P7 | DCTL | 85.52 | 9.06 | 14.7 | 0.98 | 71.36 | 9.9 | 100.43 | 71.16 | Sensitivity only |
| | MENDOTA 115KV - MIDDLE BREAKER BAY 5 | P2 | Bus/Breaker | 86.62 | 9.31 | 15.75 | 0.98 | 72.99 | 10.08 | 101.02 | 72.32 | Sensitivity only |
| | HELMS-GREGG #1 230KV [4870] & HELMS-GREGG #2 230KV [4880] | P7 | DCTL | 85.8 | 12.58 | 16.19 | 0.97 | 72.01 | 13.39 | 101.27 | 70.61 | Sensitivity only |
| | HELMS PP2 230KV SECTION 1E | P2 | Bus/Breaker | 85.73 | 9.78 | 15.37 | 0.98 | 72.37 | 10.5 | 100.32 | 71.16 | Sensitivity only |
| Panoche-Gates 230 kV Line #1 | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 59.56 | 43.67 | 42.33 | 32.33 | 64.9 | 41.47 | Diverge | 68.4 | Sensitivity only |
| Panoche-Gates 230 kV Line #2 | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 59.56 | 43.67 | 42.33 | 32.33 | 64.9 | 41.47 | Diverge | 68.4 | Sensitivity only |
| Panoche-Lasaguilass 230 kV Line #2 | PANOCHÉ 230KV - SECTION 2E & 1E | P2 | Bus/Breaker | 20.16 | 1.96 | 18.51 | 56.59 | 62.76 | 2.25 | 103.77 | 51.28 | Sensitivity only |
| Panoche-Mendota 115 kV Line (34157 34155) | WILSON A SECTION 1D & WILSON B SECTION 2D 115KV | P2 | Bus/Breaker | Diverge | Diverge | <100 | 35.73 | 80.82 | Diverge | 114.4 | 61.6 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Diverge | Diverge | <100 | 34.8 | 80.75 | Diverge | 114.57 | 62.34 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON-LE GRAND 115KV [4170] | P1 | N-1 | 58.92 | 33.4 | 31.3 | 35.66 | 69.19 | 34.2 | 109.95 | 61.5 | Sensitivity only |
| | WILSON A 115KV SECTION 1D | P2 | Bus/Breaker | 58.15 | 33.8 | <100 | 35.73 | 69.36 | 34.62 | 109.65 | 61.6 | Sensitivity only |
| | WILSON A - 1D 115KV & WILSONSTCOM-WILSON A #1 LINE | P2 | Bus/Breaker | 58.15 | 33.8 | <100 | 35.73 | 69.36 | 34.62 | 109.65 | 61.6 | Sensitivity only |
| | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | 47.82 | 37.28 | 38.19 | 57.74 | 84.99 | 38.24 | 111.38 | 63.58 | Sensitivity only |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 45.59 | 33.84 | 34.72 | 48.72 | 83.39 | 34.66 | 116.8 | 61.07 | Sensitivity only |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 51.52 | 30.08 | 31.07 | 49.04 | 72.8 | 31.07 | 113.38 | 61.69 | Sensitivity only |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 51.59 | 29.52 | 30.59 | 49.33 | 73.03 | 30.5 | Diverge | 62.07 | Sensitivity only |
| | MELONES-WILSON 230KV [5080] & WARNERVILLE-WILSON 230KV [5870] | P7 | DCTL | 44.4 | 40.34 | 41.12 | 51.05 | 69.87 | 41.23 | 103.35 | 51.67 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 48.79 | 31.75 | <100 | 47.52 | 69.33 | 32.6 | Diverge | 57.47 | Sensitivity only |
| | COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 55.14 | 28.11 | 29.14 | 44.81 | 65.48 | 28.82 | 104.82 | 51.58 | Sensitivity only |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|--|---|----------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 53.73 | 29.62 | 30.59 | 46.28 | 65.91 | 30.37 | 104.1 | 51.15 | Sensitivity only |
| Panoche-PADREFLATSSS 230 kV Line | PANOCHÉ 230KV SECTION 2E | P2 | Bus/Breaker | 38.64 | 20.77 | 8.96 | 25.42 | 50.76 | 20.27 | 102.56 | 38.55 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 41.38 | 25.51 | 14.35 | 23.76 | 63.87 | 24.47 | Diverge | 56.13 | Sensitivity only |
| Panoche-Schindler #1 115 kV Line (34155 34350) | TRANQUILLITY SW STA-HELM 230KV [5370] & PANOCHÉ-EXCELSIOR SW STA #2 115KV [3260] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 94.92 | <100 | <100 | 104.5 | Sensitivity only |
| | PANOCHÉ-EXCELSIOR SW STA #2 115KV [3260] (CHENYT-EXCELSIORSS) | P2-1 | Line Section w/o Fault | 91.59 | 35.73 | 77.97 | 27.26 | 83.67 | 35.68 | 3.21 | 100.39 | Sensitivity only |
| | PANOCHÉ-EXCELSIOR SW STA #2 115KV [3260] | P1 | N-1 | 89.69 | 33.84 | 76.15 | 27.26 | 83.66 | 33.83 | 3.2 | 100.38 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 92.56 | 34.27 | <100 | 27.36 | 89.95 | 34.91 | Diverge | 101.2 | Sensitivity only |
| | EXCELSIORSS 115KV - MIDDLE BREAKER BAY 1 | P2 | Bus/Breaker | 89.69 | 33.84 | 76.15 | 27.26 | 83.66 | 33.83 | 3.2 | 100.38 | Sensitivity only |
| Panoche-Schindler #2 115 kV Line (34149 34158) | TRANQUILLITY SW STA-HELM 230KV [5370] & PANOCHÉ-EXCELSIOR SW STA #1 115KV [3250] MOAS OPENED ON PANOCHÉ1_KAMM | P6 | N-1-1 | <100 | <100 | <100 | <100 | 124.24 | <100 | <100 | 103 | Generation re-dispatch |
| | PANOCHÉ1 115KV SECTION 1D | P2 | Bus/Breaker | 30.2 | 23.63 | 26.69 | 27.2 | 83.5 | 23.59 | 9.48 | 103.1 | Sensitivity only |
| | PANOCHÉ1 - 1D 115KV & PANOCHÉ-MENDOTA LINE | P2 | Bus/Breaker | 30.2 | 23.63 | 26.69 | 27.21 | 83.5 | 23.59 | 9.48 | 103.1 | Sensitivity only |
| | PANOCHÉ1 - 1D 115KV & PANOCHÉ-EXCELSIOR SW STA #1 LINE | P2 | Bus/Breaker | 30.2 | 23.63 | 26.69 | 27.2 | 83.5 | 23.59 | 9.48 | 103.1 | Sensitivity only |
| | PANOCHÉ1 - 1D 115KV & PANOCHÉ-CAL PEAK-STARWOOD LINE | P2 | Bus/Breaker | 30.2 | 23.63 | 26.69 | 27.2 | 83.5 | 23.59 | 9.48 | 103.1 | Sensitivity only |
| RB_TAP8-Stanford 115kV Line (CCSF) | COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 68.9 | 29.29 | 21.94 | 26.21 | 61.41 | 29.01 | 122.81 | 85.72 | Sensitivity only |
| | BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 65.38 | 27.34 | 20.05 | 28.19 | 61.91 | 27.04 | 121.63 | 84.72 | Sensitivity only |
| Reedley 115/70 kV Transformer #2 (34492 34380) | REEDLEY 115KV - RING R5 & R4 | P2 | Bus/Breaker | 98.41 | 97.73 | 99.76 | 69.09 | 24.43 | 100.1 | 54.24 | 26.05 | Sensitivity only |
| Sanger-Reedley 115 kV Line (34487 34490) | KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE | P6 | N-1-1 | 108.63 | 103.21 | 111.27 | <100 | <100 | 105.34 | <100 | <100 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| Schindler 115/70 kV Transformer #1 (34562 34354) | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 122.39 | 62.51 | 113.03 | 16.07 | 82.72 | 63.22 | Diverge | 54.71 | Redundant Relay Project |
| | GATES D 230KV SECTION 2D | P2 | Bus/Breaker | 104.79 | 46.77 | 102.23 | 13.51 | 71.64 | 47.76 | 10.55 | 44.91 | Operating solution available |
| | PANOCHÉ-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231] | P7 | DCTL | 59.66 | 8.01 | 58.46 | 35.88 | 102.85 | 8.64 | 21.09 | 151.41 | Generation re-dispatch |

