

Study Area: PG&E Central Valley
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Manteca 60 kV Line No. 1	Base Case	P0	N-0	106.8	104.6	97.3	NA	NA	NA	40.0	32.1	105.6	30.9	97.8	NA	97.4	System Upgrade/ Preferred Resources/Operating Solution as needed
	KASSON 115/60KV TB 1	P1-3	N-1	108.9	108.1	99.7	NA	NA	NA	34.8	28.0	110.0	27.0	95.6	NA	99.8	
	KASSON 115KV SECTION 1D	P2-2	Bus Fault	111.2	107.7	102.8	NA	NA	NA	34.9	27.9	109.6	27.0	95.1	NA	103.0	
	KASSON - 1D 115KV & LAMMERS-KASSON LINE	P2-3	Non-Bus Tie Breaker Fault	111.2	107.6	102.7	NA	NA	NA	34.9	27.9	109.5	27.0	95.1	NA	103.0	
	KASSON - 1D 115KV & SCHULTE SW STA-KASSON-MANTECA LINE	P2-3	Non-Bus Tie Breaker Fault	128.9	113.3	115.0	NA	NA	NA	34.9	28.0	115.6	27.0	100.1	NA	114.8	
	KASSON - 1D 115KV & VIERRA-TRACY-KASSON LINE	P2-3	Non-Bus Tie Breaker Fault	117.3	108.4	103.9	NA	NA	NA	34.9	28.0	110.4	27.0	96.5	NA	104.0	
VacaDixon-Plainfield 60 kV Line (Different sections))	Base Case	P0	N-0	116.7	119.6	129.1	NA	NA	NA	53.4	32.6	121.7	38.7	55.1	NA	129.6	System Upgrade/ Preferred Resources/Operating Solution as needed
	NICOLAUS-WILKINS SLOUGH 60KV [7710]	P1-2	N-1	100.6	103.1	111.3	NA	NA	NA	46.0	28.1	104.9	33.4	47.5	NA	111.7	
	VACA-DIX 115/60KV TB 5	P1-3	N-1	101.3	103.8	113.6	NA	NA	NA	46.2	28.3	107.2	33.5	48.1	NA	114.1	
	VACA-DIX 230/115KV TB 3	P1-3	N-1	102.8	106.0	115.0	NA	NA	NA	46.1	28.2	108.0	33.5	48.4	NA	115.6	
	VACA-DIX 230/115KV TB 4	P1-3	N-1	102.8	106.0	115.0	NA	NA	NA	46.1	28.2	108.0	33.5	48.4	NA	115.6	
	PLAINFLD SVD=V	P1-4	N-1	114.1	116.4	125.1	NA	NA	NA	41.3	28.1	117.6	33.4	57.2	NA	125.7	
	VACA-DIX 230KV SECTION 1E	P2-2	Bus Fault	103.7	106.8	116.0	NA	NA	NA	46.1	28.3	108.7	33.6	48.9	NA	117.3	
	VACA-DIX 230KV SECTION 2F	P2-2	Bus Fault	103.1	106.1	115.3	NA	NA	NA	46.2	28.3	108.0	33.5	49.0	NA	116.4	
	VACA-DIX 115KV - MIDDLE BREAKER BAY 6	P2-3	Non-Bus Tie Breaker Fault	102.8	105.8	115.1	NA	NA	NA	46.2	28.2	108.0	33.5	48.6	NA	115.7	
	VACA-DIX 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	104.4	107.4	116.3	NA	NA	NA	46.1	28.3	109.4	33.6	49.4	NA	117.7	
	VACA-DIX 230KV - SECTION 2F & 2E	P2-4	Bus Tie Breaker Falut	103.4	106.4	115.3	NA	NA	NA	46.2	28.3	108.3	33.6	49.2	NA	116.5	
	Base Case	P0	N-0	115.4	118.2	127.6	NA	NA	NA	53.6	33.7	120.3	39.5	54.7	NA	128.1	
	NICOLAUS-WILKINS SLOUGH 60KV [7710]	P1-2	N-1	99.6	102.1	110.2	NA	NA	NA	46.2	29.1	103.8	34.1	47.2	NA	110.6	
	VACA-DIX 115/60KV TB 5	P1-3	N-1	100.3	102.8	112.4	NA	NA	NA	46.4	29.2	106.1	34.2	47.7	NA	112.9	
	VACA-DIX 230/115KV TB 3	P1-3	N-1	101.8	105.0	113.8	NA	NA	NA	46.3	29.2	106.9	34.2	48.1	NA	114.4	
	VACA-DIX 230/115KV TB 4	P1-3	N-1	101.8	105.0	113.8	NA	NA	NA	46.3	29.2	106.9	34.2	48.1	NA	114.4	
	PLAINFLD SVD=V	P1-4	N-1	113.8	114.9	123.8	NA	NA	NA	41.0	29.1	116.3	34.1	56.5	NA	124.4	
	VACA-DIX 230KV SECTION 1E	P2-2	Bus Fault	102.7	105.7	114.8	NA	NA	NA	46.3	29.2	107.6	34.2	48.5	NA	116.1	
	VACA-DIX 230KV SECTION 2F	P2-2	Bus Fault	102.0	105.0	114.1	NA	NA	NA	46.4	29.2	106.9	34.2	48.6	NA	115.2	
	VACA-DIX 115KV - MIDDLE BREAKER BAY 6	P2-3	Non-Bus Tie Breaker Fault	101.9	104.9	113.9	NA	NA	NA	46.4	29.2	106.9	34.2	48.2	NA	114.5	
	VACA-DIX 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	103.4	106.3	115.2	NA	NA	NA	46.3	29.3	108.3	34.3	49.0	NA	116.5	
	VACA-DIX 230KV - SECTION 2F & 2E	P2-4	Bus Tie Breaker Falut	102.3	105.3	114.2	NA	NA	NA	46.4	29.2	107.2	34.2	48.8	NA	115.3	
