

Study Area: PG&E Greater Fresno

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations	
Fresno-T-1	34533 Q272 70.0 34540 HENRITTA 70.0 1 1	Base Case	P0	Base Case	26.90	27.27	26.97	96.43	0.43	26.79	27.17	102.28	26.70	26.92	Sensitivity Under Review
Fresno-T-2	30810 GREGG 230 30821 HELMS PP1 230 1 1	P1-2:A14:8:_HELMS-GREGG #2 230kV [4880]	P1	Single Contingency	92.45	<100	<100	NConv	<100	92.60	<100	<100	<100	<100	Drop Helms
Fresno-T-3	30810 GREGG 230 30823 HELMS PP3 230 2 1	P1-2:A14:7:_HELMS-GREGG #1 230kV [4870]	P1	Single Contingency	92.45	<100	<100	NConv	<100	92.60	<100	<100	<100	<100	Drop Helms
Fresno-T-4	30821 HELMS PP1 230 34997 E1_PGE 230 1 1	P1-2:A14:124:_HELMS PP3-E1_PGE #2 230kV [0]	P1	Single Contingency	<100	93.07	93.07	<100	70.30	<100	137.22	93.10	93.12	93.08	Sensitivity Under Review
Fresno-T-5	30823 HELMS PP3 230 34997 E1_PGE 230 2 1	P1-2:A14:123:_HELMS PP1-E1_PGE #1 230kV [0]	P1	Single Contingency	<100	93.07	93.08	<100	70.30	<100	137.22	93.10	93.12	93.08	Sensitivity Under Review
Fresno-T-6	34169 TORND0 J 70.0 34574 COLNGA 1 70.0 1 1	P2-1:A14:146:_JAYNE SW STA-COALINGA 70kV [8670] (WESTLNDSS-JACALITO)	P2-1	Single Contingency	94.64	70.27	66.25	37.26	56.49	102.54	72.64	84.65	69.23	44.00	Sensitivity Under Review
Fresno-T-7	34206 CANAL 70.0 34220 ORTIGA 70.0 1 1	P2-1:A13:58:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] (CHEVPIPE-LOS BANS)	P2-1	Single Contingency	98.94	<100	<100	32.78	<100	103.11	<100	<100	<100	<100	Short Term radialize; Long Term:Oro Loma 70 kV Area Reinforcement
Fresno-T-8	34220 ORTIGA 70.0 34222 MRCYSPRS 70.0 1 1	P2-1:A13:58:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] (CHEVPIPE-LOS BANS)	P2-1	Single Contingency	124.58	<100	<100	40.63	<100	129.91	<100	<100	<100	<100	Short Term radialize; Long Term:Oro Loma 70 kV Area Reinforcement
Fresno-T-9	34409 PNDLJ2 115 34416 BULLARD 115 1 1	P2-1:A14:58:_HERNDON-BULLARD #1 115kV [1760] (HERNDON-PNDLJ1)	P2-1	Single Contingency	115.07	101.52	111.99	37.67	31.56	120.90	108.79	101.65	123.02	112.05	Under Review
Fresno-T-10	30805 BORDEN 230 30810 GREGG 230 1 1	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	121.59	39.03	40.78	20.44	50.34	120.27	59.48	47.58	37.47	39.83	Northern Fresno 115kV Area reinforcement project
Fresno-T-11	30821 HELMS PP1 230 34997 E1_PGE 230 1 1	P2-3:A14:150:_E1_PGE 230kV - Middle Breaker Bay 2	P2	Single Contingency	<100	93.24	93.23	<100	70.56	<100	137.83	93.27	93.26	93.23	Borden 230 kV Voltage Support
Fresno-T-12	30823 HELMS PP3 230 34997 E1_PGE 230 2 1	P2-3:A14:149:_E1_PGE 230kV - Middle Breaker Bay 1	P2	Single Contingency	<100	93.24	93.24	<100	70.56	<100	137.83	93.27	93.26	93.23	Under Review
Fresno-T-13	34104 ATWATER 115 34106 CASTLE 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	97.70	42.14	NConv	33.02	NConv	96.57	88.94	45.09	42.55	Gregg-Herndon no2 230 kV Breaker Upgrade.m
Fresno-T-14	34104 ATWATER 115 34110 ATWATR J 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	42.45	32.71	NConv	8.96	NConv	36.18	30.68	35.24	33.71	Northern Fresno 115 kV Area Reinforcement
Fresno-T-15	34105 CERTANJ1 115 34100 CHWCHLLA 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	17.23	15.55	NConv	52.17	NConv	20.91	3.54	11.35	15.20	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-16	34105 CERTANJ1 115 34100 CHWCHLLA 115 1 1	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	94.08	14.49	12.22	12.33	51.74	106.95	29.67	14.30	6.40	8.69	Sensitivity Under Review
Fresno-T-17	34105 CERTANJ1 115 34121 SHARON T 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	17.41	15.73	NConv	51.84	NConv	21.01	3.93	11.57	15.37	Wilson 115kV area reinforcent or Cressy N. Merced

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Fresno-T-18	34105 CERTANJ1 115 34121 SHARON T 115 1 1	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	93.49	14.82	12.58	12.25	51.41	106.27	29.78	14.60	6.92	9.14	Sensitivity Under Review
Fresno-T-19	34106 CASTLE 115 34138 EL CAPTN 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	97.69	42.13	NConv	33.10	NConv	96.56	88.92	45.08	42.54	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-20	34110 ATWATR J 115 34144 MERCED 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	11.90	14.98	NConv	4.00	NConv	6.66	3.28	16.95	15.81	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-21	34112 EXCHEQUR 115 34116 LE GRAND 115 1 1	P2-3:A13:44:_EXCHEQUR - 1D 70kV & MERCED FALLS-EXCHEQUER line	P2	Single Contingency	68.46	66.42	67.14	43.71	41.50	110.35	110.43	65.86	69.37	67.13	Sensitivity Under Review
Fresno-T-22	34112 EXCHEQUR 115 34116 LE GRAND 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	23.90	27.01	NConv	30.99	NConv	52.75	21.17	26.67	28.30	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-23	34112 EXCHEQUR 115 34232 EXCHEQUR 70.0 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	18.30	17.33	NConv	4.17	NConv	23.30	19.05	18.35	16.85	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-24	34121 SHARON T 115 34128 OAKH_JCT 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	22.08	20.21	NConv	47.78	NConv	26.09	6.03	16.08	19.85	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-25	34123 K1-JCT 115 34358 KERCKHF2 115 2 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	32.80	33.38	NConv	17.27	NConv	36.58	23.17	34.47	33.23	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-26	34128 OAKH_JCT 115 34123 K1-JCT 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	32.79	33.38	NConv	17.47	NConv	36.58	23.16	34.47	33.22	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-27	34134 WILSON A 115 34144 MERCED 115 1 1	P2-2:A13:13:_WILSON B 115kV Section 2D	P2	Single Contingency	109.22	62.96	61.02	25.31	<100	108.29	63.44	61.26	64.66	60.32	Action Plan.Cressey - North Merced 115 kV Line Addition ( North Merced 230 kV bank) mitigates future years. Propose operating solution in the interim.
Fresno-T-28	34136 WILSON B 115 34144 MERCED 115 2 1	P2-2:A13:12:_WILSON A 115kV Section 1D	P2	Single Contingency	105.70	81.49	69.80	18.53	<100	101.44	77.97	73.74	74.70	70.12	Action Plan.Cressey - North Merced 115 kV Line Addition ( North Merced 230 kV bank) mitigates future years. Propose operating solution in the interim. mitigates future years. Propose operating solution in the interim.
Fresno-T-29	34144 MERCED 115 34146 MERCED M 115 2 1	P2-3:A13:15:_LE GR - MA 115kV & LE GR-CHOWCHILLA line	P2	Single Contingency	80.59	81.05	81.00	<100	73.02	<100	<100	100.03	80.29	81.00	Sensitivity Under Review
Fresno-T-30	34144 MERCED 115 34146 MERCED M 115 2 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	54.47	49.74	NConv	34.67	NConv	68.70	74.26	49.96	48.14	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-31	34150 NEWHALL 115 34154 DAIRYLND 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	18.67	20.38	NConv	4.20	NConv	2.06	14.25	24.81	19.84	Wilson 115kV area reinforcent or Cressy N. Merced