Study Area: **PG&E Greater Fresno**
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|--|---|----------|----------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV | P2 | Bus/Breaker | 8.3 | 44.19 | 12.44 | 36.48 | 102.43 | 43.53 | 20.7 | 151.02 | Generation re-dispatch |
| | EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231] | P7 | DCTL | 36.87 | 5.7 | 36.13 | 22.31 | 89.14 | 6.2 | 38.07 | 117.96 | Sensitivity only |
| Schindler-Coalinga #2 70 kV Line (34561 34566) | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 114.33 | 65.46 | 99.51 | 23.89 | 30.78 | 65.94 | Diverge | 12.18 | Redundant Relay Project |
| | PANOCH-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231] | P7 | DCTL | 43.72 | 23.01 | 45.1 | 16.31 | 99.69 | 23.05 | 55.87 | 126.89 | Sensitivity only |
| | PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV | P2 | Bus/Breaker | 19.68 | 49.92 | 9.45 | 25.02 | 105.23 | 49.61 | 55.91 | 130.13 | Generation re-dispatch |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 60.06 | 50.91 | 43.63 | 19.46 | 87.43 | 50.32 | 85.12 | 100.87 | Sensitivity only |
| | GATES-MUSTANG SW STA #1 230KV [2604] & GATES-MUSTANG SW STA #2 230KV [2605] | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | 101.1 | Sensitivity only |
| | EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231] | P7 | DCTL | 28.84 | 21.97 | 27.39 | 16.95 | 93.63 | 22.01 | 69.6 | 111.08 | Sensitivity only |
| Schindler-Huron-Gates 70 kV Line (34559 34560) | SCHINDLR 115KV - RING R1 & R3 | P2 | Bus/Breaker | 106.21 | 76.78 | 106.27 | 63.8 | 66.6 | 77.83 | 39.75 | 67.66 | Operating solution available |
| | PANOCH-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231] | P7 | DCTL | 133.87 | 77.74 | 132.84 | 72.96 | 113.92 | 79.07 | 18.19 | 131.37 | Operating solution available |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 120.42 | 47.6 | 114.75 | 10.32 | 52.22 | 48.32 | Diverge | 45.19 | Redundant Relay Project |
| | GATES D 230KV SECTION 2D | P2 | Bus/Breaker | 104.42 | 34.7 | 105.58 | 7.72 | 62.56 | 35.64 | 32.97 | 53.14 | Operating solution available |
| | EXCELSIORSS-PANOCH1 115KV [3250] & EXCELSIORSS-PANOCH2 115KV [3231] | P7 | DCTL | 106.68 | 75.35 | 104.82 | 64.11 | 105.16 | 76.5 | 36.43 | 109.32 | Generation re-dispatch |
| | EXCELSIORSS 115KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 106.23 | 76.78 | 106.29 | 63.57 | 66.42 | 77.83 | 39.76 | 67.22 | Operating solution available |
| | PANOCH1 SECTION 1D & PANOCH2 SECTION 2D 115KV | P2 | Bus/Breaker | 71.47 | 24.26 | 69.98 | 86.16 | 121.73 | 25.12 | 18.75 | 135.89 | Generation re-dispatch |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 49.11 | 38.53 | 37.93 | 51.6 | 96.99 | 37.62 | 96.39 | 101.63 | Sensitivity only |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 49.07 | 38.27 | 37.68 | 51.24 | 96.4 | 37.37 | Diverge | 100.07 | Sensitivity only |
| | GATES-MUSTANG SW STA #1 230KV [2604] & GATES-MUSTANG SW STA #2 230KV [2605] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 93.2 | <100 | 81.25 | 101.87 | Sensitivity only |
| | TRANQUILLITY SW STA-HELM 230KV [5370] | P1 | N-1 | <100 | <100 | <100 | 54.82 | 107.74 | <100 | <100 | 48.95 | Generation re-dispatch |
| | TRANQLTYSS-HELM #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0] | P7 | DCTL | <100 | <100 | <100 | 63.44 | 126.79 | <100 | <100 | 54.53 | Generation re-dispatch |
| | TRANQLTYSS 230KV - MIDDLE BREAKER BAY 3 | P2 | Bus/Breaker | <100 | <100 | <100 | 46.33 | 119.29 | <100 | <100 | 60.24 | Generation re-dispatch |
| | Q678 0.38KV GEN UNIT 1 & TRANQUILLITY SW STA-HELM 230KV [5370] | P3 | G1/N1 | <100 | <100 | <100 | <100 | 119.34 | <100 | <100 | <100 | Generation re-dispatch |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|---|---|----------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Stroud-Stroud Sw Station 70 kV Line (34474 34556) | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | <100 | <100 | <100 | 92.26 | 176.18 | <100 | <100 | 101.39 | Generation re-dispatch |
| | PANOCHÉ-SCHINDLER #1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231] | P7 | DCTL | 29.52 | 13.1 | 29.72 | 37.62 | 123.12 | 12.6 | 24.94 | 135.62 | Operating solution available |
| | PANOCHÉ1 SECTION 1D & PANOCHÉ2 SECTION 2D 115KV | P2 | Bus/Breaker | 29.81 | 13.36 | 29.72 | 24.33 | 108.41 | 12.83 | 25.51 | 127.24 | Generation re-dispatch |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | <100 | <100 | <100 | 82.57 | 174.45 | <100 | <100 | 98.68 | Generation re-dispatch |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | <100 | <100 | <100 | 45.62 | 112.13 | <100 | <100 | 81.89 | Generation re-dispatch |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | <100 | <100 | <100 | 44.33 | 110.04 | <100 | Diverge | 76.37 | Generation re-dispatch |
| | HELM 230KV SECTION 1D | P2 | Bus/Breaker | <100 | <100 | <100 | 14.2 | 83.67 | <100 | <100 | 101.2 | Sensitivity only |
| | GATES D 230KV SECTION 2D | P2 | Bus/Breaker | 29.48 | 13.06 | 29.72 | 17.39 | 107.82 | 12.56 | 24.21 | 103.9 | Generation re-dispatch |
| | EXCELSIORSS-PANOCHÉ1 115KV [3250] & EXCELSIORSS-PANOCHÉ2 115KV [3231] | P7 | DCTL | 29.52 | 13.1 | 29.72 | 29.76 | 112.46 | 12.6 | 24.93 | 111.03 | Generation re-dispatch |
| Warnerville - Wilson 230 kV Line | CHSR09SWSTA-MUSTANGSS 230KV [0] & TRANQUILLITY SW STA-HELM 230KV [5370] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 175.02 | <100 | <100 | <100 | Generation re-dispatch |
| | PANOCHÉ-TRANQLTYSS #1 230KV [0] & PANOCHÉ-TRANQLTYSS #2 230KV [0] | P7 | DCTL | 14.22 | 16.3 | 30.61 | 46.12 | 122.68 | 17.25 | 84.96 | 65.26 | Generation re-dispatch |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 17.26 | 18.75 | 34.05 | 48.92 | 126.11 | 19.74 | 85.77 | 66.62 | Generation re-dispatch |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 4.39 | 12.04 | 11.21 | 53.25 | 149.68 | 10.51 | 108.43 | 98.72 | Generation re-dispatch |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 4.09 | 14.44 | 10.29 | 53.98 | 151.23 | 12.82 | Diverge | 101.76 | Generation re-dispatch |
| | MUSTANG SW STA-GREGG 230KV [4700] (HENTAP1-MUSTANGSS) | P2-1 | Line Section w/o Fault | 6.79 | 11.29 | 25.59 | 44.39 | 116.08 | 12.27 | 78.5 | 56.42 | Generation re-dispatch |
| | Holm Unit #1 out & GATES-MUSTANG SW STA #2 230KV [2605] | P3 | G1/N1 | <100 | <100 | <100 | <100 | 105.26 | <100 | <100 | <100 | Generation re-dispatch |
| | HELMS-GREGG #1 230KV [4870] & HELMS-GREGG #2 230KV [4880] | P7 | DCTL | 81.76 | 81.78 | 92.32 | 23.53 | 108.92 | 82.6 | 29.06 | 64.69 | Generation re-dispatch |
| | HELMS PP2 SECTION 1E & HELMS PP3 SECTION 1F 230KV | P2 | Bus/Breaker | 81.76 | 81.78 | 92.32 | 23.53 | 108.92 | 82.6 | 29.06 | 64.69 | Generation re-dispatch |
| | HELM-MCCALL 230KV [4860] & HENTAP2-MUSTANGSS #1 230KV [0] | P7 | DCTL | 15.09 | 16.35 | 28.7 | 39.61 | 106.75 | 17.24 | 69.56 | 53.01 | Generation re-dispatch |
| | GATES-MUSTANG SW STA #2 230KV [2605] & GATES-MUSTANG SW STA #1 230KV [2604] | P6 | N-1-1 | <100 | <100 | <100 | <100 | 133.32 | <100 | 82.7 | 98.57 | Generation re-dispatch |
| Warnerville 230/115 kV Bank #3 (CCSF) (36964 30515) | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 7.5 | 20.76 | 8.93 | 58.06 | 170.32 | 18.53 | Diverge | 118.75 | Redundant Relay Project |
| | Warnerville 230/115kV Transformer #1 Out & Warnerville 230/115kV Transformer #2 Out | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | 100.01 | Sensitivity only |
| Warnerville-HW TAP 115kV Line (CCSF) (36964 36998) | COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 69.49 | 29.59 | 22.23 | 25.42 | 61.65 | 29.31 | 123.42 | 86.49 | Sensitivity only |