	Base Case	P0	N-0	111.9	113.8	121.6	NA	NA	NA	48.7	23.8	115.7	30.9	55.2	NA	122.0	
	PLAINFLD SVD=V	P1-4	N-1	109.6	108.8	115.8	NA	NA	NA	39.1	20.5	110.6	26.6	58.7	NA	116.4	
	VACA-DIX 230KV SECTION 1E	P2-2	Bus Fault	99.3	101.3	108.9	NA	NA	NA	42.0	20.6	103.2	26.7	49.3	NA	110.1	
	VACA-DIX 230KV SECTION 2F	P2-2	Bus Fault	98.6	100.7	108.2	NA	NA	NA	42.1	20.6	102.5	26.7	49.4	NA	109.2	
	VACA-DIX 115KV - MIDDLE BREAKER BAY 6	P2-3	Non-Bus Tie Breaker Fault	98.6	100.7	108.1	NA	NA	NA	42.1	20.6	102.5	26.7	48.9	NA	108.6	
	VACA-DIX 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	100.0	101.9	109.2	NA	NA	NA	42.0	20.6	103.8	26.8	49.9	NA	110.4	
	VACA-DIX 230KV - SECTION 2F & 2E	P2-4	Bus Tie Breaker Falut	99.0	100.9	108.3	NA	NA	NA	42.1	20.6	102.8	26.8	49.7	NA	109.4	
	WEST SACRAMENTO-BRIGHTON 115KV [4110]	P1-2	N-1	99.6	89.6	106.9	NA	NA	NA	42.5	23.9	92.0	22.6	44.1	NA	93.8	
	WEST SACRAMENTO-BRIGHTON 115KV [4110] (DPWT_TP2-BRIGHTN)	P2-1	Line Section w/o Fault	99.4	89.3	106.7	NA	NA	NA	42.3	23.7	91.7	22.5	44.0	NA	93.6	



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				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Brighton-Davis 115 kV Line (Different sections)	W.SCRMNO - DE 115KV & WEST SACRAMENTO-BRIGHTON LINE	P2-3	Non-Bus Tie Breaker Fault	106.7	102.5	118.1	NA	NA	NA	45.6	26.6	105.7	26.1	41.8	NA	106.1	System Upgrade/ Preferred Resources/Operating Solution as needed
	RIO OSO 115KV - SECTION 2D & 1D	P2-4	Bus Tie Breaker Falut	115.2	119.1	93.6	NA	NA	NA	56.8	16.3	121.3	19.0	58.8	NA	95.8	
	P7-1:A4:17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7-1	DCTL	131.1	122.9	143.7	NA	NA	NA	53.8	26.2	125.2	25.0	55.2	NA	133.3	
	WEST SACRAMENTO-BRIGHTON 115KV [4110]	P1-2	N-1	117.8	106.2	126.2	NA	NA	NA	50.6	25.1	109.1	23.1	51.0	NA	110.6	
	WEST SACRAMENTO-BRIGHTON 115KV [4110] (DPWT_TP2-BRIGHTN)	P2-1	Line Section w/o Fault	117.5	105.9	126.0	NA	NA	NA	50.4	24.9	108.7	23.0	50.8	NA	110.3	
	W.SCRMNO 115KV SECTION DE	P2-2	Bus Fault	88.3	84.8	100.8	NA	NA	NA	42.7	19.4	87.7	19.5	35.8	NA	86.2	
	W.SCRMNO - DE 115KV & WEST SACRAMENTO-BRIGHTON LINE	P2-3	Non-Bus Tie Breaker Fault	126.2	121.4	139.5	NA	NA	NA	54.9	28.1	125.1	27.1	48.7	NA	125.3	
	RIO OSO 115KV - SECTION 2D & 1D	P2-4	Bus Tie Breaker Falut	136.6	141.2	111.2	NA	NA	NA	68.3	16.0	143.7	18.6	70.3	NA	113.8	
	P7-1:A4:16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115 kV Line	P7-1	DCTL	111.0	114.1	87.5	NA	NA	NA	54.1	16.4	116.2	17.4	52.2	NA	85.5	
	P7-1:A4:17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7-1	DCTL	154.7	145.3	169.4	NA	NA	NA	64.6	27.9	148.1	25.8	64.9	NA	157.2	
	P7-1:A5:15_Rio Oso-Woodland No. 1 115 kV Line & Rio Oso-Woodland No. 2 115 kV Line	P7-1	DCTL	111.0	114.1	87.5	NA	NA	NA	54.1	16.4	116.2	17.4	52.2	NA	85.5	
	WEST SACRAMENTO-BRIGHTON 115KV [4110]	P1-2	N-1	118.1	106.4	126.5	NA	NA	NA	50.8	26.1	109.2	24.2	51.7	NA	110.9	
	WEST SACRAMENTO-BRIGHTON 115KV [4110] (DPWT_TP2-BRIGHTN)	P2-1	Line Section w/o Fault	117.8	106.1	126.2	NA	NA	NA	50.7	26.0	108.9	24.0	51.6	NA	110.7	
	W.SCRMNO 115KV SECTION DE	P2-2	Bus Fault	88.4	84.7	101.0	NA	NA	NA	42.9	20.4	87.7	20.6	36.6	NA	86.4	
	W.SCRMNO - DE 115KV & WEST SACRAMENTO-BRIGHTON LINE	P2-3	Non-Bus Tie Breaker Fault	126.5	121.6	139.7	NA	NA	NA	55.0	29.2	125.3	28.1	49.3	NA	125.5	
	RIO OSO 115KV - SECTION 2D & 1D	P2-4	Bus Tie Breaker Falut	136.7	141.3	111.3	NA	NA	NA	68.3	17.1	143.8	19.6	70.4	NA	113.9	