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Fresno-T-32	34156 MENDOTA 115 34153 GILLTAP 115 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	31.83	32.45	NConv	15.95	NConv	21.05	28.47	35.68	32.02	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-33	34200 ORO LOMA 70.0 34162 ORO LOMA 115 2 1	P2-4:A13:13:_PANOCHE 230kV - Section 1E & 2E	P2	Single Contingency	<100	72.21	58.20	<100	58.62	<100	95.83	128.95	46.04	44.95	Sensitivity Under Review
Fresno-T-34	34202 MERCED 70.0 34146 MERCED M 115 2 1	P2-2:A13:10:_LE GR 115kV Section MA	P2	Single Contingency	78.78	79.58	79.53	97.68	71.12	123.07	125.71	97.43	78.87	79.53	Exchequer gen dispatch SCD
Fresno-T-35	34202 MERCED 70.0 34146 MERCED M 115 2 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	57.11	51.78	NConv	34.76	NConv	71.49	77.45	52.17	50.20	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-36	34202 MERCED 70.0 34230 MRCDFLLS 70.0 1 1	P2-2:A13:10:_LE GR 115kV Section MA	P2	Single Contingency	79.04	80.22	80.16	65.02	72.32	150.25	155.33	79.37	79.28	80.16	Exchequer gen dispatch, SCD
Fresno-T-37	34202 MERCED 70.0 34230 MRCDFLLS 70.0 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	45.75	39.09	NConv	22.40	NConv	67.10	49.60	39.37	36.84	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-38	34252 MADERA 70.0 34256 BORDEN 70.0 2 1	P2-2:A13:32:_BORDEN 70kV Section MD	P2	Single Contingency	111.89	107.12	107.09	50.53	47.53	114.59	110.92	107.39	113.18	107.14	Madera SPS
Fresno-T-40	34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	P2-2:A13:10:_LE GR 115kV Section MA	P2	Single Contingency	99.69	100.38	100.37	77.04	67.55	195.36	200.47	99.80	100.36	100.37	Madera SPS
Fresno-T-41	34252 MADERA 70.0 34256 BORDEN 70.0 2 1	P2-3:A13:46:_BORDEN - MD 70kV & BORDEN-COPPERMINE line	P2	Single Contingency	111.89	107.12	107.09	50.53	47.53	114.59	110.92	107.39	113.18	107.14	Madera SPS
Fresno-T-42	34321 MCSWAINJ 70.0 34232 EXCHEQUR 70.0 1 1	P2-4:A13:11:_WILSON A Section 1D & WILSON B Section 2D 115kV	P2	Single Contingency	NConv	57.99	51.43	NConv	15.14	NConv	83.24	62.20	52.29	49.16	Wilson 115kV area reinforcent or Cressy N. Merced
Fresno-T-43	34366 SANGER 115 34359 AIRWAYJ2 115 1 1	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	101.09	76.95	84.99	33.44	37.06	107.22	75.69	78.25	93.48	83.70	Northern Fresno 115kV Area reinforcement project
Fresno-T-44	34366 SANGER 115 34370 MC CALL 115 3 1	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	96.03	<100	<100	33.67	<100	101.15	<100	<100	<100	<100	Sensitivity Under Review
Fresno-T-45	34408 BARTON 115 34412 HERNDON 115 1 1	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	118.85	63.18	73.73	27.13	19.92	124.78	64.67	59.66	86.33	85.70	Northern Fresno Project
Fresno-T-46	34409 PNDLJ2 115 34416 BULLARD 115 1 1	P2-2:A14:46:_HERNDON 115kV Section 1D	P2	Single Contingency	115.12	101.48	111.96	37.73	31.55	120.92	108.73	101.60	122.97	111.99	Sensitivity Under Review
Fresno-T-47	34410 MANCHSTR 115 34412 HERNDON 115 1 1	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	120.28	66.41	75.54	29.30	21.52	125.79	68.59	63.02	87.21	86.78	Northern Fresno Project
Fresno-T-48	34418 KINGSBRG 115 34428 CONTADNA 115 1 1	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	95.20	71.68	76.81	69.29	33.30	100.41	61.25	79.97	89.15	87.98	Northern Fresno Project
Fresno-T-49	34429 GWF_HEP 115 34428 CONTADNA 115 1 1	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	98.63	74.91	79.75	72.93	36.79	103.87	64.73	83.23	92.10	90.93	Northern Fresno Project
Fresno-T-50	34559 HURONJ 70.0 34560 CALFLAX 70.0 1 1	P2-4:A13:12:_PANOCHE1 Section 1D & PANOCHE2 Section 2D 115kV	P2	Single Contingency	121.64	4.04	23.66	107.53	44.52	13.97	5.55	127.20	34.05	37.41	Northern Fresno Project



