2024 and 2028 Final LCR Study Results Greater Fresno Area

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Stakeholder Call

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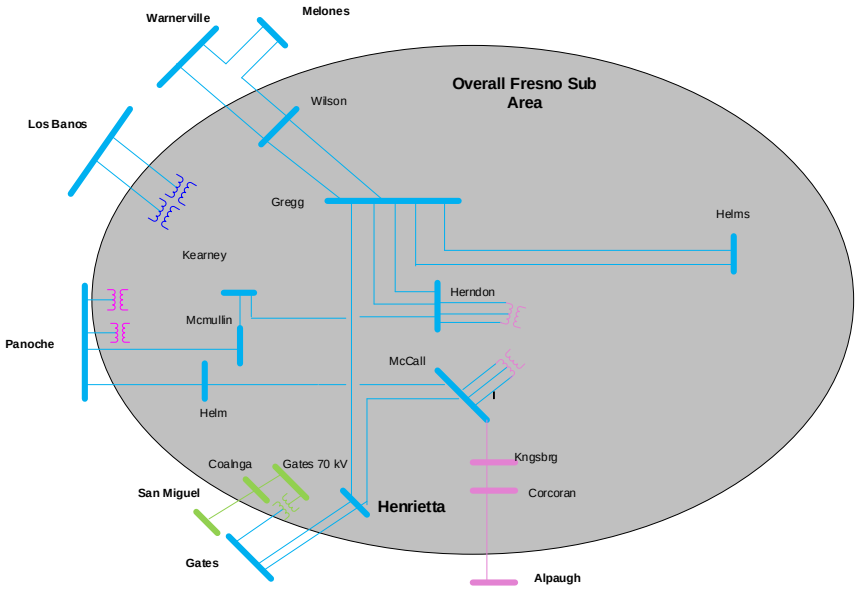
Greater Fresno Area
Electrical Boundaries and LCR Sub-Areas

Electrical Boundaries:

- Gates – Mustang #1 230 kV line
- Gates – Mustang #2 230 kV line
- Panoche – Tranquility #1 230 kV line
- Panoche – Tranquility #2 230 kV line
- Warnerville – Wilson 230 kV line
- Melones – Wilson 230 kV line
- Panoche 230/115 kV transformer #1
- Panoche 230/115 kV transformer #2
- Smyrna – Alpaugh – Corcoran 115 kV line
- Los Banos #3 230/70 kV transformer
- Los Banos #4 230/70 kV transformer
- San Miguel – Coalinga #1 70 kV line
- Gates 230/70 kV transformer #5



New major transmission projects

Project Name	Expected ISD
Northern Fresno 115 kV Area Reinforcement (Northern Fresno Reliability)	Completed
Wilson Voltage Support (Wilson 115 kV STATCOM)	Completed
Wilson-Legrand 115 kV Reconductoring	Completed
Kingsburg-Lemoore 70 kV Line Reconductoring	Completed
Herndon - Bullard 115 kV Reconductoring	Apr-24
Panoche-Oro Loma 115 kV Reconductoring	Mar-23
Wilson 115 kV Area Reinforcement	Mar-25
Oro Loma 70 kV Area Reinforcement	Jan-26
Giffen Line Reconductoring	Jan-23
Borden 230/70 kV Transformer Bank #1 Capacity Increase	Jan-27
Wilson-Oro Loma 115 kV Line Reconductoring	Dec-26
Bellota-Warnerville 230kV Reconductoring	Dec-24
Herndon - Bullard Nos. 1 and 2 115 kV Reconductoring	Dec-26
Reedley 70 kV Reinforcement (Renamed to Reedley 70 kV Area Reinforcement Projects Include Battery at Dinuba)	Dec-23

Power plant changes

Resource Additions:

- None

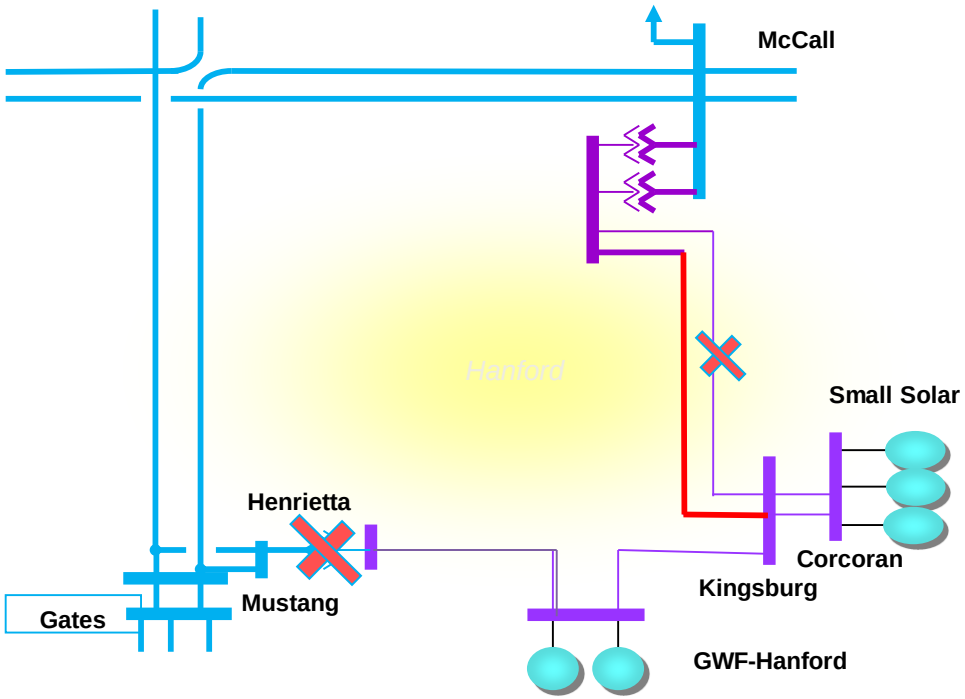
Resource Retirements:

- None

Hanford Sub-area: Load and Resources

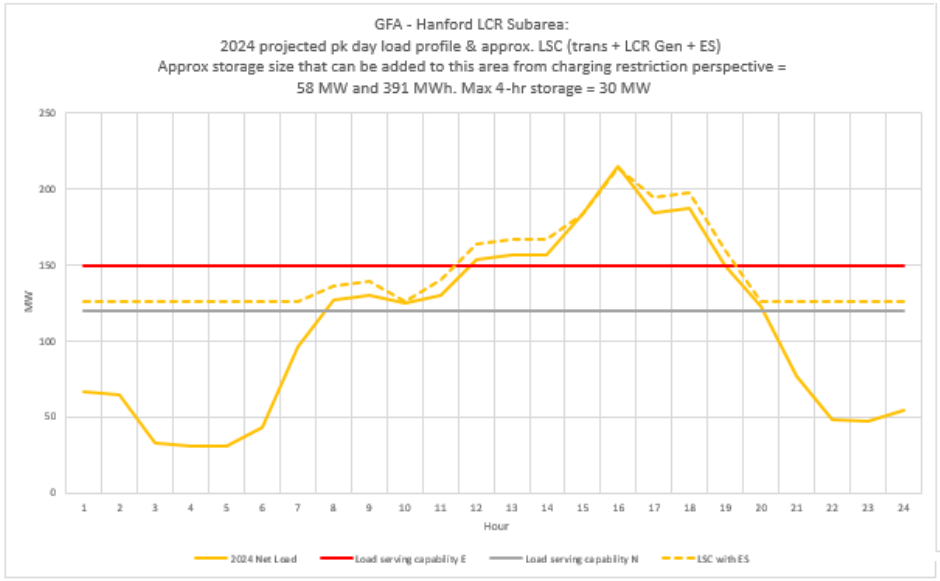
Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	213	222	Market/Net Seller	133	133
AAEE	-1	-2	Battery	0	0
Behind the meter DG	-9	0	Muni/QF	0	0
Net Load	**203**	**219**	Solar	28	28
Transmission Losses	5	5	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**208**	**224**	**Total Qualifying Capacity**	**161**	**161**