	P7-1:A4:16_Rio Oso-Woodland #1 115 kV Line & Rio Oso-Woodland #2 115 kV Line	P7-1	DCTL	111.1	114.2	87.6	NA	NA	NA	54.2	17.5	116.3	18.5	52.4	NA	85.7	
	P7-1:A4:17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7-1	DCTL	155.0	145.5	169.7	NA	NA	NA	64.7	28.9	148.3	26.9	65.5	NA	157.5	
	P7-1:A5:15_Rio Oso-Woodland No. 1 115 kV Line & Rio Oso-Woodland No. 2 115 kV Line	P7-1	DCTL	111.1	114.2	87.6	NA	NA	NA	54.2	17.5	116.3	18.5	52.4	NA	85.7	
	P7-1:A4:17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7-1	DCTL	106.0	99.4	116.2	NA	NA	NA	43.5	21.3	101.3	20.3	44.7	NA	107.8	
Salado-Newman #1 or #2 60 kV Lines (Different sections)	SALADO-CROWCREEK SS 60KV [0]	P1-2	N-1	88.7	94.2	113.5	NA	NA	NA	34.6	50.2	97.6	58.1	13.7	NA	112.7	System Upgrade/ Preferred Resources/Operating Solution as needed
	SALADO-NEWMAN #2 60KV [7870] MOAS OPENED ON CRWS LDG_CRWS LDJ	P1-2	N-1	67.9	72.7	85.4	NA	NA	NA	7.5	82.9	74.4	92.3	21.6	NA	100.4	
	SALADO-NEWMAN #2 60KV [7870] MOAS OPENED ON CRWS LDG_CRWS LDJ	P1-2	N-1	102.7	108.8	128.4	NA	NA	NA	39.6	53.5	110.7	61.9	15.9	NA	151.1	
	SALADO-NEWMAN #2 60KV [7870] MOAS OPENED ON CRWS LDG_CRWS LDJ	P1-2	N-1	95.9	101.6	122.1	NA	NA	NA	37.0	23.0	103.5	28.9	51.6	NA	143.6	
	SALADO-NEWMAN #2 60KV [7870] MOAS OPENED ON CRWS LDG_CRWS LDJ	P1-2	N-1	79.9	84.1	100.7	NA	NA	NA	30.2	30.4	85.5	36.7	38.5	NA	100.0	
	CROWCREEK SS-NEWMAN 60KV [0]	P1-2	N-1	87.6	93.4	113.2	NA	NA	NA	34.0	22.0	95.4	27.6	47.5	NA	112.6	
	SALADO-CROWCREEK SS 60KV [0]	P1-2	N-1	89.2	95.0	113.5	NA	NA	NA	34.7	50.2	97.6	58.1	14.1	NA	112.7	
	SALADO-NEWMAN #2 60KV [7870] MOAS OPENED ON CRWS LDG_CRWS LDJ	P1-2	N-1	102.4	109.2	129.6	NA	NA	NA	39.4	24.4	111.1	30.5	54.3	NA	128.7	
	CROWCREEK SS-NEWMAN 60KV [0]	P1-2	N-1	93.7	100.6	120.2	NA	NA	NA	36.3	23.3	102.6	29.1	50.2	NA	119.7	

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				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
	SALADO-CROWCREEK SS 60KV [0]	P1-2	N-1	95.2	102.2	120.6	NA	NA	NA	36.8	51.1	104.8	59.4	14.5	NA	119.7	
Atlantic-Gold Hill 230 kV Line	GOLDHILL 230KV SECTION 2D	P2-2	Bus Fault	57.8	7.0	12.1	NA	NA	NA	44.3	8.7	8.2	17.8	103.9	NA	5.5	Sensitivity only
Atlantic-Gold Hill 230 kV Line	GOLDHILL - 2D 230KV & MIDDLE FORK-GOLD HILL LINE	P2-3	Non-Bus Tie Breaker Fault	57.8	NA	NA	NA	NA	NA	44.3	NA	NA	NA	103.9	NA	NA	Sensitivity only
Bellota-Riverbank-Melones 115 kV Line	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	111.8	98.5	111.7	NA	NA	NA	35.4	9.1	114.7	16.0	45.2	NA	111.9	SPS recommended in 2019-2020 TPP
Bellota-Riverbank-Melones 115 kV Line (Bellota-Riverbank Tap)	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	110.1	98.8	98.2	NA	NA	NA	43.5	8.1	114.3	4.0	52.0	NA	102.5	SPS recommended in 2019-2020 TPP
Bellota-Riverbank-Melones 115 kV Line (Melones-Tulloch)	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	191.4	162.2	172.5	NA	NA	NA	62.7	22.9	190.3	33.8	67.4	NA	181.7	SPS recommended in 2019-2020 TPP
Bellota-Riverbank-Melones 115 kV Line (Riverbank Tap-Tulloch)	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	221.6	195.2	208.6	NA	NA	NA	78.8	1.7	226.0	13.6	96.8	NA	213.5	SPS recommended in 2019-2020 TPP
Cortina 230/60 kV Transformer Bank 1	CORTINA 230/115KV TB 4	P1-3	N-1	103.1	107.0	107.5	NA	NA	NA	66.1	94.9	108.0	99.9	54.1	NA	1.1	Operating procedure
	CORTINA 230KV - RING R2 & R1	P2-3	Non-Bus Tie Breaker Fault	82.2	85.7	88.2	NA	NA	NA	43.4	89.9	86.7	105.0	25.6	NA	0.8	Under Review