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Fresno-T-51	34561 Q526TP 70.0 34566 PLSNTVLY 70.0 1 1	P2-4:A13:12:_PANOCHE1 Section 1D & PANOCHE2 Section 2D 115kV	P2	Single Contingency	59.05	20.38	1.49	92.13	21.91	20.51	20.87	119.28	5.90	13.19	Sensitivity Under Review	
Fresno-T-52	34562 SCHLNDLR 70.0 34567 FIVEPOINTSSS 70.0 1 1	P2-4:A13:12:_PANOCHE1 Section 1D & PANOCHE2 Section 2D 115kV	P2	Single Contingency	85.68	10.95	15.38	96.86	32.35	3.17	9.65	103.71	23.39	27.98	Sensitivity Under Review	
Fresno-T-53	34567 FIVEPOINTSSS 70.0 34560 CALFLAX 70.0 1 1	P2-4:A13:12:_PANOCHE1 Section 1D & PANOCHE2 Section 2D 115kV	P2	Single Contingency	85.46	20.68	10.99	107.35	32.75	13.42	19.48	139.94	17.44	21.80	Sensitivity Under Review	
Fresno-T-54	34169 TORND0 J 70.0 34574 COLNGA 1 70.0 1 1	P1-1:A14:55:_WESTLNDS 0kV Gen Unit 1 and P1-2:A14:98:_GATES-JAYNE SW STA 70kV [8652]	P3	Multiple Contingency	94.28	<100	<100	<100	<100	100.06	<100	<100	<100	<100	Under Review	
Fresno-T-55	30796 STOREY 1 230 30800 WILSON 230 1 1	P5-5:A14:2:_Gregg 230 kV BAAH Bus #2 (failure of non-redundent relay)	P5.5	Multiple Contingency	NConv	22.80	21.26	49.96	46.68	NConv	36.58	34.79	17.73	17.85	Series Reactor at Wilson, Wilson 115kV Area reinforcement, Borden Voltage Support Project fixes later years	
Fresno-T-56	30796 STOREY 1 230 30810 GREGG 230 1 1	P5-5:A14:2:_Gregg 230 kV BAAH Bus #2 (failure of non-redundent relay)	P5.5	Multiple Contingency	NConv	<100	<100	49.03	<100	NConv	<100	<100	<100	<100	Series Reactor at Wilson, Wilson 115kV Area reinforcement, Borden Voltage Support Project fixes later years	
Fresno-T-57	30515 WARNERVL 230 30800 WILSON 230 1 2	P1-2:A13:17:_TRANQLTYSS-KEARNEY 230kV [0] and P1-2:A13:88:_MELONES-NMERCED #1 230kV [0]	P6	Multiple Contingency	<100	<100	<100	<100	100.03	<100	<100	<100	<100	<100	Drop Additional Pump	
Fresno-T-58	30810 GREGG 230 30835 HERNDON 230 1 1	P1-2:A14:10:_GREGG-HERNDON #2 230kV [4840] and P1-2:A14:11:_GREGG-ASHLAN 230kV [4820]	P6	Multiple Contingency	100.01	<100	<100	<100	<100	100.01	<100	<100	<100	<100	Northern Fresno Project	
Fresno-T-59	30810 GREGG 230 30835 HERNDON 230 2 1	P1-2:A14:9:_GREGG-HERNDON #1 230kV [4830] and P1-2:A14:11:_GREGG-ASHLAN 230kV [4820]	P6	Multiple Contingency	100.01	<100	<100	<100	<100	100.01	<100	<100	<100	<100	Norhern fresno	
Fresno-T-60	30821 HELMS PP1 230 34997 E1_PGE 230 1 1	P1-2:A13:23:_BORDEN-GREGG 230kV [4400] and P1-2:A14:124:_HELMS PP3-E1_PGE #2 230kV [0]	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	100.41	<100	<100	<100	Sensitivity Under Review	
Fresno-T-61	30821 HELMS PP1 230 34997 E1_PGE 230 1 1	P1-4:A14:22:_E2_PGE SVD=v and P1-2:A14:124:_HELMS PP3-E1_PGE #2 230kV [0]	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	100.46	<100	<100	<100	Sensitivity Under Review	
Fresno-T-62	30823 HELMS PP3 230 34997 E1_PGE 230 2 1	P1-4:A14:22:_E2_PGE SVD=v and P1-2:A14:123:_HELMS PP1-E1_PGE #1 230kV [0]	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	100.46	<100	<100	<100	Sensitivity Under Review	



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Fresno-T-63	34105 CERTANJ1 115 34100 CHWCHLLA 115 1 1	P1-3:A13:8:_WILSON 230/115kV TB 2 and P1-3:A13:7:_WILSON 230/115kV TB 1	P6	Multiple Contingency	101.24	<100	<100	<100	<100	100.18	<100	<100	<100	<100	Under Review	
Fresno-T-64	34112 EXCHEQUR 115 34116 LE GRAND 115 1 1	P1-3:A13:16:_MERCED 115/70kV TB 2 and P1-3:A13:17:_EXCHEQUR 70/115kV TB 1	P6	Multiple Contingency	<100	<100	<100	<100	<100	100.69	99.99	<100	<100	<100	Sensitivity Under Review	
Fresno-T-65	34116 LE GRAND 115 34134 WILSON A 115 1 1	P1-2:A14:32:_KERCKHOFF-CLOVIS-SANGER #2 115kV [1900] and P1-2:A14:30:_KERCKHOFF-CLOVIS-SANGER #1 115kV [1890]	P6	Multiple Contingency	<100	<100	<100	100.57	<100	65.35	<100	<100	<100	<100	Sensitivity Under Review	
Fresno-T-66	34116 LE GRAND 115 34134 WILSON A 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	148.69	<100	<100	<100	<100	157.40	<100	<100	<100	<100	Wilson-Le Grand 115kV reconductoring Project	
Fresno-T-67	34118 LE GRNDJ 115 34136 WILSON B 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	100.58	<100	<100	<100	<100	109.91	<100	<100	<100	<100	Wilson-Le Grand 115kV reconductoring Project	
Fresno-T-68	34118 LE GRNDJ 115 34168 EL NIDO 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	100.27	<100	<100	<100	<100	109.55	<100	<100	<100	<100	Wilson-Le Grand 115kV reconductoring Project	
Fresno-T-69	34121 SHARON T 115 34128 OAKH_JCT 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	91.93	<100	<100	<100	<100	99.37	<100	<100	<100	<100	Wilson 115kV area reinforcent or Cressy N. Merced	
Fresno-T-70	34134 WILSON A 115 34144 MERCED 115 1 1	P1-2:A13:39:_WILSON-MERCED #2 115kV [4190] and P1-2:A13:38:_EL CAPITAN-WILSON 115kV [1510]	P6	Multiple Contingency	103.55	<100	<100	<100	<100	108.44	<100	<100	<100	<100	Wilson 115kV area reinforcent fixes later years	
Fresno-T-71	34136 WILSON B 115 34138 EL CAPTN 115 1 1	P1-2:A13:36:_WILSON-ATWATER #2 115kV [4160] and P1-2:A13:27:_ATWATER-LIVNGSTN-MERCED 115kV [1030]	P6	Multiple Contingency	105.72	<100	<100	<100	<100	110.43	<100	<100	<100	<100	Wilson 115kV area reinforcent fixes later years	
Fresno-T-72	34136 WILSON B 115 34144 MERCED 115 2 1	P1-2:A13:37:_WILSON-MERCED #1 115kV [4180] and P1-2:A13:38:_EL CAPITAN-WILSON 115kV [1510]	P6	Multiple Contingency	110.59	<100	<100	<100	<100	115.24	<100	<100	<100	<100	Wilson 115kV area reinforcent fixes later years	
Fresno-T-73	34151 Q648SS 115 34161 DFSTP 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	104.02	<100	<100	<100	<100	111.74	<100	<100	<100	<100	Wilson 115kV area reinforcent fixes later years	