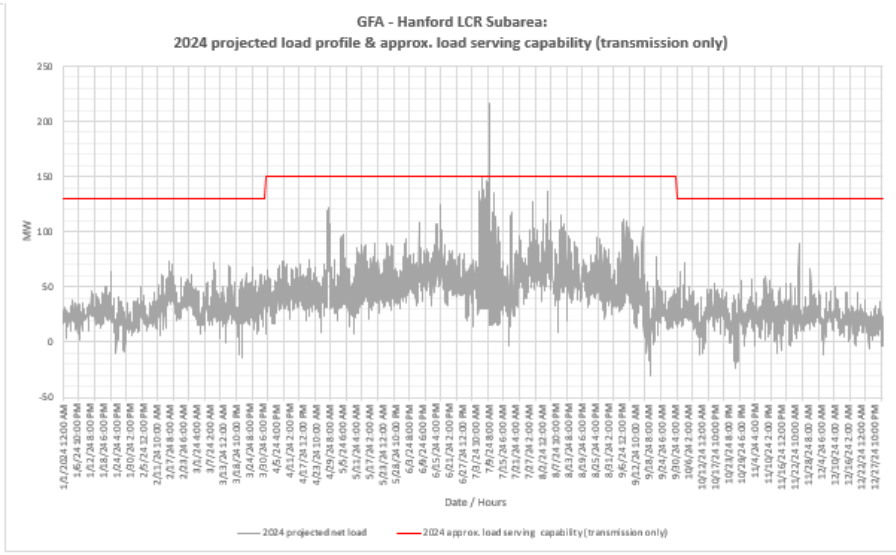
Hanford Sub-Area Requirements

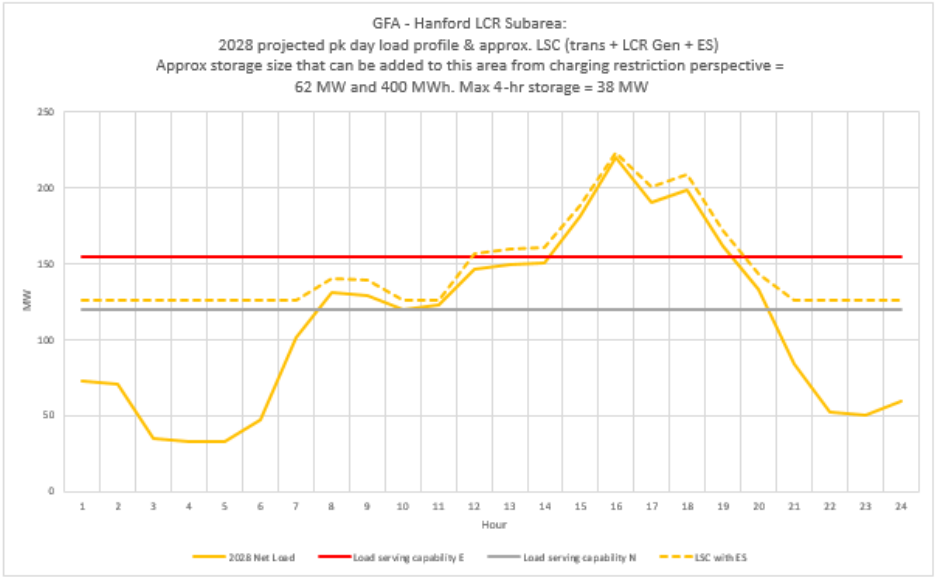


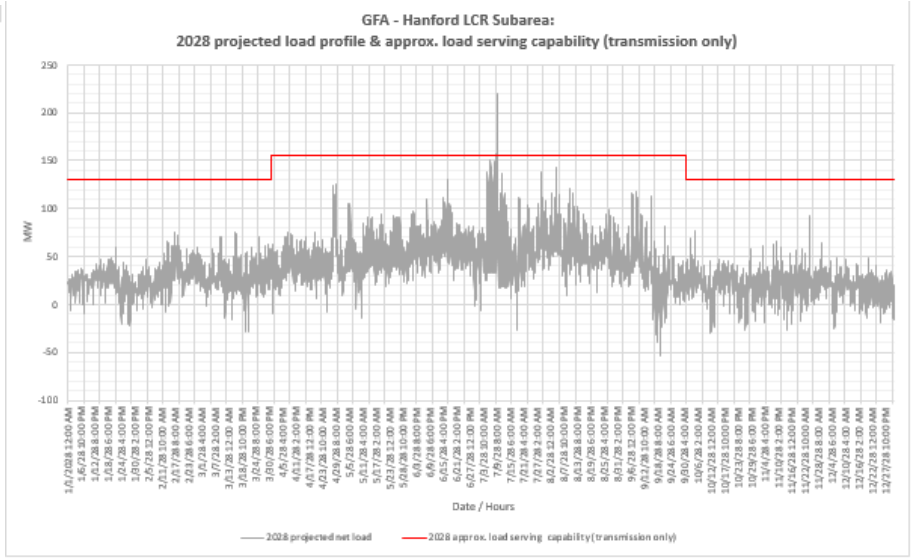
Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First Limit	P6	GWF-Contadina 115kV Line	McCall-Kingsburg #1 115kV line and McCall-Kingsburg #2 115kV line	58	62