Study Area: PG&E Greater Fresno
Thermal Overloads



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|--|--|----------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Warnerville-HW_TAP 115KV Line (CCSF) (36964 38230) | BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 65.97 | 27.65 | 20.34 | 27.39 | 62.15 | 27.34 | 122.24 | 85.5 | Sensitivity only |
| Warnerville-Stanford 115kV Line (CCSF) (36964 38230) | COTTLE-MELONES 230KV [4530] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 69.21 | 29.44 | 22.09 | 25.84 | 61.53 | 29.16 | 123.12 | 86.12 | Sensitivity only |
| | BELLOTA-COTTLE 230KV [4360] & BELLOTA-WARNERVILLE 230KV [4380] | P7 | DCTL | 65.69 | 27.5 | 20.2 | 27.82 | 62.03 | 27.19 | 121.94 | 85.12 | Sensitivity only |
| Wilson-Atwater #2 115 kV Line (34134 34104) | EL CAPITAN-WILSON 115KV [1510] & ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED | P6 | N-1-1 | 127.01 | 128.43 | <100 | <100 | <100 | 129.81 | <100 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| Wilson-Gregg 230 kV Line | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 17.58 | 27.73 | <100 | 44.63 | 53.34 | 27.51 | 102.46 | 21.11 | Sensitivity only |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 29.33 | 48.48 | <100 | 50.13 | 68.88 | 47.69 | 122.81 | 44.93 | Sensitivity only |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 29.92 | 51.76 | <100 | 51.31 | 70.79 | 50.95 | Diverge | 49.89 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 34.65 | 53.7 | <100 | 53.27 | 78.92 | 52.63 | Diverge | 54.61 | Sensitivity only |
| | BORDEN 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | <100 | <100 | 47.89 | <100 | <100 | <100 | <100 | <100 | Sensitivity only |
| Wilson-Le Grand 115 kV Line (34116 34134) | PANOCHÉ-MENDOTA 115KV [3230] (PANOCHET-MENDOTA) | P2-1 | Line Section w/o Fault | 51.88 | 23.7 | <100 | <100 | 69.97 | 24.46 | 105.49 | <100 | Sensitivity only |
| | PANOCHÉ-MENDOTA 115KV [3230] | P1 | N-1 | 51.88 | 23.7 | <100 | <100 | 69.97 | 24.46 | 105.49 | <100 | Sensitivity only |
| | PANOCHÉ1 115KV SECTION 1D | P2 | Bus/Breaker | 52.58 | 23.47 | <100 | <100 | 70.28 | 24.23 | 105.47 | <100 | Sensitivity only |
| Wilson-Melones 230 kV Line | MUSTANG SW STA-GREGG 230KV [4700] (GREGG-HENTAP1) | P2-1 | Line Section w/o Fault | <100 | <100 | 34.79 | Diverge | <100 | <100 | <100 | 25.17 | Generation re-dispatch |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 15.94 | 8.45 | <100 | <100 | 46.42 | 9 | Diverge | <100 | Sensitivity only |
| Wilson-Merced #2 115 kV Line (34136 34144) | WILSON-MERCED #1 115KV [4180] & EL CAPITAN-WILSON 115KV [1510] | P6 | N-1-1 | 113.52 | 112.45 | <100 | <100 | <100 | <100 | <100 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON B 115KV SECTION 2D | P2 | Bus/Breaker | 112.62 | 111.89 | <100 | <100 | 49.24 | 113.19 | 50.91 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON A 115KV SECTION 1D | P2 | Bus/Breaker | 102.89 | 103.81 | <100 | <100 | 60.43 | 105.16 | 47.49 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | WILSON 230/115KV TB 1 & WILSON 230/115KV TB 2 | P6 | N-1-1 | 98.32 | 131.37 | <100 | <100 | <100 | 134.12 | <100 | <100 | Project: Wilson-Oro Loma Reconductoring In-service date: 01/26 Short term: Action plan |