Study Area: PG&E Greater Fresno

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-T-74	34155 PANOCHÉ1 115 34350 KAMM 115 1 1	P1-2:A13:76:_PANOCHE2-EXCELSIORSS 115kV [3231] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	110.97	<100	93.92	98.67	<100	<100	<100	90.16	106.75	121.65	Wilson 115kV area reinforcent or Cressy N. Merced	
Fresno-T-75	34155 PANOCHÉ1 115 34350 KAMM 115 1 1	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A14:109:_EXCELSIORSS-PANOCHE2 115kV [3231]	P6	Multiple Contingency	109.91	<100	93.92	100.30	<100	112.00	<100	90.62	102.98	119.13	Wilson 115kV area reinforcent or Cressy N. Merced	
Fresno-T-76	34159 PANOCHÉJ 115 34160 HAMMONDS 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	115.93	<100	<100	<100	<100	124.11	<100	<100	<100	<100	Oro Loma Reconductoring Project; SOL Interim	
Fresno-T-77	34160 HAMMONDS 115 34161 DFSTP 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	106.37	<100	<100	<100	<100	114.10	<100	<100	<100	<100	Oro Loma Reconductoring Project; SOL Interim	
Fresno-T-78	34162 ORO LOMA 115 34151 Q648SS 115 1 1	P1-3:A13:8:_WILSON 230/115kV TB 2 and P1-3:A13:7:_WILSON 230/115kV TB 1	P6	Multiple Contingency	108.49	<100	<100	<100	<100	116.27	<100	<100	<100	<100	Oro Loma Reconductoring Project; SOL Interim	
Fresno-T-79	34162 ORO LOMA 115 34168 EL NIDO 115 1 1	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	126.46	<100	<100	<100	<100	136.40	<100	<100	<100	<100	Oro Loma Reconductoring Project; SOL Interim	
Fresno-T-80	34169 TORNDO J 70.0 34174 PENZIR J 70.0 1 1	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-3:A14:25:_SCHINDLR 115/70kV TB 1	P6	Multiple Contingency	106.82	<100	93.86	<100	<100	NConv	<100	<100	106.37	<100	Under Review	
Fresno-T-81	34169 TORNDO J 70.0 34574 COLNGA 1 70.0 1 1	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-3:A14:25:_SCHINDLR 115/70kV TB 1	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	<100	<100	<100	NConv	Under Review	
Fresno-T-82	34200 ORO LOMA 70.0 34162 ORO LOMA 115 2 1	P1-2:A13:52:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] and P1-3:A13:27:_MERCY S1 230/70kV TB 1	P6	Multiple Contingency	<100	99.56	100.22	<100	<100	<100	99.92	<100	100.60	100.03	Under Review/ Replace limiting equipment	
Fresno-T-83	34237 CANANDGA 70.0 34255 TRIGO J 70.0 1 1	P1-2:A13:60:_BORDEN-MADERA #2 70kV [8520] and P1-2:A13:61:_BORDEN-MADERA #1 70kV [8710]	P6	Multiple Contingency	96.94	92.91	94.16	<100	<100	99.71	95.40	<100	100.31	94.06	Madera SPS	
Fresno-T-84	34240 GLASS 70.0 34237 CANANDGA 70.0 1 1	P1-2:A13:60:_BORDEN-MADERA #2 70kV [8520] and P1-2:A13:61:_BORDEN-MADERA #1 70kV [8710]	P6	Multiple Contingency	105.47	100.90	101.42	<100	<100	108.21	104.27	<100	107.59	101.31	Madera SPS	
Fresno-T-85	34240 GLASS 70.0 34256 BORDEN 70.0 1 1	P1-2:A13:60:_BORDEN-MADERA #2 70kV [8520] and P1-2:A13:61:_BORDEN-MADERA #1 70kV [8710]	P6	Multiple Contingency	113.31	108.31	108.25	<100	<100	116.04	112.39	<100	114.45	108.13	Madera SPS	
Fresno-T-86	34252 MADERA 70.0 34256 BORDEN 70.0 2 1	P1-2:A13:59:_BORDEN-GLASS 70kV [8510] and P1-2:A13:61:_BORDEN-MADERA #1 70kV [8710]	P6	Multiple Contingency	111.92	107.10	107.04	<100	<100	115.15	111.05	<100	113.04	106.94	Madera SPS	

Study Area: PG&E Greater Fresno

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-T-87	34256 BORDEN 70.0 34252 MADERA 70.0 1 1	P1-2:A13:59:_BORDEN-GLASS 70kV [8510] and P1-2:A13:60:_BORDEN-MADERA #2 70kV [8520]	P6	Multiple Contingency	112.73	107.80	107.73	<100	<100	115.42	111.82	<100	113.83	107.62	Madera SPS	
Fresno-T-88	34350 KAMM 115 34352 CANTUA 115 1 1	P1-2:A14:109:_EXCELSIORSS-PANOCHE2 115kV [3231] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	101.15	<100	<100	96.24	<100	<100	<100	<100	97.44	111.47	Under Review, Operations sees some issue also	
Fresno-T-89	34358 KERCKHF2 115 34360 WWARD JT 115 1 1	P1-2:A13:29:_CHOWCHILLA-KERCKHOFF 115kV [1252] and P1-2:A14:32:_KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P6	Multiple Contingency	<100	<100	<100	<100	<100	100.75	<100	<100	<100	<100	Sensitivity Under Review	
Fresno-T-90	34365 CLOVISJ2 115 34358 KERCKHF2 115 1 1	P1-2:A13:29:_CHOWCHILLA-KERCKHOFF 115kV [1252] and P1-2:A14:30:_KERCKHOFF-CLOVIS-SANGER #1 115kV [1890]	P6	Multiple Contingency	<100	<100	<100	<100	<100	100.01	<100	<100	<100	<100	Sensitivity Under Review	
Fresno-T-91	34561 Q526TP 70.0 34566 PLSNTVLY 70.0 1 1	P1-2:A14:117:_SCHLNDLR-FIVEPOINTSSS #1 70kV [0] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	<100	<100	<100	<100	<100	95.92	<100	<100	90.34	124.21	Sensitivity Under Review	
Fresno-T-92	34562 SCHLNDLR 70.0 34561 Q526TP 70.0 1 1	P1-2:A14:117:_SCHLNDLR-FIVEPOINTSSS #1 70kV [0] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	<100	<100	<100	115.06	Sensitivity Under Review	
Fresno-T-93	34562 SCHLNDLR 70.0 34567 FIVEPOINTSSS 70.0 1 1	P1-2:A14:103:_SCHINDLER-COALINGA #2 70kV [9150] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	<100	<100	<100	100.21	Sensitivity Under Review	
Fresno-T-94	34566 PLSNTVLY 70.0 34570 COLNGA 2 70.0 1 1	P1-2:A14:117:_SCHLNDLR-FIVEPOINTSSS #1 70kV [0] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	<100	<100	<100	103.04	Sensitivity Under Review	
Fresno-T-95	34567 FIVEPOINTSSS 70.0 34560 CALFLAX 70.0 1 1	P1-2:A14:103:_SCHINDLER-COALINGA #2 70kV [9150] and P1-3:A14:15:_GATES 230/70kV TB 5	P6	Multiple Contingency	<100	<100	<100	<100	<100	<100	<100	<100	<100	101.21	Sensitivity Under Review	
Fresno-T-96	34998 E2_PGE 115 34997 E1_PGE 230 1 1	P1-2:A14:121:_GREGG-E1_PGE #1 230kV [0] and P1-2:A14:122:_GREGG-E1_PGE #2 230kV [0]	P6	Multiple Contingency	<100	99.80	99.80	<100	<100	<100	100.02	<100	99.80	99.80	Sensitivity Under Review	
Fresno-T-97	36354 SAN MIGL 70.0 34574 COLNGA 1 70.0 1 1	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-3:A14:25:_SCHINDLR 115/70kV TB 1	P6	Multiple Contingency	140.92	<100	120.79	<100	<100	111.25	<100	183.16	156.47	NConv	Under Review/ Estrella Project helps mitigate	
Fresno-T-98	30875 MC CALL 230 30876 MCCALL1M 115 1 1	P1-3:A14:17:_MC CALL 230/115kV TB 2 and P1-3:A14:18:_MC CALL 230/115kV TB 3	P6	Multiple Contingency	100.00	<100	90.03	<100	<100	100.00	<100	<100	100.01	100.01	Under Review	