Hanford Sub-area: Load Profiles









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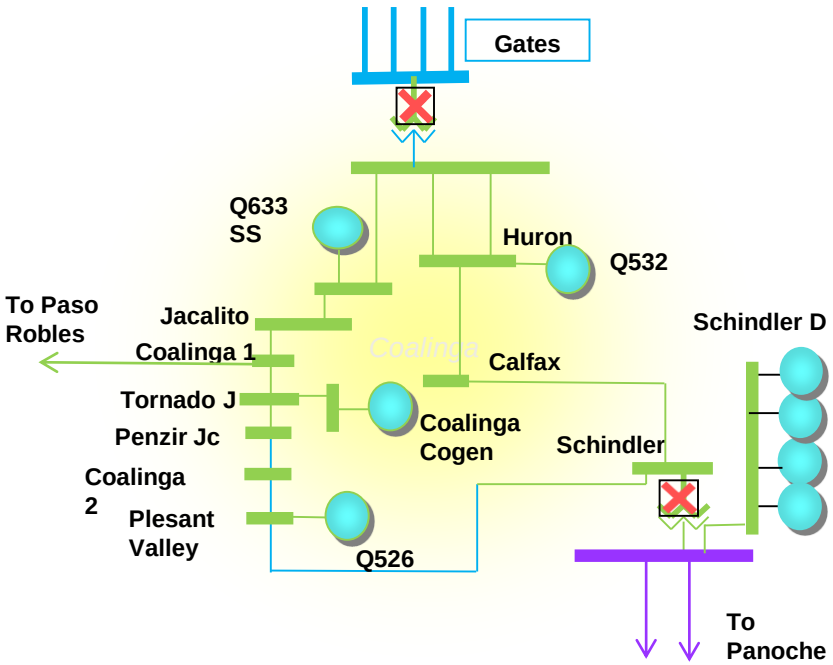
Coalinga Sub-area: Load and Resources

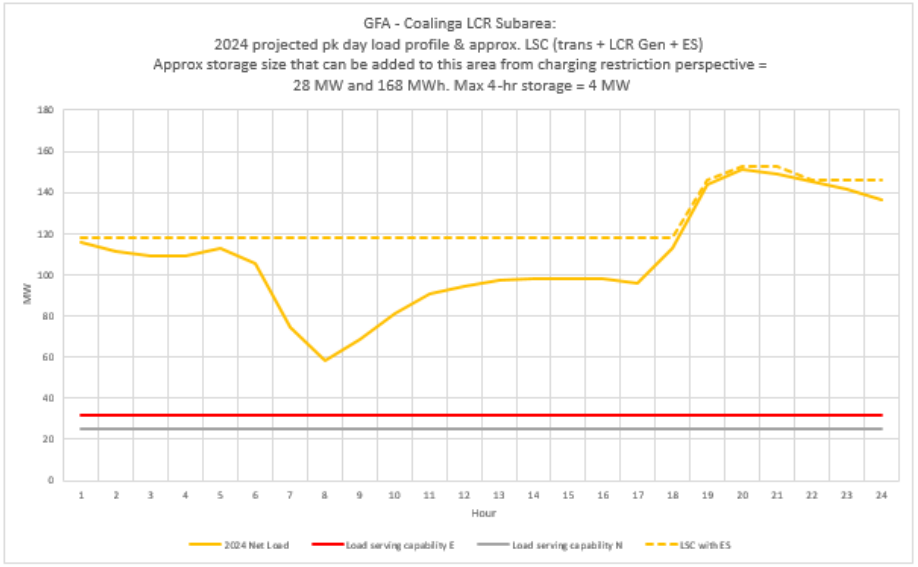
Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	151	155	Market, Net Seller	0	0
AAEE	-1	-1	Battery	0	0
Behind the meter DG	-3	0	Muni/QF	3	3
Net Load	**147**	**154**	Solar	12	12
Transmission Losses	3	2	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**150**	**156**	**Total Qualifying Capacity**	**15**	**15**