| Overloaded Facility | Contingency (All and Worst P6) | Category | Category Description | Loading % (Baseline Scenarios) | | | | | Loading % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|---|---|----------|------------------------|--------------------------------|------------------|------------------|----------------------|----------------------|-----------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| Wilson-Oro Loma 115 kV Line (34162 34168) | TRANQUILLITY SW STA-KEARNEY 230KV [5380] (MCMULLN1-KEARNEY) | P2-1 | Line Section w/o Fault | 25.4 | 22.66 | 13.93 | Diverge | 7.34 | 23.63 | 30.68 | 58.88 | Project: Wilson-Oro Loma Reconductoring In-service date: 01/26 Short term: Action plan |
| | PANOCHÉ-ORO LOMA 115KV [3240] (PANOCHÉJ-PANOCHÉ2) | P2-1 | Line Section w/o Fault | 71.02 | 68.06 | 107.98 | 40.32 | 22.04 | 69.48 | 38.21 | 38.79 | Continue to Monitor future forecast |
| | PANOCHÉ2 115KV SECTION 2D | P2 | Bus/Breaker | 71.07 | 68.06 | 107.98 | 40.26 | 23.35 | 69.48 | 38.22 | 40.84 | Continue to Monitor future forecast |
| | PANOCHÉ 230/115KV TB 1 & PANOCHÉ 230/115KV TB 2 | P6 | N-1-1 | <100 | <100 | <100 | <100 | <100 | <100 | <100 | 100.22 | Sensitivity only |
| | HENTAP1-MUSTANGSS #1 230KV [0] & TRANQLTYSS-MCMULLN1 #1 230KV [0] | P7 | DCTL | 40.39 | 43.95 | 35.81 | 104.22 | 23.98 | 45.46 | 24.24 | 44.3 | Project: Wilson-Oro Loma Reconductoring In-service date: 01/26 Short term: Action plan |
| Wilson-Storey 230 kV Line #1 | WILSON-BORDEN #2 230KV [9001] (WILSON-STOREYJCT2) | P2-1 | Line Section w/o Fault | <100 | <100 | <100 | 104.06 | <100 | <100 | <100 | 53.24 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | PANOCHÉ 230KV - SECTION 1D & 2D | P2 | Bus/Breaker | 7.35 | 17.85 | <100 | <100 | 60.23 | 17.57 | 102.84 | <100 | Sensitivity only |
| | MUSTANGSS-GATES #1 230KV [0] & MUSTANGSS-GATES #2 230KV [0] | P7 | DCTL | 19.55 | 40.06 | <100 | <100 | 76.68 | 39.16 | 124.5 | <100 | Sensitivity only |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 20.17 | 43.58 | <100 | <100 | 78.61 | 42.65 | Diverge | <100 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 25.23 | 45.62 | <100 | <100 | 87.29 | 44.45 | Diverge | <100 | Sensitivity only |
| Wilson-Storey 230 kV Line #2 | WILSON-BORDEN #1 230KV [5890] & MUSTANG SW STA-GREGG 230KV [4700] | P6 | N-1-1 | <100 | <100 | <100 | 100.65 | <100 | <100 | <100 | <100 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| | MUSTANGSS 230KV - MIDDLE BREAKER BAY 2 | P2 | Bus/Breaker | 15.77 | 33.9 | <100 | <100 | 61.28 | 33.18 | Diverge | <100 | Sensitivity only |
| | GATES SECTION D & E 230 KV BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | 19.7 | 35.48 | <100 | <100 | 68.01 | 34.57 | Diverge | <100 | Sensitivity only |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|---|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| FIREBAGH 70 kV | ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | 0.8396 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | BALCH-MCCALL 230KV [4350] & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8915 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| FIGRDN 2 230 kV | BARTON-AIRWAYS-SANGER 115KV [1060] & BALCH-MCCALL 230KV [4350] | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8994 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| ASHLAN 230 kV | BARTON-AIRWAYS-SANGER 115KV [1060] & HERNDON 230/115KV TB 1 | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8996 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| FIGRDN 1 230 kV | | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8991 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| ORO LOMA 115 kV | BARTON-AIRWAYS-SANGER 115KV [1060] & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8957 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| SNTA RTA 70 kV | | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8796 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| CAL AVE 115 kV | CALIFORNIA AVE-MCCALL 115KV [2360] & SANGER-CALIFORNIA AVE 115KV [9130] | P6 | N-1-1 | >0.9 | >0.9 | 0.8717 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| FIREBAGH 70 kV | CHOWCOGN 13.80KV GEN UNIT 1 & ORO LOMA-MENDOTA 70KV [9030] | P3 | G-1/N-1 | >0.9 | >0.9 | >0.9 | 0.8995 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| TOMATAK 70 kV | | P3 | G-1/N-1 | >0.9 | >0.9 | >0.9 | 0.8995 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |
| DOS PALS 70 kV | CHOWCOGN 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8836 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| LIVNGSTN 115 kV | EL CAPITAN-WILSON 115KV [1510] & ATWATER-LIVINGSTON-MERCED 115KV [1030] MOAS OPENED ON ATWATR J_MERCED | P6 | N-1-1 | 0.8959 | >0.9 | >0.9 | >0.9 | >0.9 | 0.8988 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| ORO LOMA 115 kV | ELNIDO 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8995 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| SNTA RTA 70 kV | | P3 | G-1/N-1 | >0.9 | >0.9 | 0.878 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| YOSEMITE 70 kV | EXCHQUER 13.80KV GEN UNIT 1 & MERCED FALLS-EXCHEQUER 70KV [8990] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8996 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ASHLAN 230 kV | GREGG SVD=V & KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8994 | >0.9 | >0.9 | >0.9 | >0.9 | System Reconfiguration |
| DOS PALS 70 kV | GREGG SVD=V & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | 0.8744 | 0.8993 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| FIREBAGH 70 kV | | P6 | N-1-1 | >0.9 | >0.9 | 0.8304 | 0.8963 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| SNTA RTA 70 kV | | P6 | N-1-1 | >0.9 | >0.9 | 0.8689 | 0.8965 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DOS PALS 70 kV | HAMMONDS 115 KV #1 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundant Relay | 0.9667 | 0.9837 | 0.8856 | 0.9257 | 1.0337 | 0.9817 | 0.9984 | 1.0044 | Continue to Monitor future forecast |
| FIREBAGH 70 kV | | P5 | Non-Redundant Relay | 0.9391 | 0.957 | 0.8423 | 0.9117 | 0.9742 | 0.9545 | 0.9881 | 0.9482 | Continue to Monitor future forecast |