Study Area: PG&E Greater Fresno

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations	
Fresno-T-99	30875 MC CALL 230 30878 MCCALL3M 115 3 1	P1-3:A14:16: _MC CALL 230/115kV TB 1 and P1-3:A14:17: _MC CALL 230/115kV TB 2	P6	Multiple Contingency	99.99	<100	90.01	<100	<100	100.00	<100	<100	100.01	100.01	Under Review
Fresno-T-100	30875 MC CALL 230 30878 MCCALL3M 115 3 1	P1-3:A14:16: _MC CALL 230/115kV TB 1 and P1-3:A14:17: _MC CALL 230/115kV TB 2	P6	Multiple Contingency	99.99	<100	90.01	<100	<100	100.00	<100	<100	100.01	100.01	Under Review
Fresno-T-101	34112 EXCHEQUR 115 34116 LE GRAND 115 1 1	P1-3:A13:8: _WILSON 230/115kV TB 2 and P1-3:A13:17: _EXCHEQUR 70/115kV TB 1	P6	Multiple Contingency	101.46	<100	<100	<100	<100	102.80	<100	<100	<100	<100	Northern Fresno 115kV Area reinforcement project fixes later years
Fresno-T-102	34134 WILSON A 115 34104 ATWATER 115 1 1	P1-2:A13:38: _EL CAPITAN-WILSON 115kV [1510] and P1-2:A13:27: _ATWATER-LIVNGSTN-MERCED 115kV [1030]	P6	Multiple Contingency	128.11	<100	<100	<100	<100	133.96	<100	<100	<100	<100	Wilson 115kV area reinforcent
Fresno-T-103	34417 KINGS J2 115 34418 KINGSBRG 115 1 1	P1-2:A14:54: _MCCALL-KINGSBURG #2 115kV [2301] and P1-2:A14:55: _GWF-KINGSBURG 115kV [1743]	P6	Multiple Contingency	94.55	<100	94.14	<100	<100	100.00	<100	<100	100.15	97.00	Sensitivity Under Review
Fresno-T-104	34998 E2_PGE 115 34997 E1_PGE 230 2 1	P1-2:A14:121: _GREGG-E1_PGE #1 230kV [0] and P1-2:A14:122: _GREGG-E1_PGE #2 230kV [0]	P6	Multiple Contingency	<100	99.80	99.80	<100	<100	<100	100.02	<100	99.80	99.80	Sensitivity Under Review
Fresno-T-105	30823 HELMS PP3 230 34997 E1_PGE 230 2 1	P7-1:A14:39: _HELMS PP1-E1_PGE #1 230kV [0] & HELMS PP1-E1_PGE #1 230kV [0]	P7	Multiple Contingency	<100	93.07	93.08	<100	70.30	<100	137.22	93.10	93.12	93.08	Sensitivity Under Review
Fresno-T-106	34105 CERTANJ1 115 34100 CHWCHLLA 115 1 1	P7-1:A14:12: _KERCKHOFF-CLOVIS-SANGER #1 115kV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P7	Multiple Contingency	95.70	<100	<100	95.61	<100	145.58	<100	<100	<100	<100	Sensitivity Under Review
Fresno-T-107	34105 CERTANJ1 115 34100 CHWCHLLA 115 1 1	P7-1:A14:40: _E2_PGE-KERCKHF2 #1 115kV [0] & E2_PGE-KERCKHF2 #2 115kV [0]	P7	Multiple Contingency	<100	96.05	96.24	<100	95.63	<100	151.08	88.63	96.22	96.24	Sensitivity Under Review
Fresno-T-108	34105 CERTANJ1 115 34121 SHARON T 115 1 1	P7-1:A14:12: _KERCKHOFF-CLOVIS-SANGER #1 115kV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P7	Multiple Contingency	95.30	<100	<100	95.20	<100	144.88	<100	<100	<100	<100	Sensitivity Under Review
Fresno-T-109	34105 CERTANJ1 115 34121 SHARON T 115 1 1	P7-1:A14:40: _E2_PGE-KERCKHF2 #1 115kV [0] & E2_PGE-KERCKHF2 #2 115kV [0]	P7	Multiple Contingency	<100	95.63	95.82	<100	95.23	<100	150.34	88.24	95.80	95.82	Sensitivity Under Review



Study Area: PG&E Greater Fresno

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations	
Fresno-T-110	34116 LE GRAND 115 34134 WILSON A 115 1 1	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115kV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P7	Multiple Contingency	63.32	<100	<100	105.28	<100	107.06	<100	<100	<100	<100	Wilson-Le Grand 115kV reconductoring Project
Fresno-T-111	34121 SHARON T 115 34128 OAKH_JCT 115 1 1	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115kV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P7	Multiple Contingency	99.90	<100	<100	99.87	<100	149.49	<100	<100	<100	<100	Check FRTSPS, drop another pump
Fresno-T-112	34121 SHARON T 115 34128 OAKH_JCT 115 1 1	P7-1:A14:40:_E2_PGE-KERCKHF2 #1 115kV [0] & E2_PGE-KERCKHF2 #2 115kV [0]	P7	Multiple Contingency	<100	99.93	99.92	<100	99.93	<100	155.20	92.53	99.91	99.92	FRTSPS, check Gen Drop
Fresno-T-113	34123 K1-JCT 115 34358 KERCKHF2 115 2 1	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115kV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P7	Multiple Contingency	77.30	<100	<100	62.25	<100	105.73	<100	<100	<100	<100	Sensitivity Under Review
Fresno-T-114	34123 K1-JCT 115 34358 KERCKHF2 115 2 1	P7-1:A14:40:_E2_PGE-KERCKHF2 #1 115kV [0] & E2_PGE-KERCKHF2 #2 115kV [0]	P7	Multiple Contingency	<100	74.83	76.20	<100	61.63	<100	106.00	70.90	79.31	76.20	Sensitivity Under Review
Fresno-T-115	34128 OAKH_JCT 115 34123 K1-JCT 115 1 1	P7-1:A14:12:_KERCKHOFF-CLOVIS-SANGER #1 115kV [1890] & KERCKHOFF-CLOVIS-SANGER #2 115kV [1900]	P7	Multiple Contingency	77.29	<100	<100	62.23	<100	105.72	<100	<100	<100	<100	Sensitivity Under Review
Fresno-T-116	34128 OAKH_JCT 115 34123 K1-JCT 115 1 1	P7-1:A14:40:_E2_PGE-KERCKHF2 #1 115kV [0] & E2_PGE-KERCKHF2 #2 115kV [0]	P7	Multiple Contingency	<100	74.82	76.20	<100	61.61	<100	106.00	70.89	79.30	76.20	Sensitivity Under Review
Fresno-T-117	34348 SHEPHERD 115 34998 E2_PGE 115 1 1	P7-1:A14:38:_GREGG-E1_PGE #1 230kV [0] & GREGG-E1_PGE #2 230kV [0]	P7	Multiple Contingency	<100	88.61	87.33	<100	38.08	<100	118.53	89.51	87.08	85.38	Drop additional pump/ Revise Norther Fresno Project
Fresno-T-118	34414 WOODWARD 115 34348 SHEPHERD 115 1 1	P7-1:A14:38:_GREGG-E1_PGE #1 230kV [0] & GREGG-E1_PGE #2 230kV [0]	P7	Multiple Contingency	<100	79.96	78.18	<100	40.54	<100	108.93	80.89	77.96	76.22	Drop additional pump/ Revise Norther Fresno Project
Fresno-T-119	34998 E2_PGE 115 34365 CLOVISJ2 115 1 1	P7-1:A14:38:_GREGG-E1_PGE #1 230kV [0] & GREGG-E1_PGE #2 230kV [0]	P7	Multiple Contingency	<100	69.45	70.66	<100	49.00	<100	101.53	67.80	71.81	72.24	Sensitivity Under Review
Fresno-T-120	34998 E2_PGE 115 34997 E1_PGE 230 1 1	P7-1:A14:38:_GREGG-E1_PGE #1 230kV [0] & GREGG-E1_PGE #2 230kV [0]	P7	Multiple Contingency	<100	99.80	99.80	<100	76.99	<100	142.32	99.80	99.80	99.80	Drop additional pump/ Revise Norther Fresno Project
Fresno-T-121	34998 E2_PGE 115 34997 E1_PGE 230 2 1	P7-1:A14:38:_GREGG-E1_PGE #1 230kV [0] & GREGG-E1_PGE #2 230kV [0]	P7	Multiple Contingency	<100	99.80	99.80	<100	76.99	<100	142.32	99.80	99.80	99.80	Drop additional pump/ Revise Norther Fresno Project





ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SOP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations	

Study Area: PG&E Greater Fresno

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations	
Fresno-V-1	ALPAUGH 115 kV	Base Case	P0	Base Case	1.0308	1.0181	1.0384	1.0592	1.0221	1.0305	1.0175	1.0442	1.0379	1.0384	Under Review
Fresno-V-2	ANGIOLA 70 kV	Base Case	P0	Base Case	1.0217	1.0239	1.0176	1.0404	1.0519	1.0191	1.0223	1.0375	1.0096	1.0133	Under Review
Fresno-V-3	ATWELL_JCT 115 kV	Base Case	P0	Base Case	1.0327	1.0243	1.0418	1.0575	1.027	1.0324	1.0238	1.0465	1.0415	1.0418	Under Review
Fresno-V-4	BOSWELL 70 kV	Base Case	P0	Base Case	1.0295	1.0325	1.0273	1.0432	1.0537	1.0272	1.031	1.0461	1.0206	1.0232	Under Review
Fresno-V-5	CORCORAN 70 kV	Base Case	P0	Base Case	1.034	1.0374	1.0324	1.0458	1.0561	1.0317	1.036	1.0513	1.0263	1.0291	Under Review
Fresno-V-6	DINUBA 70 kV	Base Case	P0	Base Case	1.0281	1.0426	1.0403	1.0456	1.0534	1.0256	1.0403	1.0343	1.036	1.0375	Under Review
Fresno-V-7	DUNLAP 70 kV	Base Case	P0	Base Case	0.9971	1.0112	1.0128	1.0366	1.0514	0.9939	1.0081	1.005	1.0069	1.0104	Under Review
Fresno-V-8	GATES 115 kV	Base Case	P0	Base Case	1.0989	1.0992	1.099	1.0813	1.0908	1.0982	1.0994	1.0967	1.0982	1.0987	Under Review
Fresno-V-9	GIFFEN 70 kV	Base Case	P0	Base Case	1.0256	1.0269	1.0325	1.0508	1.0288	1.025	1.0263	1.0502	1.0313	1.0313	Under Review
Fresno-V-10	JGBSWLL 70 kV	Base Case	P0	Base Case	1.0286	1.0315	1.0261	1.0428	1.0534	1.0262	1.0299	1.0449	1.0194	1.0219	Under Review
Fresno-V-11	NRTHFORK 70 kV	Base Case	P0	Base Case	1.0354	1.0389	1.0366	1.0597	1.0482	1.033	1.0382	1.0383	1.0324	1.0289	Under Review
Fresno-V-12	OLIVE_SS 115 kV	Base Case	P0	Base Case	1.0331	1.023	1.0415	1.0601	1.0249	1.0329	1.0224	1.0477	1.0411	1.0414	Under Review
Fresno-V-13	OROSI 70 kV	Base Case	P0	Base Case	1.0153	1.0276	1.0293	1.0425	1.0553	1.0127	1.0254	1.0215	1.0248	1.027	Under Review
Fresno-V-14	Q679 70 kV	Base Case	P0	Base Case	1.0256	1.0269	1.0325	1.0508	1.0288	1.025	1.0263	1.0502	1.0312	1.0313	Under Review
Fresno-V-15	QUEBEC 115 kV	Base Case	P0	Base Case	1.0276	1.0126	1.036	1.0563	1.0166	1.0273	1.0116	1.0398	1.0355	1.0359	Under Review
Fresno-V-16	REEDLEY 70 kV	Base Case	P0	Base Case	1.0308	1.0422	1.044	1.047	1.0551	1.0286	1.0403	1.0362	1.0403	1.0417	Under Review
Fresno-V-17	SANDCRK 70 kV	Base Case	P0	Base Case	1.0029	1.0165	1.0179	1.0385	1.0525	0.9998	1.0137	1.0102	1.0122	1.0155	Under Review
Fresno-V-18	SJNO2 70 kV	Base Case	P0	Base Case	1.035	1.0383	1.036	1.0569	1.045	1.0327	1.0376	1.0377	1.032	1.0291	Under Review
Fresno-V-19	SJNO3 70 kV	Base Case	P0	Base Case	1.0358	1.0395	1.0371	1.0624	1.0514	1.0333	1.0388	1.0389	1.0328	1.0286	Under Review
Fresno-V-20	STONCRRL 70 kV	Base Case	P0	Base Case	1.0073	1.0199	1.0212	1.0398	1.0537	1.0045	1.0177	1.0137	1.0162	1.0189	Under Review
Fresno-V-21	TVY VLLY 70 kV	Base Case	P0	Base Case	1.0243	1.0362	1.0378	1.0449	1.0545	1.0219	1.0343	1.0302	1.0335	1.0355	Under Review
Fresno-V-22	WHITERIVER_P 115 kV	Base Case	P0	Base Case	1.0334	1.0233	1.0417	1.0598	1.0249	1.0331	1.0227	1.0478	1.0413	1.0416	Under Review
Fresno-V-23	GATES 115 kV	P1-3:A14:1:_GATES 500/230kV TB 11	P1	Single Contingency	1.1033	1.1041	1.1054	1.086	1.0999	1.102	1.1022	1.1018	1.1041	1.1047	Under Review