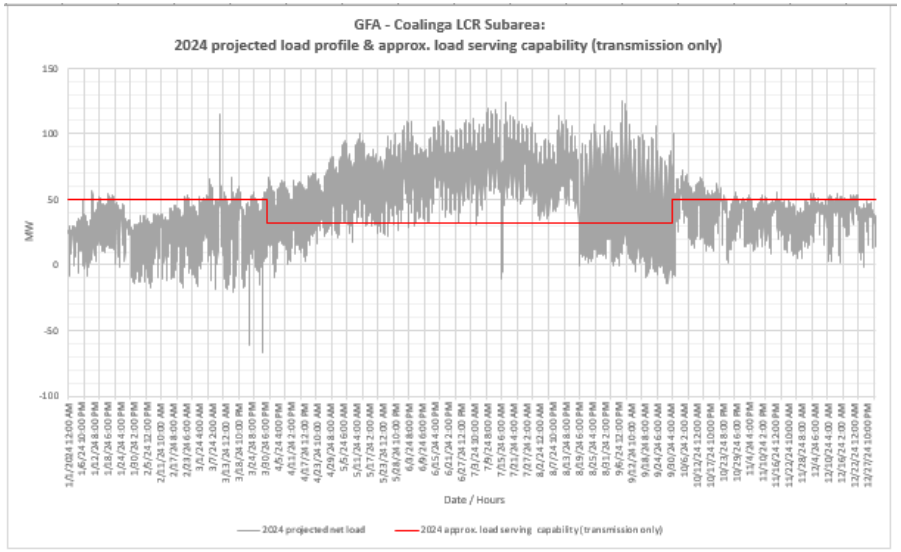
Coalinga Sub-Area Requirements

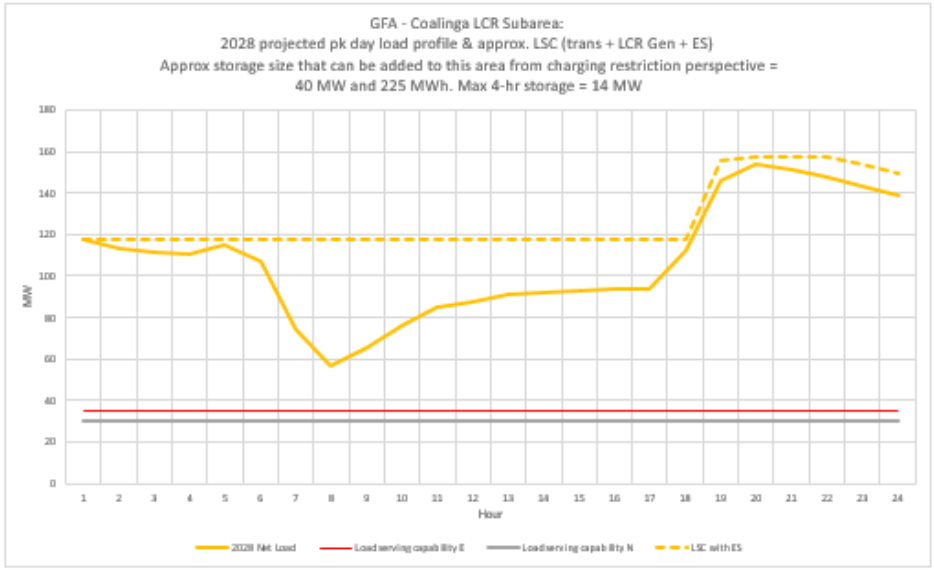


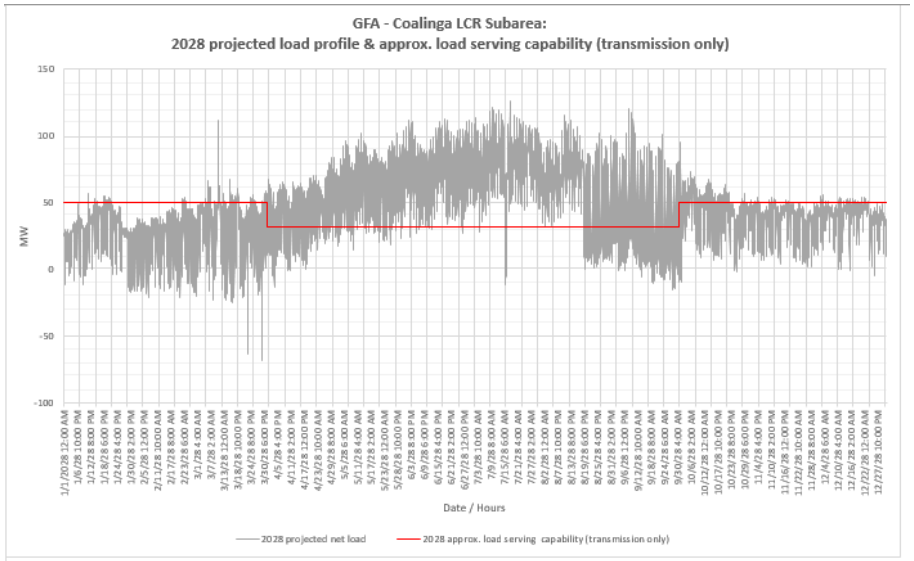
Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First Limit	P6	Overload on Fivepoint Solar-Calflax 70kV Line and Voltage Instability	T-1/T-1: Gates 230/70kV TB #5 and Schindler 115/70 kV TB#1	110 (95 NQC) (107 Peak)	116 (101 NQC) (113 Peak)

Coalinga Sub-area: Load Profiles