CURTISS-MI-WUK 115 kV	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	95.5	93.5	105.2	NA	NA	NA	77.9	22.1	100.5	22.3	86.9	NA	95.3	SPS recommended in 2019-2020 TPP
Delta Pumps-Tesla 230 kV Line (Delta Pumps-Altamont)	VACA-DIX 230KV SECTION NA	P2-2	Bus Fault	23.3	31.7	30.8	NA	NA	NA	103.6	57.7	31.8	14.9	95.1	NA	48.9	Under Review
	BDLSWSTA 230KV - MIDDLE BREAKER BAY 2	P2-3	Non-Bus Tie Breaker Fault	21.1	28.0	28.9	NA	NA	NA	106.1	66.2	27.9	52.5	Diverge	NA	60.2	Under review
	VACA-DIXON 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5-5	Non-Redundant Relay	11.5	19.5	18.1	NA	NA	NA	107.6	61.8	19.5	24.2	Diverge	NA	53.8	Under Review
	P7-1:A4:13_Birds Landing-CC Sub 230kV Line & Birds Landing-Contra Costa PP 230kV Line	P7-1	DCTL	21.0	27.9	28.9	NA	NA	NA	106.1	66.2	27.8	52.5	105.0	NA	60.3	Under review
Drum - Grass Valley - Weimar 60 kV Line	COLGATE-GRASS VALLEY 60KV [6490]	P1-2	N-1	78.1	79.7	76.4	NA	NA	NA	45.3	10.5	78.2	19.4	104.2	NA	98.5	Continue to monitor
	COLGATE-GRASS VALLEY 60KV [6490]	P1-2	N-1	35.4	23.1	105.3	NA	NA	NA	17.9	28.9	24.2	30.5	14.2	NA	25.1	Continue to monitor
Drum - Rio Oso 115 kV No. 1 Line	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	12.6	24.5	130.1	NA	NA	NA	45.8	15.8	25.8	6.6	18.6	NA	33.3	Under review
Drum - Rio Oso 115 kV No. 2 Line	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	13.6	26.7	165.4	NA	NA	NA	59.4	41.4	28.3	22.3	26.7	NA	36.8	Under review
Drum-Grass Valley-Weimar 60 kV Line (Drum-Bonnie N)	COLGATE-GRASS VALLEY 60KV [6490]	P1-2	N-1	46.9	42.3	102.1	NA	NA	NA	13.5	32.7	43.8	35.9	19.4	NA	44.8	Continue to monitor
	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	62.2	56.8	119.5	NA	NA	NA	7.2	26.7	58.2	30.2	33.1	NA	59.1	Under review
Drum-Higgins 115 kV Line (Chicago Park-Higgins)	GOLDHILL 115KV - SECTION 1F & 2F	P2-4	Bus Tie Breaker Falut	117.4	63.7	32.8	NA	NA	NA	34.9	4.8	63.7	5.4	47.2	NA	68.0	- Gold Hill 230/115 kV Transformer Addition Project - Expected ISD: Dec. 2024 - Short term: Action Plan
	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	84.2	87.6	117.6	NA	NA	NA	28.5	22.8	89.4	16.6	39.1	NA	104.0	Under review
Drum-Higgins 115 kV Line (Drum-Dutch Flat 1)	GOLDHILL 115KV - SECTION 1F & 2F	P2-4	Bus Tie Breaker Falut	143.8	56.4	20.5	NA	NA	NA	12.5	58.7	56.2	31.4	25.9	NA	62.4	- Gold Hill 230/115 kV Transformer Addition Project - Expected ISD: Dec. 2024 - Short term: Action Plan
	PLACER-GOLD HILL #1 115KV [3340] & PLACER-GOLD HILL #2 115KV [4290]	P6	N-1-1	<100	<100	176.1	NA	NA	NA	<100	100.3	<100	<100	<100	NA	107.9	Continue to monitor
	PLACER-GOLD HILL #2 115KV [4290] & PLACER-GOLD HILL #1 115KV [3340]	P6	N-1-1	<100	<100	177.9	NA	NA	NA	<100	100.3	<100	<100	<100	NA	107.8	Continue to monitor
	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	88.3	96.9	160.8	NA	NA	NA	19.8	105.3	99.8	63.8	16.7	NA	119.0	Continue to monitor

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Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
	P7-1:A5:7_Atlantic-Gold Hill 230 kV Line & Rio Oso-Gold Hill 230 kV Line	P7-1	DCTL	58.4	47.4	19.5	NA	NA	NA	46.9	31.0	45.1	4.8	102.8	NA	55.7	Sensitivity only
Drum-Rio Oso #1 115 kV Line (Brunswick Tap 1-Dutch Flat 2)	BRNSWALT 115KV - RING R4 & R3	P2-3	Non-Bus Tie Breaker Fault	105.5	91.8	33.0	NA	NA	NA	116.8	5.3	92.0	3.9	97.5	NA	90.9	Under review