Study Area: PG&E Greater Fresno

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-V-24	CANAL 70 kV	P2-1:A13:58:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] (CHEVPIPE-LOS BANS)	P2-1	Single Contingency	0.9008	1.0049	1.0048	1.0119	1.0439	0.8912	1.002	0.9997	1.0028	1.0044	Oro Loma 70kV Reinforcement Project	
Fresno-V-25	CHEVPIPE 70 kV	P2-1:A13:58:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] (CHEVPIPE-LOS BANS)	P2-1	Single Contingency	0.8888	0.9951	0.9954	1.0077	1.0429	0.8788	0.9915	0.9898	0.9931	0.995	Oro Loma 70kV Reinforcement Project	
Fresno-V-26	LIVNGSTN 70 kV	P2-1:A13:58:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] (CHEVPIPE-LOS BANS)	P2-1	Single Contingency	0.9003	1.0053	1.0049	1.0127	1.0452	0.8903	1.0021	1	1.0025	1.0045	Oro Loma 70kV Reinforcement Project	
Fresno-V-27	SNTA NLA 70 kV	P2-1:A13:58:_LOS BANOS-LIVINGSTON JCT-CANAL 70kV [8940] (CHEVPIPE-LOS BANS)	P2-1	Single Contingency	0.8888	0.9951	0.9954	1.0077	1.0429	0.8788	0.9916	0.9898	0.9931	0.995	Oro Loma 70kV Reinforcement Project	
Fresno-V-28	BULLARD 115 kV	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	0.9124	0.9429	0.9332	0.634	1.0253	0.8964	0.9344	0.9415	0.9201	0.9314	Drop Pumps	
Fresno-V-29	DUNLAP 70 kV	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	0.9067	0.97	0.9651	1.0062	1.0312	0.8873	0.9614	0.9585	0.948	0.9544	Drop Pumps	
Fresno-V-30	HERNDON 230 kV	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	0.9072	0.9343	0.9264	0.6214	0.9958	0.8931	0.9276	0.9329	0.9157	0.9247	Drop Pumps	
Fresno-V-31	PNDLJ1 115 kV	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	0.915	0.9452	0.9356	0.6342	1.0246	0.8992	0.9369	0.9437	0.9228	0.9337	Drop Pumps	
Fresno-V-32	PNEDLE 115 kV	P2-4:A14:1:_HERNDON 230kV - Section 1D & 2D	P2	Single Contingency	0.914	0.9444	0.9346	0.6339	1.0247	0.8982	0.936	0.9429	0.9218	0.9328	Drop Pumps	
Fresno-V-33	SANDCRK 70 kV	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	0.9131	0.9755	0.9704	1.0082	1.0323	0.8939	0.9673	0.9641	0.9536	0.9598	Drop Pumps	
Fresno-V-34	STONCRRL 70 kV	P2-4:A14:5:_MC CALL 230kV - Section 2D & 1D	P2	Single Contingency	0.918	0.9791	0.974	1.0096	1.0336	0.8993	0.9715	0.9677	0.9579	0.9634	Drop Pumps	
Fresno-V-35	CHWCHLLA 115 kV	P1-2:A13:25:_LE GRAND-CHOWCHILLA 115kV [2111] and P1-1:A14:6:_KERCKHOF 14kV Gen Unit 1	P3	Multiple Contingency	0.89	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	>0.9	0.8846	0.89	Under Review	
Fresno-V-36	MARIPOS2 70 kV	P1-3:A13:17:_EXCHEOUR 70/115kV TB 1 and P1-1:A13:14:_MCSWAIN 4kV Gen Unit 1	P3	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8963	>0.9	>0.9	0.8997	>0.9	Under Review	
Fresno-V-37	SHARON 115 kV	P1-2:A13:25:_LE GRAND-CHOWCHILLA 115kV [2111] and P1-1:A14:6:_KERCKHOF 14kV Gen Unit 1	P3	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8969	>0.9	Under Review	



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-V-38	ATWATER 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.887	>0.9	>0.9	>0.9	>0.9	0.8559	>0.9	>0.9	>0.9	>0.9	Under Review	
Fresno-V-39	ATWATR J 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8884	>0.9	>0.9	>0.9	>0.9	0.8574	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-40	BER VLLY 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-3:A13:17:_EXCHEOUR 70/115kV TB 1	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.877	>0.9	Sensitivity Under Review	
Fresno-V-41	BRCEBG J 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8641	>0.9	Sensitivity Under Review	
Fresno-V-42	CAL AVE 115 kV	P1-2:A14:45:_SANGER-CALIFORNIA AVE 115kV [9130] and P1-2:A14:47:_MCCALL-WEST FRESNO #2 115kV [2370]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8949	0.8961	0.8873	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-43	CASTLE 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8878	>0.9	>0.9	>0.9	>0.9	0.8567	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-44	CERTAN T 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:31:_WILSON-LE GRAND 115kV [4170]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8981	>0.9	Sensitivity Under Review	
Fresno-V-45	CERTANJ1 115 kV	P1-1:A14:6:_KERCKHOF 14kV Gen Unit 1 and P1-2:A13:25:_LE GRAND-CHOWCHILLA 115kV [2111]	P6	Multiple Contingency	>0.9	>0.9	0.8905	>0.9	>0.9	>0.9	>0.9	0.885	0.8904	>0.9	Under Review	
Fresno-V-46	CERTANJ2 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:31:_WILSON-LE GRAND 115kV [4170]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8981	>0.9	Sensitivity Under Review	
Fresno-V-47	CERTTEED 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:31:_WILSON-LE GRAND 115kV [4170]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8972	>0.9	Sensitivity Under Review	
Fresno-V-48	CHWCGN 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:31:_WILSON-LE GRAND 115kV [4170]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8974	>0.9	Sensitivity Under Review	
Fresno-V-49	CHWCGNJT 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:31:_WILSON-LE GRAND 115kV [4170]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8975	>0.9	Sensitivity Under Review	

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ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-V-50	CHWCHLA2 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:31:_WILSON-LE GRAND 115kV [4170]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8974	>0.9	Sensitivity Under Review	
Fresno-V-51	CHWCHLLA 115 kV	P1-2:A13:25:_LE GRAND-CHOWCHILLA 115kV [2111] and P1-3:A14:23:_KERCKHF2 115/13.8kV TB 1	P6	Multiple Contingency	>0.9	>0.9	0.89	>0.9	>0.9	>0.9	>0.9	0.8846	0.89	>0.9	Sensitivity Under Review	
Fresno-V-52	COLNGA 1 70 kV	P1-2:A14:102:_JAYNE SW STA-COALINGA 70kV [8670] and P1-2:A14:71:_COALINGA #1-COALINGA #2 70kV [0]	P6	Multiple Contingency	0.8604	>0.9	>0.9	>0.9	>0.9	0.8462	>0.9	>0.9	>0.9	>0.9	Estrella mitigates future years	
Fresno-V-53	CRESSEY 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8829	>0.9	>0.9	>0.9	>0.9	0.8515	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-54	DANISHCM 115 kV	P1-2:A14:45:_SANGER-CALIFORNIA AVE 115kV [9130] and P1-2:A14:47:_MCCALL-WEST FRESNO #2 115kV [2370]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.895	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-55	EL CAPTN 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8902	>0.9	>0.9	>0.9	>0.9	0.8594	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-56	EL NIDO 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8935	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-57	EXCHEOUR 115 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8556	>0.9	Sensitivity Under Review	
Fresno-V-58	GALLO 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8811	>0.9	>0.9	>0.9	>0.9	0.8496	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-59	GATES 115 kV	P1-3:A14:13:_HENRIETA 230/70kV TB 4 and P1-3:A14:1:_GATES 500/230kV TB 11	P6	Multiple Contingency	1.1061	1.1073	1.1086	>0.9	1.1023	1.1049	1.1064	1.1076	1.1079	>0.9	Under Review	
Fresno-V-60	HENRIETA 230 kV	P1-2:A14:12:_GREGG-HENRIETA-MUSTANGSS 230kV [0] and P1-2:A14:18:_MC CALL-MUSTANGSS 230kV [0]	P6	Multiple Contingency	>0.9	>0.9	0.8905	0.8465	0.855	0.8937	0.8996	0.8862	0.8902	>0.9	Under Review	