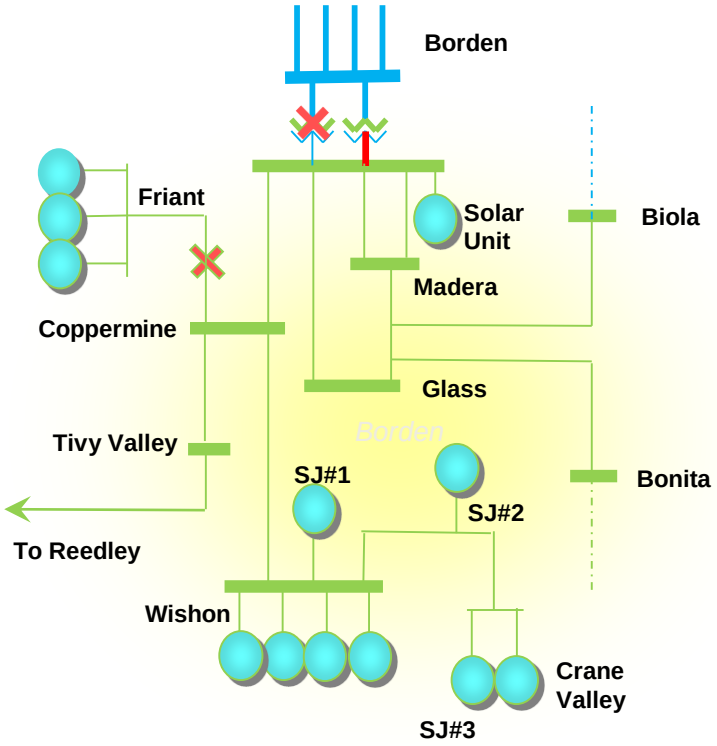




Borden Sub-area: Load and Resources

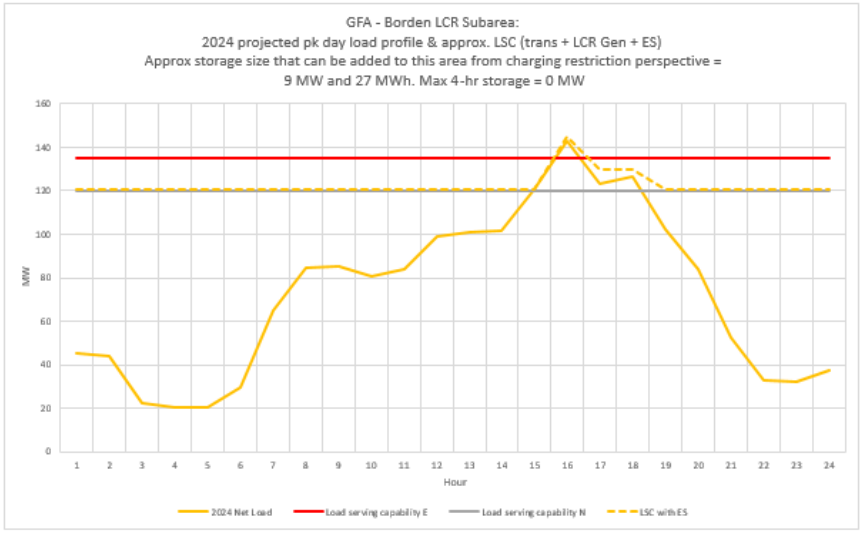
Load (MW)	2024	Generation (MW)	2024
Gross Load	142	Market/Net Seller	11
AAEE	-1	Battery	0
Behind the meter DG	-7	Muni/QF	0
Net Load	**134**	Solar	6
Transmission Losses	3	Existing 20-minute Demand Response	0
Pumps	0	Mothballed	0
Load + Losses + Pumps	**137**	**Total Qualifying Capacity**	**17**