| ORO LOMA 70 kV | | P5 | Non-Redundant Relay | 0.9746 | 0.9917 | 0.8972 | 0.9322 | 1.0285 | 0.99 | 0.9999 | 1.0018 | Continue to Monitor future forecast |
| SNTA RTA 70 kV | | P5 | Non-Redundant Relay | 0.962 | 0.9803 | 0.8802 | 0.9229 | 1.0374 | 0.9781 | 0.9985 | 1.0097 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | HELMS-GREGG #1 230KV [4870] & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8925 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DOS PALS 70 kV | HELMS-GREGG #1 230KV [4870] & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | 0.8795 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| SNTA RTA 70 kV | | P6 | N-1-1 | >0.9 | >0.9 | 0.8741 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| CHWCHLLA 115 kV | HERNDN1T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8922 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | HERNDON 230/115KV TB 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8906 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DOS PALS 70 kV | HERNDON-KEARNEY 230KV [4900] & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | 0.882 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| SHARON 115 kV | HERNDON-WOODWARD 115KV [1790] & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8855 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | KERCK1-3 6.60KV GEN UNIT 3 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8938 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| SHARON 115 kV | KERCKHOFF-CLOVIS-SANGER #1 115KV [1890] & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8777 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | KERCKHOFF-CLOVIS-SANGER #2 115KV [1900] & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8837 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ASHLAN 230 kV | KERCKHOFFPH2 115/13.8KV TB 1 & GREGG SVD=V | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8982 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |
| ASHLAN 230 kV | KERCKHOFFPH2 13.80KV GEN UNIT 1 & GREGG SVD=V | P3 | G-1/N-1 | >0.9 | >0.9 | >0.9 | 0.8987 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |
| FIGRDN 1 230 kV | | P3 | G-1/N-1 | >0.9 | >0.9 | >0.9 | 0.8983 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |
| FIGRDN 2 230 kV | | P3 | G-1/N-1 | >0.9 | >0.9 | >0.9 | 0.8974 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |
| SHARON 115 kV | KERCKHOFFPH2 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8847 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| TOMATAK 70 kV | KERCKHOFFPH2 13.80KV GEN UNIT 1 & ORO LOMA-MENDOTA 70KV [9030] | P3 | G-1/N-1 | >0.9 | >0.9 | >0.9 | 0.8981 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Oro Loma 70 kV Area Reinforcement In-service date: 05/25 Short term: Action plan |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| REEDLEY 115 kV | KINGS RIVER-SANGER-REEDLEY 115KV [2030] & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE | P6 | N-1-1 | >0.9 | >0.9 | 0.8922 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| REEDLEY 70 kV | | P6 | N-1-1 | >0.9 | >0.9 | 0.8897 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | KINGSBUR 13.80KV & SANGERCGN 13.80KV & KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8911 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DUNLAP 70 kV | KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8922 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| SANDCRK 70 kV | | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8991 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DINUBA 70 kV | KINGSBUR 13.80KV & SANGERCGN 13.80KV GEN UNITS & REEDLEY-DINUBA #1 70KV [9050] | P3 | G-1/N-1 | 0.8891 | >0.9 | 0.867 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| DINUBA 70 kV | KINGSRIV 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G-1/N-1 | 0.8889 | >0.9 | 0.8694 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| CHWCHLLA 115 kV | LE GRAND-CHOWCHILLA 115KV [2110] | P1 | N-1 | 0.9348 | 0.9291 | 0.8962 | 0.9928 | 1.1217 | 0.9269 | 0.9865 | 1.0384 | Continue to Monitor future forecast |
| SHARON 115 kV | LE GRAND-CHOWCHILLA 115KV [2110] & MC CALL 230/115KV TB 1 | P6 | N-1-1 | >0.9 | >0.9 | 0.8974 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DOS PALS 70 kV | | P7 | DCTL | 0.9667 | 0.9837 | 0.8855 | 0.9247 | 1.0332 | 0.9817 | 0.9967 | 1.0039 | Continue to Monitor future forecast |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| FIREBAGH 70 kV | LOS BANOS-PANOCHE #1 230KV [5030] & PANOCHE-ORO LOMA 115KV [3240] | P7 | DCTL | 0.939 | 0.957 | 0.8422 | 0.9104 | 0.9743 | 0.9544 | 0.9863 | 0.948 | Continue to Monitor future forecast |
| ORO LOMA 70 kV | | P7 | DCTL | 0.9746 | 0.9917 | 0.8972 | 0.9313 | 1.028 | 0.99 | 0.9981 | 1.0012 | Continue to Monitor future forecast |
| SNTA RTA 70 kV | | P7 | DCTL | 0.962 | 0.9802 | 0.8801 | 0.9219 | 1.0369 | 0.9781 | 0.9967 | 1.0092 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | MC CALL 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8923 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DUNLAP 70 kV | MC CALL 230.00KV GEN UNIT VS & MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8987 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DINUBA 70 kV | MC CALL 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8692 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CAMDEN 70 kV | MCCALL-KINGSBURG #1 115KV [2290] & MCCALL-KINGSBURG #2 115KV [2301] | P7 | DCTL | 0.8985 | 0.9211 | 0.9029 | 0.9444 | 1.0333 | 0.9198 | 0.9323 | 0.9653 | Generation re-dispatch |
| DUNLAP 70 kV | MCCALL-REEDLEY 115KV [2320] & MCCALL-SANGER #3 115KV [2350] | P7 | DCTL | 0.9192 | 0.9464 | 0.8959 | 0.9899 | 1.1151 | 0.9424 | 0.9628 | 1.0461 | Continue to Monitor future forecast |