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					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-V-61	INDN FLT 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8544	>0.9	Sensitivity Under Review	
Fresno-V-62	JACALITO 70 kV	P1-2:A14:98:_GATES-JAYNE SW STA 70kV [8652] and P1-2:A14:71:_COALINGA #1-COALINGA #2 70kV [0]	P6	Multiple Contingency	0.8646	>0.9	>0.9	>0.9	>0.9	0.8488	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-63	JR WOOD 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8861	>0.9	>0.9	>0.9	>0.9	0.8549	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-64	JRWD GEN 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8863	>0.9	>0.9	>0.9	>0.9	0.8552	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-65	LE GRNDJ 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8864	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-66	LIVNGSTN 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	0.8812	>0.9	>0.9	>0.9	>0.9	0.8497	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-67	MARIPOS2 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.841	>0.9	Sensitivity Under Review	
Fresno-V-68	MC SWAIN 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8981	>0.9	Sensitivity Under Review	
Fresno-V-69	MCSWAINJ 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8981	>0.9	Sensitivity Under Review	
Fresno-V-70	MERCED 115 kV	P1-3:A13:8:_WILSON 230/115kV TB 2 and P1-3:A13:7:_WILSON 230/115kV TB 1	P6	Multiple Contingency	0.8983	>0.9	>0.9	>0.9	>0.9	0.869	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent or Cressy N. Merced	
Fresno-V-71	MRCDFLLS 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8982	>0.9	Sensitivity Under Review	





ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)										Potential Mitigation Solutions	
					2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	2018 SP No BTM-PV	2021 SP No AAEE	2021 SP Heavy Renewable & Min Gas Gen	2026 SP No BTM-PV	2026 Retirement of QF Generations		
Fresno-V-72	Q633 70 kV	P1-2:A14:71:_COALINGA #1-COALINGA #2 70kV [0] and P1-2:A14:98:_GATES-JAYNE SW STA 70kV [8652]	P6	Multiple Contingency	0.8687	>0.9	>0.9	>0.9	>0.9	0.8539	>0.9	>0.9	>0.9	>0.9	Wilson 115kV area reinforcent &Cressy N. Merced	
Fresno-V-73	SAXONCRK 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8634	>0.9	Sensitivity Under Review	
Fresno-V-74	SHARON 115 kV	P1-1:A14:6:_KERCKHOF 14kV Gen Unit 1 and P1-2:A13:25:_LE GRAND-CHOWCHILLA 115kV [2111]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8969	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-75	SHARON T 115 kV	P1-1:A14:6:_KERCKHOF 14kV Gen Unit 1 and P1-2:A13:25:_LE GRAND-CHOWCHILLA 115kV [2111]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8972	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-76	WESTLNDS_SS 70 kV	P1-2:A14:98:_GATES-JAYNE SW STA 70kV [8652] and P1-2:A14:71:_COALINGA #1-COALINGA #2 70kV [0]	P6	Multiple Contingency	0.8683	>0.9	>0.9	>0.9	>0.9	0.8526	>0.9	>0.9	>0.9	>0.9	Oro Loma 70kV Reinforcement Project	
Fresno-V-77	WILSON A 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8748	>0.9	>0.9	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-78	WILSON B 115 kV	P1-3:A13:7:_WILSON 230/115kV TB 1 and P1-3:A13:8:_WILSON 230/115kV TB 2	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8744	>0.9	>0.9	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-79	WST FRSO 115 kV	P1-2:A14:45:_SANGER-CALIFORNIA AVE 115kV [9130] and P1-2:A14:47:_MCCALL-WEST FRESNO #2 115kV [2370]	P6	Multiple Contingency	0.8927	>0.9	0.8975	>0.9	>0.9	0.8855	0.8867	0.8779	0.8953	>0.9	load growth, Under Review	
Fresno-V-80	YOSEMITE 70 kV	P1-2:A13:57:_EXCHEQUER-MARIPOSA 70kV [8640] and P1-3:A13:17:_EXCHEQUR 70/115kV TB 1	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	0.8978	>0.9	>0.9	>0.9	>0.9	Sensitivity Under Review	
Fresno-V-81	YOSEMITE 70 kV	P1-3:A14:15:_GATES 230/70kV TB 5 and P1-2:A13:30:_EXCHEQUER-LE GRAND 115kV [1560]	P6	Multiple Contingency	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	0.8499	>0.9	Sensitivity Under Review	

Study Area: PG&E Greater Fresno

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance( Voltage and frequency violations)										Potential Mitigation Solutions
				2018 Summer Peak	2021 Summer Peak	2026 Summer Peak	2018 Spring Off-Peak	2021 Spring Light Load	Select..	Select..	Select..	Select..	Select..	
Fresno-TS-1	Gates 500/230 kV Transformer No. 11	P1	Single Contingency	3	2	2	3	2	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-2	BUS 2 FAULT AT 30835 HERNDON 230.00	P2	Single Contingency	4	2	2	4	4	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-3	BUS FAULT AT 30875 MC CALL 230.00	P2	Single Contingency	21	19	19	21	21	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-4	BUS-TIE BREAKER 202 FAULT AT PANOCHE 115.00	P2	Single Contingency	14	8	14	10	10	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-5	NON-BUS-TIE BREAKER CB1122 FAULT AT 30465 MENDOTA 115.00	P2	Single Contingency	26	26	26	17	17	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-6	BUS FAULT AT 30875 MC CALL 230.00	P2	Single Contingency	21	19	19	21	21	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-7	HELMS 1 18.00 Generator ID 1	P4	Single Contingency	2	0	0	4	0	N/A	N/A	N/A	N/A	N/A	Northern Fresno 115kV Area reinforcement Project fixes later years
Fresno-TS-8	Gates 230kV bus section	P4	Single Contingency	33	51	4	175	33	N/A	N/A	N/A	N/A	N/A	Under review
Fresno-TS-9	Herndon - Kearney & Herndon - Ashlan 230 kV Lines	P7	Multiple Contingency	7	5	5	8	8	N/A	N/A	N/A	N/A	N/A	Under review



Study Area: PG&E Greater Fresno



Single Contingency Load Drop

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

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

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

No single source substation with more than 100 MW Load