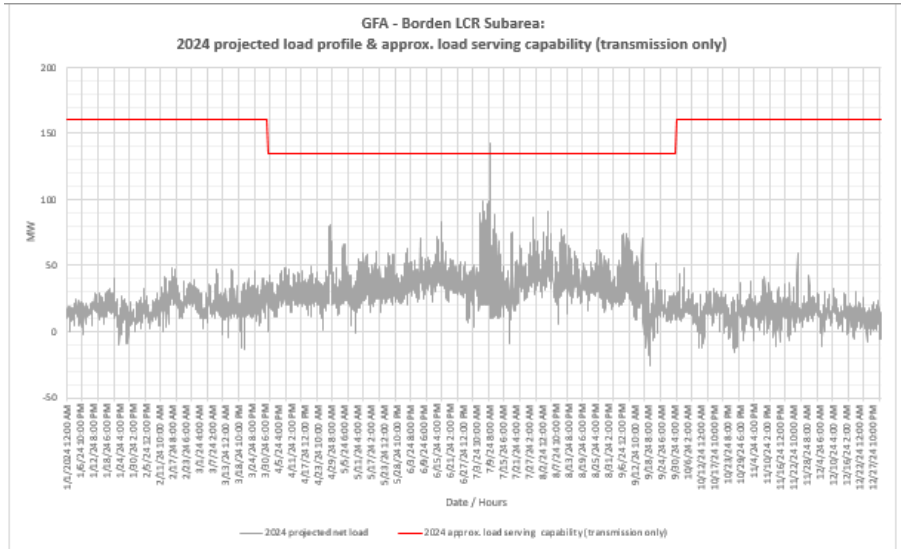
Borden Sub-Area Requirements



Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First Limit	P6	Borden 230/70 kV TB # 1	Friant - Coppermine 70 kV Line and Borden 230/70 kV TB # 4	9	Eliminated due to Project