	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	21.2	9.0	130.0	NA	NA	NA	77.8	47.9	7.5	26.5	51.0	NA	13.3	Under review
Drum-Rio Oso #1 115 kV Line (Brunswick Tap-Rio Oso)	BRNSWALT 115KV - RING R4 & R3	P2-3	Non-Bus Tie Breaker Fault	40.9	30.5	109.5	NA	NA	NA	86.9	9.8	29.6	10.1	51.2	NA	32.7	Under review
	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	2.9	16.1	157.6	NA	NA	NA	66.0	48.5	17.7	28.9	36.5	NA	26.7	Under review
Drum-Rio Oso #2 115 kV Line (Drum-Brunswick Tap 2)	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	31.5	17.6	111.5	NA	NA	NA	78.5	50.4	16.6	29.3	59.0	NA	16.9	Under review
East Marysville-East Marysville Jct 115 kV	PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & RIO OSO-NICOLAUS 115KV [3440]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	NA	148.3	Sensitivity only
	RIO OSO-NICOLAUS 115KV [3440] & PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	NA	147.3	Sensitivity only
El Dorado-Missouri Flat #1 115 kV Line (Apple Hill Tap 1-Placerville Tap 1)	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2-1	Line Section w/o Fault	192.4	82.7	85.2	NA	NA	NA	66.9	10.6	84.2	11.6	97.2	NA	85.4	Load Reconfiguration Recommended in 2017-2018 TPP
	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2-1	Line Section w/o Fault	145.4	57.5	59.0	NA	NA	NA	42.2	28.1	58.3	8.6	63.4	NA	70.2	Load Reconfiguration Recommended in 2017-2018 TPP
	GOLDHILL 115KV SECTION 2F	P2-2	Bus Fault	18.3	94.8	96.7	NA	NA	NA	3.9	19.7	96.9	28.7	9.1	NA	115.0	Sensitivity only
	GOLDHILL 115KV - SECTION 1F & 2F	P2-4	Bus Tie Breaker Falut	18.3	96.6	96.5	NA	NA	NA	3.6	19.7	97.8	28.8	9.2	NA	114.8	Sensitivity only
	GOLDHILL 115KV - SECTION 2G & 2F	P2-4	Bus Tie Breaker Falut		95.5	96.5	NA	NA	NA		19.7	97.3	28.7		NA	115.2	Sensitivity only
El Dorado-Missouri Flat #2 115 kV Line (Apple Hill Tap 2-Placerville Tap 2)	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2-1	Line Section w/o Fault	59.9	59.7	56.8	NA	NA	NA	41.9	22.9	57.7	34.2	101.8	NA	78.2	Sensitivity only
El Dorado-Missouri Flat #2 115 kV Line (El Dorado-Apple Hill Tap 2)	MISSOURI FLAT-GOLD HILL #2 115KV [2670] (GOLDHILL-SHPRING2)	P2-1	Line Section w/o Fault	192.3	82.7	85.1	NA	NA	NA	67.2	10.8	84.1	12.0	97.0	NA	85.3	Load Reconfiguration Recommended in 2017-2018 TPP
Higgins-Bell 115 kV Line	GOLDHILL 115KV - SECTION 1F & 2F	P2-4	Bus Tie Breaker Falut	114.5	54.9	16.3	NA	NA	NA	32.0	4.3	54.7	4.0	43.4	NA	57.9	Load Reconfiguration Recommended in 2017-2018 TPP
	P7-1:A5:19_Placer-Gold Hill No. 1 115 kV Line and Placer-Gold Hill No. 2 115 kV Line	P7-1	DCTL	76.8	81.3	105.3	NA	NA	NA	24.6	27.4	83.0	17.6	33.4	NA	97.5	Under review
Lawrence Lab 115 kV Tap #1	TESLA D 230KV - SECTION 1D & 2D	P2-4	Bus Tie Breaker Falut	50.8	84.6	150.5	NA	NA	NA	19.7	157.0	97.8	186.8	64.2	NA	166.8	Continue to monitor
	TESLA 230kV BUS D (FAILURE OF NON-REDUNDENT RELAY)	P5-5	Non-Redundant Relay	50.8	84.6	150.5	NA	NA	NA	19.7	157.0	97.8	186.8	57.6	NA	166.8	Continue to monitor
Lincoln - Pleasant Grove 115 kV Line	P7-1:A5:2_Rio Oso-Atlantic 230 kV Line & Rio Oso-Gold Hill 230 kV Line	P7-1	DCTL	0.0	0.0	0.0	NA	NA	NA	125.2	18.8	0.0	15.7	0.0	NA	0.0	Sensitivity only
	P7-1:A5:2_Rio Oso-Atlantic 230 kV Line & Rio Oso-Gold Hill 230 kV Line	P7-1	DCTL	57.4	50.9	111.3	NA	NA	NA	7.9	26.7	52.3	30.0	30.2	NA	52.9	Sensitivity only
Nicolaus - Marysville 60 kV Line (Plumas-East Nicolaus)	Base Case	P0	N-0	76.4	88.7	100.3	NA	NA	NA	36.5	32.7	89.7	37.4	36.8	NA	100.4	Under review
	PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & RIO OSO-NICOLAUS 115KV [3440]	P6	N-1-1	<100	<100	115.1	NA	NA	NA	<100	<100	<100	<100	<100	NA	117.1	Continue to monitor

Study Area: PG&E Central Valley
Thermal Overloads



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
East Nicolaus	RIO OSO-NICOLAUS 115KV [3440] & PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2	P6	N-1-1	<100	<100	116.1	NA	NA	NA	<100	<100	<100	<100	<100	NA	116.3	Continue to monitor
Palermo-Pease 115 kV Line (Pease-Honcut Jct 1)	PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & RIO OSO-NICOLAUS 115KV [3440]	P6	N-1-1	<100	100.5	<100	NA	NA	NA	<100	<100	100.5	<100	<100	NA	111.5	Continue to monitor
	PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & TABLE MTN-RIO OSO 230KV [5700]	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	NA	105.7	Continue to monitor
	P7-1:A5:5_Colgate-Rio Oso 230 kV Line & Table Mountain-Rio Oso 230 kV Line	P7-1	DCTL	98.7	97.8	110.2	NA	NA	NA	37.6	38.1	100.5	39.8	55.4	NA	103.1	Under review
	P7-1:A5:6_Table Mountain-Rio Oso 230 kV Line & Palermo-Colgate 230 kV Line	P7-1	DCTL	93.3	94.2	105.7	NA	NA	NA	34.8	41.7	96.7	43.6	40.8	NA	98.2	Under review
Peachton-Pease 60 kV Line (Gridley-Live Oak)	P7-1:A5:20_Palermo-Pease 115 kV Line amd Pease-Rio Oso 115 kV Line	P7-1	DCTL	166.3	79.5	80.9	NA	NA	NA	54.9	31.4	80.6	13.1	72.2	NA	96.1	- East Marysville 115/60 kV Transformer Project - Expected ISD: Dec. 2022 - Short term: Action Plan
Pease-Rio Oso 115 kV Line (Olivehurst Jct 1-E. Marysville Jct 1)	RIO OSO 230KV SECTION 1D	P2-2	Bus Fault	73.0	30.6	40.3	NA	NA	NA	32.2	9.8	31.9	8.0	102.5	NA	92.6	Sensitivity only
	RIO OSO - 1D 230KV & COLGATE-RIO OSO LINE	P2-3	Non-Bus Tie Breaker Fault	73.0	30.6	40.3	NA	NA	NA	32.2	9.8	31.9	8.0	102.5	NA	92.6	Sensitivity only
	P7-1:A5:5_Colgate-Rio Oso 230 kV Line & Table Mountain-Rio Oso 230 kV Line	P7-1	DCTL	85.7	39.3	53.5	NA	NA	NA	31.2	19.5	40.7	16.4	116.2	NA	114.0	Sensitivity only
	P7-1:A5:6_Table Mountain-Rio Oso 230 kV Line & Palermo-Colgate 230 kV Line	P7-1	DCTL	81.8	38.5	51.5	NA	NA	NA	29.2	19.7	39.5	16.8	98.8	NA	110.2	Sensitivity only
Pease-Rio Oso 115 kV Line (Olivehurst Jct 1-Rio Oso)	P7-1:A5:5_Colgate-Rio Oso 230 kV Line & Table Mountain-Rio Oso 230 kV Line	P7-1	DCTL	74.0	31.6	42.6	NA	NA	NA	32.4	17.8	32.9	13.2	112.8	NA	94.0	Sensitivity only
Pease-Rio Oso 115 kV Line (Pease-E. Marysville Jct 1)	RIO OSO 230KV SECTION 1D	P2-2	Bus Fault	73.3	30.8	40.4	NA	NA	NA	32.7	9.9	32.0	8.1	102.7	NA	92.8	Sensitivity only
	RIO OSO - 1D 230KV & COLGATE-RIO OSO LINE	P2-3	Non-Bus Tie Breaker Fault	73.3	30.8	40.4	NA	NA	NA	32.7	9.9	32.0	8.1	102.7	NA	92.8	Sensitivity only
	P7-1:A5:13_Palermo-Nicolaus 115 kV Line & Bogue-Rio Oso 115 kV Line	P7-1	DCTL	78.0	32.1	38.4	NA	NA	NA	34.8	14.5	33.0	12.8	107.5	NA	89.3	Sensitivity only
	P7-1:A5:5_Colgate-Rio Oso 230 kV Line & Table Mountain-Rio Oso 230 kV Line	P7-1	DCTL	86.0	39.4	53.6	NA	NA	NA	31.7	19.5	40.8	16.4	116.4	NA	114.2	Sensitivity only
	P7-1:A5:6_Table Mountain-Rio Oso 230 kV Line & Palermo-Colgate 230 kV Line	P7-1	DCTL	82.0	38.6	51.6	NA	NA	NA	29.7	19.8	39.6	16.8	99.0	NA	110.4	Sensitivity only
Placer - Bell 115 kV Line	GOLDHILL 115KV - SECTION 1F & 2F	P2-4	Bus Tie Breaker Falut	106.6	41.3	15.5	NA	NA	NA	27.0	6.9	40.9	8.5	35.8	NA	41.7	- Gold Hill 230/115 kV Transformer Addition Project - Expected ISD: Dec. 2024 - Short term: Action Plan