| TVY VLLY 70 kV | MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & KINGS RIVER-SANGER-REEDLEY 115KV [2030] | P6 | N-1-1 | 0.897 | >0.9 | 0.8799 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| WAHTOKE 115 kV | | P6 | N-1-1 | >0.9 | >0.9 | 0.8852 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DUNLAP 70 kV | | P6 | N-1-1 | 0.774 | 0.8231 | 0.7297 | >0.9 | >0.9 | 0.8113 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|----------------|---|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| OROSI 70 kV | MCCALL-REEDLEY 115KV [2320] MOAS OPENED ON MC CALL_WAHTOKE & SANGER-REEDLEY 115KV [9140] MOAS OPENED ON PARLIER_REEDLEY | P6 | N-1-1 | 0.7975 | 0.8382 | 0.7575 | >0.9 | >0.9 | 0.8285 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| REEDLEY 115 kV | | P6 | N-1-1 | 0.8277 | 0.8604 | 0.7915 | >0.9 | >0.9 | 0.8525 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| REEDLEY 70 kV | | P6 | N-1-1 | 0.8247 | 0.8603 | 0.7852 | >0.9 | >0.9 | 0.8517 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| SANDCRK 70 kV | | P6 | N-1-1 | 0.7823 | 0.8308 | 0.7381 | >0.9 | >0.9 | 0.8196 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| STONCRRL 70 kV | | P6 | N-1-1 | 0.7859 | 0.8274 | 0.7505 | >0.9 | >0.9 | 0.8171 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| TVY VLLY 70 kV | | P6 | N-1-1 | 0.8124 | 0.8486 | 0.7719 | >0.9 | >0.9 | 0.8396 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| WAHTOKE 115 kV | | P6 | N-1-1 | 0.8197 | 0.8523 | 0.782 | >0.9 | >0.9 | 0.8443 | >0.9 | >0.9 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| CAL AVE 115 kV | MCCALL-WEST FRESNO #2 115KV [2370] & | P6 | N-1-1 | 0.8859 | 0.8716 | 0.8239 | >0.9 | >0.9 | 0.8687 | >0.9 | >0.9 | Generation re-dispatch |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|---|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| DANISHCM 115 kV | SANGER-CALIFORNIA AVE 115KV [9130] | P6 | N-1-1 | 0.8938 | 0.8805 | 0.8346 | >0.9 | >0.9 | 0.8777 | >0.9 | >0.9 | Generation re-dispatch |
| CHWCHLLA 115 kV | MCMULLN1 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8939 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DINUBA 70 kV | MCMULLN1 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.873 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| TOMATAK 70 kV | NORTHSTAR-MENDOTA #1 115KV [0] & PANOCHÉ-MENDOTA 115KV [3230] | P6 | N-1-1 | >0.9 | 0.8774 | 0.8687 | >0.9 | >0.9 | 0.8773 | >0.9 | >0.9 | Generation re-dispatch |
| TOMATAK 70 kV | PANOCHÉ-MENDOTA 115KV [3230] | P1 | N-1 | 0.8783 | 0.8827 | 0.8745 | 0.9224 | 0.9814 | 0.8825 | 0.8747 | 0.9497 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| DOS PALS 70 kV | PANOCHÉ-ORO LOMA 115KV [3240] | P1 | N-1 | 0.9667 | 0.9837 | 0.8856 | 0.9257 | 1.0337 | 0.9817 | 0.9984 | 1.0044 | Continue to Monitor future forecast |
| FIREBAGH 70 kV | | P1 | N-1 | 0.9391 | 0.957 | 0.8423 | 0.9117 | 0.9742 | 0.9545 | 0.9881 | 0.9482 | Continue to Monitor future forecast |
| ORO LOMA 70 kV | | P1 | N-1 | 0.9746 | 0.9917 | 0.8972 | 0.9322 | 1.0285 | 0.99 | 0.9999 | 1.0018 | Continue to Monitor future forecast |
| SNTA RTA 70 kV | | P1 | N-1 | 0.962 | 0.9803 | 0.8802 | 0.9229 | 1.0374 | 0.9781 | 0.9985 | 1.0097 | Continue to Monitor future forecast |
| ORO LOMA 70 kV | PANOCHÉ-ORO LOMA 115KV [3240] & GREGG SVD=V | P6 | N-1-1 | >0.9 | >0.9 | 0.8862 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ORO LOMA 70 kV | PANOCHÉ-ORO LOMA 115KV [3240] & MELONES-WILSON 230KV [5080] | P6 | N-1-1 | >0.9 | >0.9 | 0.8854 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ORO LOMA 115 kV | PANOCHÉ-ORO LOMA 115KV [3240] & WILSONSTCOM SVD=V | P6 | N-1-1 | >0.9 | >0.9 | 0.8633 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ORO LOMA 70 kV | | P6 | N-1-1 | >0.9 | >0.9 | 0.8586 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| DOS PALS 70 kV | PANOCHÉ-ORO LOMA 115KV [3240] & WILSONSTCOM-WILSONPGAE #1 115KV [0] | P6 | N-1-1 | >0.9 | >0.9 | 0.8464 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| TOMATAK 70 kV | Q1028Q1029PV 34.50KV GEN UNIT 1 & PANOCHÉ-MENDOTA 115KV [3230] | P3 | G-1/N-1 | 0.8754 | 0.8773 | 0.8691 | >0.9 | >0.9 | 0.8772 | >0.9 | >0.9 | Generation re-dispatch |
| DINUBA 70 kV | REEDLEY-DINUBA #1 70KV [9050] | P1 | N-1 | 0.8931 | 0.9082 | 0.8753 | 0.9779 | 1.1147 | 0.9045 | 0.9501 | 1.0443 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|---|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| WST FRSO 115 kV | SANGER-CALIFORNIA AVE 115KV [9130] & CALIFORNIA AVE-MCCALL 115KV [2360] | P6 | N-1-1 | >0.9 | >0.9 | 0.8848 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| WST FRSO 115 kV | SANGER-CALIFORNIA AVE 115KV [9130] & MCCALL-WEST FRESNO #2 115KV [2370] | P6 | N-1-1 | 0.8775 | 0.8586 | 0.809 | >0.9 | >0.9 | 0.8556 | >0.9 | >0.9 | Generation re-dispatch |
| CHWCHLLA 115 kV | SANGERCGRN 115/13.8KV TB 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8934 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | SHEPHERD SVD=V & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.879 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CHWCHLLA 115 kV | TRANQUILLITY SW STA-KEARNEY 230KV [5380] & LE GRAND-CHOWCHILLA 115KV [2110] | P6 | N-1-1 | >0.9 | >0.9 | 0.8906 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| CANAL 70 kV | VEGA 0.36KV GEN UNIT 1 & LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] | P3 | G-1/N-1 | >0.9 | >0.9 | 0.8913 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ORO LOMA 115 kV | WARNERVILLE-WILSON 230KV [5870] & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | 0.8839 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ATWATER 115 kV | WILSON 115 KV #1 & #2 BUS (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundant Relay | Diverge | Diverge | Diverge | 1.0148 | 0.494 | Diverge | 0.2391 | 1.0285 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| BER VLLY 70 kV | | P5 | Non-Redundant Relay | Diverge | Diverge | Diverge | 0.9615 | 0.8683 | Diverge | 0.8594 | 0.9742 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| ATWATER 115 kV | WILSON 230/115KV TB 1 & WILSON | P6 | N-1-1 | 0.8726 | 0.8999 | >0.9 | >0.9 | >0.9 | 0.8921 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| CRESSEY 115 kV | | P6 | N-1-1 | 0.8637 | 0.8913 | >0.9 | >0.9 | >0.9 | 0.8833 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| EL CAPTN 115 kV | | P6 | N-1-1 | 0.8779 | >0.9 | >0.9 | >0.9 | >0.9 | 0.8958 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |

Study Area: PG&E Greater Fresno

High/Low Voltages



| Substation | Contingency (All and Worst P6) | Category | Category Description | Voltage PU (Baseline Scenarios) | | | | | Voltage PU (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---------------------------------|------------------|------------------|----------------------|----------------------|------------------------------------|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| GALLO 115 kV | 230/115KV TB 2 | P6 | N-1-1 | 0.853 | 0.8812 | >0.9 | >0.9 | >0.9 | 0.873 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| LIVNGSTN 115 kV | | P6 | N-1-1 | 0.8563 | 0.8842 | >0.9 | >0.9 | >0.9 | 0.8761 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| MERCED 115 kV | | P6 | N-1-1 | 0.8865 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Wilson 115kV Reinforcement Project In-service date: 05/28 Short term: Action plan |
| TOMATAK 70 kV | WILSON-LE GRAND 115KV [4170] & PANOCHÉ-MENDOTA 115KV [3230] | P6 | N-1-1 | 0.8738 | 0.8777 | 0.8689 | >0.9 | >0.9 | 0.877 | >0.9 | >0.9 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |
| YOSEMITE 70 kV | | P6 | N-1-1 | 0.8992 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | 0.9 | >0.9 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |
| ORO LOMA 70 kV | WILSON-ORO LOMA 115KV [4200] & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.7808 | >0.9 | >0.9 | >0.9 | >0.9 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |
| ORO LOMA 115 kV | WILSONPGAE-STOREY #2 230KV [0] & PANOCHÉ-ORO LOMA 115KV [3240] | P6 | N-1-1 | >0.9 | >0.9 | 0.8991 | >0.9 | >0.9 | >0.9 | >0.9 | >0.9 | Continue to Monitor future forecast |
| ASHLAN 230 kV | WOODWARD-SHEPHERD 115KV [1895] & BALCH-MCCALL 230KV [4350] | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8975 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |
| FIGRDN 1 230 kV | WOODWARD-SHEPHERD 115KV [1895] & HERNDON-BARTON 115KV [1750] | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8963 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |
| FIGRDN 2 230 kV | | P6 | N-1-1 | >0.9 | >0.9 | >0.9 | 0.8954 | >0.9 | >0.9 | >0.9 | >0.9 | Generation re-dispatch |

Study Area: PG&E Greater Fresno

Voltage Deviation



| Substation | Contingency (All and Worst P6) | Category | Category Description | Post Cont. Voltage Deviation % (Baseline Scenarios) | | | | | Post Cont. Voltage Deviation % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---|------------------|------------------|----------------------|----------------------|--|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| DOS PALS 70 kV | CHOWCOGN 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240] | P3 | G1/N1 | <8 | <8 | 12.937 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| FIREBAGH 70 kV | | P3 | G1/N1 | <8 | <8 | 13.591 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| SNTA RTA 70 kV | | P3 | G1/N1 | <8 | <8 | 13.009 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DOS PALS 70 kV | ELNIDO 13.80KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240] | P3 | G1/N1 | <8 | <8 | 12.921 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| FIREBAGH 70 kV | | P3 | G1/N1 | <8 | <8 | 13.575 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| ORO LOMA 115 kV | | P3 | G1/N1 | <8 | <8 | 12.689 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| ORO LOMA 70 kV | | P3 | G1/N1 | <8 | <8 | 12.762 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| SNTA RTA 70 kV | | P3 | G1/N1 | <8 | <8 | 12.993 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| CHWCHLLA 115 kV | HERNDN1T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.538 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| FIREBAGH 70 kV | HERNDN1T 13.20KV GEN UNIT 1 & PANOCHÉ-ORO LOMA 115KV [3240] | P3 | G1/N1 | <8 | <8 | 13.564 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | HERNDN1T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.569 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | HERNDN2T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.564 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| CHWCHLLA 115 kV | KERCK1-3 6.60KV GEN UNIT 3 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.49 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| CHWCHLLA 115 kV | KERCKHOFFPH2 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 12.179 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| SHARON 115 kV | | P3 | G1/N1 | <8 | <8 | 10.762 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |

Study Area: PG&E Greater Fresno

Voltage Deviation



| Substation | Contingency (All and Worst P6) | Category | Category Description | Post Cont. Voltage Deviation % (Baseline Scenarios) | | | | | Post Cont. Voltage Deviation % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|---|----------|----------------------|---|------------------|------------------|----------------------|----------------------|--|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| DINUBA 70 kV | KERCKHOFFPH2 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | 9.046 | <8 | 9.602 | <8 | <8 | <8 | <8 | <8 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| CHWCHLLA 115 kV | KINGSRIV 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.413 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | KINGSRIV 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | 9.08 | <8 | 9.489 | <8 | <8 | <8 | <8 | <8 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| CHWCHLLA 115 kV | KRCDPCT1 13.80KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.451 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | KRCDPCT1 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.459 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | KRCDPCT2 13.80KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.459 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| CHWCHLLA 115 kV | LE GRAND-CHOWCHILLA 115KV [2110] | P1 | N-1 | 8.3 | 8.503 | 10.249 | 3.695 | -6.329 | 8.68 | 3.275 | 0.168 | Project: Wilson – Le Grand 115 kV Line Reconductoring In-service date: 05/23 |
| SHARON 115 kV | | P1 | N-1 | 7.323 | 7.527 | 9.084 | 3.217 | -5.535 | 7.686 | 2.885 | 0.156 | Project: Wilson – Le Grand 115 kV Line Reconductoring In-service date: 05/23 |
| CHWCHLLA 115 kV | MC CALL 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.545 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | MC CALL 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.49 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| CHWCHLLA 115 kV | MCCALL1T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.667 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | MCCALL1T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | 9.1 | <8 | 9.64 | <8 | <8 | 8.875 | <8 | <8 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| CHWCHLLA 115 kV | MCCALL3T 13.20KV GEN UNIT 1 & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.425 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |

Study Area: PG&E Greater Fresno

Voltage Deviation



| Substation | Contingency (All and Worst P6) | Category | Category Description | Post Cont. Voltage Deviation % (Baseline Scenarios) | | | | | Post Cont. Voltage Deviation % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|-----------------|--|----------|----------------------|---|------------------|------------------|----------------------|----------------------|--|---------------------------------------|---------------------------------------|--|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| DINUBA 70 kV | MCCALL3T 13.20KV GEN UNIT 1 & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.468 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| CHWCHLLA 115 kV | MCMULLN1 230.00KV GEN UNIT VS & LE GRAND-CHOWCHILLA 115KV [2110] | P3 | G1/N1 | <8 | <8 | 10.398 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DOS PALS 70 kV | MCMULLN1 230.00KV GEN UNIT VS & PANOCHÉ-ORO LOMA 115KV [3240] | P3 | G1/N1 | <8 | <8 | 12.919 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| FIREBAGH 70 kV | | P3 | G1/N1 | <8 | <8 | 13.573 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| ORO LOMA 115 kV | | P3 | G1/N1 | <8 | <8 | 12.687 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| ORO LOMA 70 kV | | P3 | G1/N1 | <8 | <8 | 12.76 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| SNTA RTA 70 kV | | P3 | G1/N1 | <8 | <8 | 12.991 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DINUBA 70 kV | MCMULLN1 230.00KV GEN UNIT VS & REEDLEY-DINUBA #1 70KV [9050] | P3 | G1/N1 | <8 | <8 | 9.552 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |
| DOS PALS 70 kV | PANOCHÉ-ORO LOMA 115KV [3240] | P1 | N-1 | 6.234 | 4.91 | 12.752 | 8.949 | 1.161 | 5.038 | 3.291 | 2.89 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |
| FIREBAGH 70 kV | | P1 | N-1 | 6.433 | 5.062 | 13.396 | 3.347 | 0.808 | 5.197 | 3.329 | 1.129 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |
| ORO LOMA 70 kV | | P1 | N-1 | 6.181 | 4.868 | 12.596 | 8.885 | 1.167 | 4.994 | 3.284 | 2.896 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |

Study Area: PG&E Greater Fresno

Voltage Deviation



| Substation | Contingency (All and Worst P6) | Category | Category Description | Post Cont. Voltage Deviation % (Baseline Scenarios) | | | | | Post Cont. Voltage Deviation % (Sensitivity Scenarios) | | | Project & Potential Mitigation Solutions |
|----------------|---|----------|----------------------|---|------------------|------------------|----------------------|----------------------|--|---------------------------------------|---------------------------------------|---|
| | | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| SNTA RTA 70 kV | | P1 | N-1 | 6.263 | 4.927 | 12.823 | 8.975 | 1.157 | 5.056 | 3.291 | 2.876 | Project: Panoche-Oro Loma 115 kV Reconductoring Project In-service date: 05/23 Short term: Action plan |
| DINUBA 70 kV | REEDLEY-DINUBA #1 70KV [9050] | P1 | N-1 | 9.012 | 8.588 | 9.422 | 4.602 | -1.213 | 8.794 | 5.613 | 1.774 | Project: Reedley 70 kV Reinforcement (Dinuba Battery Energy Storage) In-service date: 05/23 Short term: Action plan |
| CANAL 70 kV | VEGA 0.36KV GEN UNIT 1 & LOS BANOS-LIVINGSTON JCT-CANAL 70KV [8940] | P3 | G1/N1 | <8 | <8 | 9.411 | <8 | <8 | <8 | <8 | <8 | Conitinue to monitor future forecast |

Study Area: PG&E Greater Fresno

Transient Stability



| Contingency | Category | Category Description | Transient Stability Performance | | | | | | Potential Mitigation Solutions |
|--|----------|----------------------|--|--|--|----------------------|--|--|--------------------------------|
| | | | Baseline Scenarios | | | | Sensitivity Scenarios | | |
| | | | 2023 Spring Off-Peak | 2026 Summer Peak | 2031 Summer Peak | 2031 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 OP Heavy Renewable & Min Gas Gen | |
| Helms unit 1 | P1 | N-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Helms unit 1 and unit 2 | P3-1 | G-1/N-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gates 500/230kV Transformer #11 | P1 | T-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gates 500/230kV Transformer #12 | P1 | T-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Wilson 230/115kV TB #1 | P1 | T-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Wilson 230/115kV TB #2 | P1 | T-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gates 230kV Bus | P2-4 | Bus Breaker | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| McCall 230kV Bus | P2-4 | Bus Breaker | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Borden 230kV Bus | P2-4 | Bus Breaker | No Issues | No Issues | No Issues | No Issues | Potential WECC/NERC criteria violation | No Issues | Sensitivity Only |
| McCall 230kV TB plus Helms unit 1 | P3-3 | G-1/T-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Wilson 230/115kV TB #1 & #2 | P6 | N-1-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Bellota-Warnerville 230kV and Warnerville-Wilson 230kV lines | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Panoche-Tranquility #1 and #2 230kV Lines | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gates-McCall 230kV and Helms-McCall 230kV Lines | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gregg-Helms #1 and #2 230kV Lines Temporary | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gregg-Helms #1 and #2 230kV Lines Permanent | P7 | DCTL | Potential WECC/NERC criteria violation | No Issues | No Issues | No Issues | No Issues | Potential WECC/NERC criteria violation | Under review with PTO |
| Gates-Mustang #1 and #2 230kV Lines | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Herndon-Barton 115kV Line and Sanger-Manchester 115kV line | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| McCall-Reedley 115kV Line and McCall- Sanger #1 115kV Line | P7 | DCTL | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Melones-Wilson and Warnerville-Wilson 230kV Line | P6 | N-1-1 | No Issues | No Issues | No Issues | No Issues | No Issues | No Issues | No Violation |
| Gregg 230kV Bus #1 (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Potential WECC/NERC criteria violation | No Issues | No Issues | No Issues | No Issues | No Issues | Redundant Relay Project |
| Gregg 230kV Bus #2 (FAILURE OF NON-REDUNDENT RELAY) | P5 | Non-Redundent Relay | Potential WECC/NERC criteria violation | Potential WECC/NERC criteria violation | Potential WECC/NERC criteria violation | No Issues | Potential WECC/NERC criteria violation | No Issues | Redundant Relay Project |



Single Contingency Load Drop

| Worst Contingency | Category | Category Description | Amount of Load Drop (MW) | | | | | | | | | Potential Mitigation Solutions |
|-------------------|----------|----------------------|--------------------------|------------------|------------------|----------------------|----------------------|----------------------|---------------------------|---------------------------------------|---------------------------------------|--------------------------------|
| | | | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2031 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | | | | | | | | | | | | |

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

Study Area: PG&E Greater Fresno



Single Source Substation with more than 100 MW Load

| Substation | Load Served (MW) | | | | | | | | | | | | Potential Mitigation Solutions |
|------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------|----------------------|----------------------|---------------------------|---------------------------------------|---------------------------------------|--------------------------------|
| | 2023 Summer Peak | 2026 Summer Peak | 2031 Summer Peak | 2023 Winter Peak | 2026 Winter Peak | 2031 Winter Peak | 2023 Spring Off-Peak | 2026 Spring Off-Peak | 2031 Spring Off-Peak | 2026 SP High CEC Forecast | 2023 SP Heavy Renewable & Min Gas Gen | 2023 OP Heavy Renewable & Min Gas Gen | |
| | | | | | | | | | | | | | |

No single source substation with more than 100 MW