	P7-1:A5:7_Atlantic-Gold Hill 230 kV Line & Rio Oso-Gold Hill 230 kV Line	P7-1	DCTL	50.6	40.3	44.2	NA	NA	NA	65.2	27.8	37.7	34.0	105.9	NA	47.0	Sensitivity only
	BRIGHTN 115KV SECTION ME	P2-2	Bus Fault	103.7	46.8	65.1	NA	NA	NA	62.7	2.7	47.9	4.5	42.2	NA	2.6	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	BRIGHTN - ME 115KV & BRIGHTON-DAVIS LINE	P2-3	Non-Bus Tie Breaker Fault	103.8	46.8	65.1	NA	NA	NA	62.8	2.6	47.9	4.5	42.3	NA	2.6	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #1 LINE	P2-3	Non-Bus Tie Breaker Fault	103.7	46.8	65.1	NA	NA	NA	62.7	2.7	47.9	4.5	42.2	NA	2.6	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Rio Oso 230/115 kV Transformer Bank 1	BRIGHTN - ME 115KV & BRIGHTON-GRAND ISLAND #2 LINE	P2-3	Non-Bus Tie Breaker Fault	103.7	46.8	65.1	NA	NA	NA	62.7	2.7	47.9	4.5	42.2	NA	2.6	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	BRIGHTN - ME 115KV & WEST SACRAMENTO-BRIGHTON LINE	P2-3	Non-Bus Tie Breaker Fault	103.7	46.9	65.1	NA	NA	NA	62.7	2.7	47.9	4.5	42.2	NA	2.6	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	BRIGHTN 115KV - SECTION ME & MD	P2-4	Bus Tie Breaker Falut	103.7	46.9	65.1	NA	NA	NA	62.7	2.7	47.9	4.5	42.2	NA	2.6	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	P7-1:A5:2_Rio Oso-Atlantic 230 kV Line & Rio Oso-Gold Hill 230 kV Line	P7-1	DCTL	104.4	43.9	55.2	NA	NA	NA	63.2	7.6	43.8	8.8	68.7	NA	2.4	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
Rio Oso 230/115 kV Transformer Bank 2	RIO OSO 230KV SECTION 1D	P2-2	Bus Fault	102.9	55.7	82.8	NA	NA	NA	54.9	7.0	55.5	10.8	28.2	NA	3.5	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	RIO OSO - 1D 230KV & COLGATE-RIO OSO LINE	P2-3	Non-Bus Tie Breaker Fault	102.9	55.7	82.8	NA	NA	NA	54.9	7.0	55.5	10.8	28.2	NA	3.5	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	P7-1:A5:2_Rio Oso-Atlantic 230 kV Line & Rio Oso-Gold Hill 230 kV Line	P7-1	DCTL	102.0	43.9	55.2	NA	NA	NA	57.6	7.6	43.8	8.8	67.2	NA	2.4	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
Rio Oso-Brighton 230 kV Line	RIO OSO 115KV - SECTION 2D & 1D	P2-4	Bus Tie Breaker Falut	101.4	88.1	73.6	NA	NA	NA	58.2	12.3	87.2	10.9	95.0	NA	110.2	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	LOCKEFORD 230kV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5-5	Non-Redundant Relay	65.2	42.9	101.7	NA	NA	NA	42.0	10.8	40.8	10.9	80.0	NA	107.5	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
Rio Oso-Nicolaus 115 kV Line	PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2 & PALERMO-PEASE 115KV [3220] MOAS OPENED ON PALERMO_HONC JT1	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	NA	113.8	Sensitivity only
	PALERMO-PEASE 115KV [3220] MOAS OPENED ON PALERMO_HONC JT1 & PALERMO-NICOLAUS 115KV [3210] MOAS OPENED ON PALERMO_E.MRY J2	P6	N-1-1	<100	<100	<100	NA	NA	NA	<100	<100	<100	<100	<100	NA	115.4	Sensitivity only
Rio Oso-West Sacramento 115 kV Line	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5-5	Non-Redundant Relay	91.0	98.7	119.2	NA	NA	NA	58.9	6.4	100.7	3.6	71.4	NA	137.4	Under Review
	P7-1:A5:3_Rio Oso-Brighton 230 kV Line & Rio Oso-Lockeford 230 kV Line	P7-1	DCTL	77.9	68.8	63.3	NA	NA	NA	47.3	8.1	67.7	4.5	84.7	NA	107.7	Sensitivity only
Riverbank Jct-Manteca 115 kV Line (Melones Jct B-Riverbank Jct)	RPNJ2-MANTECA 115KV [0] NO FAULT	P2-1	Line Section w/o Fault	89.8	112.0	125.1	NA	NA	NA	36.7	24.3	113.5	27.1	45.6	NA	125.6	Under review
	RPNJ2-RIPON 115KV [0] NO FAULT	P2-1	Line Section w/o Fault	89.9	112.1	125.2	NA	NA	NA	36.7	24.0	113.5	26.8	45.6	NA	125.7	Under review
	STANISLAUS-MELONES SW STA-MANTECA #1 115KV [3830] (MELNS JA-AVENATP1)	P2-1	Line Section w/o Fault	52.0	58.1	59.6	NA	NA	NA	101.3	96.6	57.6	96.3	80.9	NA	45.0	Under review
Riverbank Jct-Manteca 115 kV Line (Riverbank Jct-Valley Home Tap)	RPNJ2-MANTECA 115KV [0] NO FAULT	P2-1	Line Section w/o Fault	85.9	106.9	120.0	NA	NA	NA	35.1	21.4	108.8	24.3	43.8	NA	120.4	Under review
	RPNJ2-RIPON 115KV [0] NO FAULT	P2-1	Line Section w/o Fault	86.0	107.0	120.1	NA	NA	NA	35.1	21.2	108.9	24.1	43.8	NA	120.5	Under review
Smartville-Marysville 60 kV Line (Browns Valley-Marysville)	P7-1:A5:20_Palermo-Pease 115 kV Line amd Pease-Rio Oso 115 kV Line	P7-1	DCTL	6.9	7.3	8.3	NA	NA	NA	127.7	17.2	7.4	12.4	3.2	NA	8.3	Under review



Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)								Loading % (Sensitivity Scenarios)					Project & Potential Mitigation Solutions
				2022 Summer Peak	2025 Summer Peak	2030 Summer Peak	2022 Winter Peak	2025 Winter Peak	2030 Winter Peak	2022 Spring Off-Peak	2025 Spring Off-Peak	2025 SP High CEC Forecast	2025 SpOP Hi Renew & Min Gas Gen	2022 SP Heavy Renewable & Min Gas Gen	2030 Retirement of QF Generations	2030 Summer Peak w/o Facility Rerates	
Smartville-Marysville 60 kV Line (Smartville-Yuba Gold)	P7-1:A5:20_Palermo-Pease 115 kV Line amd Pease-Rio Oso 115 kV Line	P7-1	DCTL	172.9	65.6	49.7	NA	NA	NA	0.0	0.0	65.1	0.0	99.1	NA	97.1	- East Marysville 115/60 kV Transformer Project - Expected ISD: Dec. 2022 - Short term: Action Plan
Smartville-Marysville 60 kV Line (Yuba Gold-Browns Valley)	P7-1:A5:20_Palermo-Pease 115 kV Line amd Pease-Rio Oso 115 kV Line	P7-1	DCTL	7.2	7.6	8.6	NA	NA	NA	128.1	17.5	7.7	12.7	3.5	NA	8.6	- East Marysville 115/60 kV Transformer Project - Expected ISD: Dec. 2022 - Short term: Action Plan
Spring Gap-MI-WUK 115 kV Line	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	99.4	97.9	109.7	NA	NA	NA	77.2	17.2	104.9	17.0	89.5	NA	99.5	SPS recommended in 2019-2020 TPP
Stanislaus-Melones-Manteca #1 115 kV Line (Melones-Melones Jct A)	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	123.3	104.4	106.0	NA	NA	NA	8.5	42.6	121.1	57.0	28.0	NA	118.8	SPS recommended in 2019-2020 TPP
Stanislaus-Melones-Riverbank Jct 115 kV Line (Melones-Melones Jct B)	BELLOTA 230KV - SECTION 1E & 2E	P2-4	Bus Tie Breaker Falut	127.5	105.6	107.6	NA	NA	NA	6.2	45.3	123.1	60.1	28.3	NA	120.8	SPS recommended in 2019-2020 TPP
West Sacramento - Brighton 115 kV Line	RIO OSO 115KV - SECTION 2D & 1D	P2-4	Bus Tie Breaker Falut	99.2	101.9	86.6	NA	NA	NA	49.2	12.6	103.7	13.6	55.6	NA	88.5	- Rio Oso Transformer Upgrade Project - Expected ISD: Jun. 2022 - Short term: Action Plan
	P7-1:A4:17_Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	P7-1	DCTL	94.5	93.3	101.1	NA	NA	NA	43.2	11.5	94.8	9.5	63.8	NA	102.0	Under review
Woodland-Davis 115 kV Line (Davis-Q653F Jct)	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5-5	Non-Redundant Relay	99.5	88.7	106.0	NA	NA	NA	58.0	19.7	90.4	13.2	75.0	NA	124.0	Under Review
Woodland-Davis 115 kV Line (Woodland tap-Q653F Jct)	BRIGHTON 230KV BUS (FAILURE OF NON-REDUNDENT RELAY)	P5-5	Non-Redundant Relay	99.5	88.7	106.0	NA	NA	NA	58.1	13.9	90.4	7.6	60.8	NA	153.4	Under Review