Borden Sub-area: Load Profiles

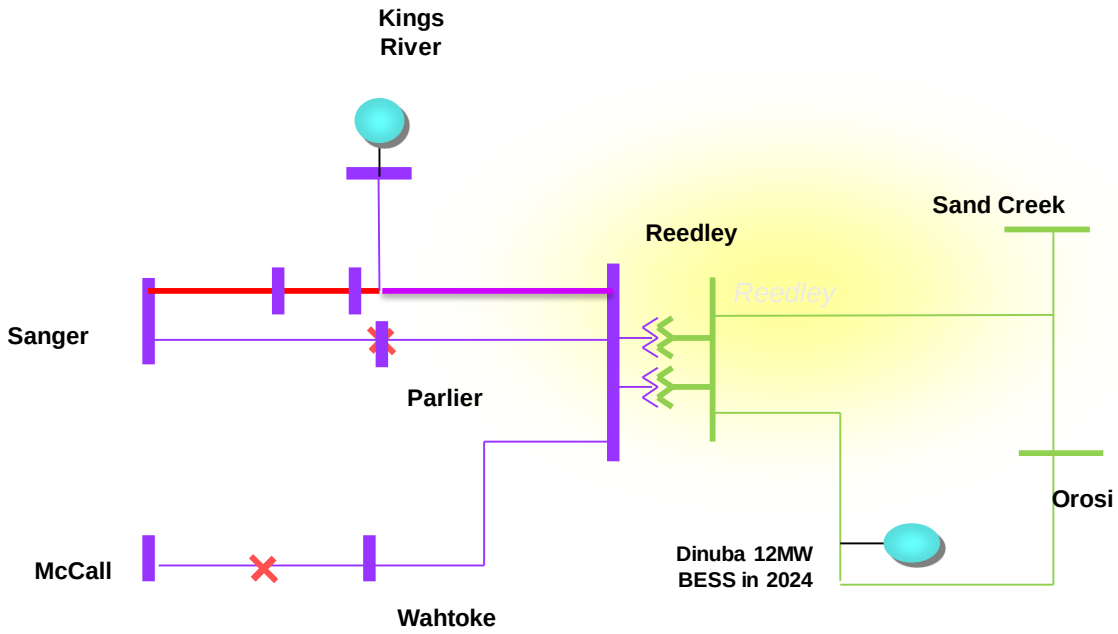




Reedley Sub-area: Load and Resources

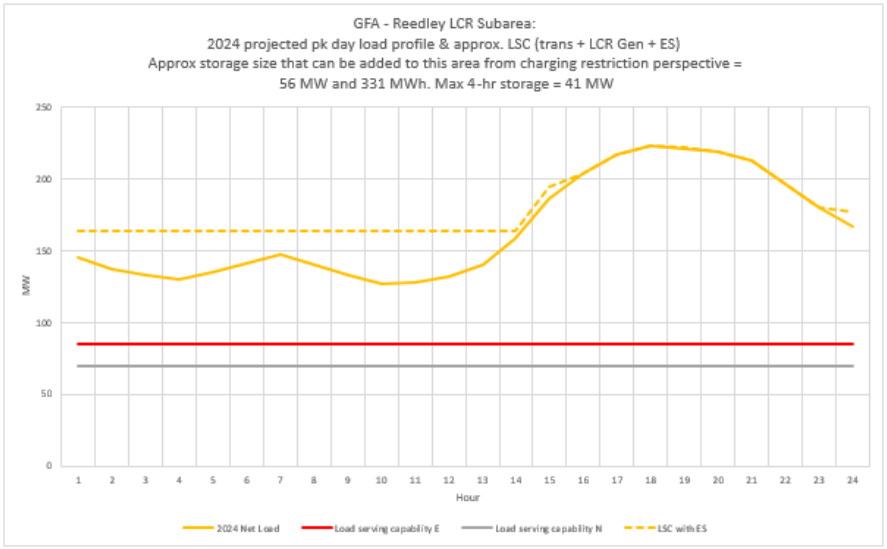
Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	223	233	Market, Net Seller	39	39
AAEE	-2	-2	Battery	0	0
Behind the meter DG	-10	0	Muni/QF	0	0
Net Load	**211**	**231**	Solar	0	0
Transmission Losses	50	57	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**261**	**288**	**Total Qualifying Capacity**	**39**	**39**

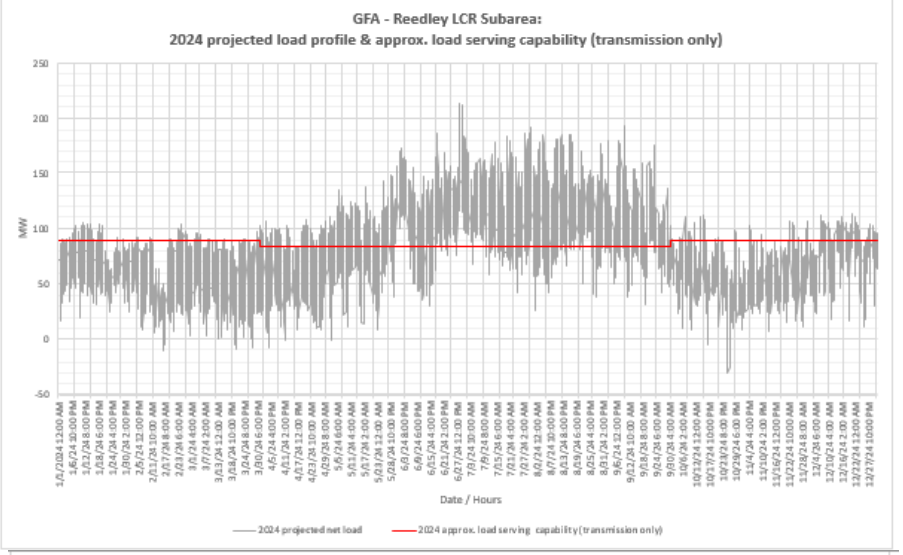
Reedley Sub-Area Requirements

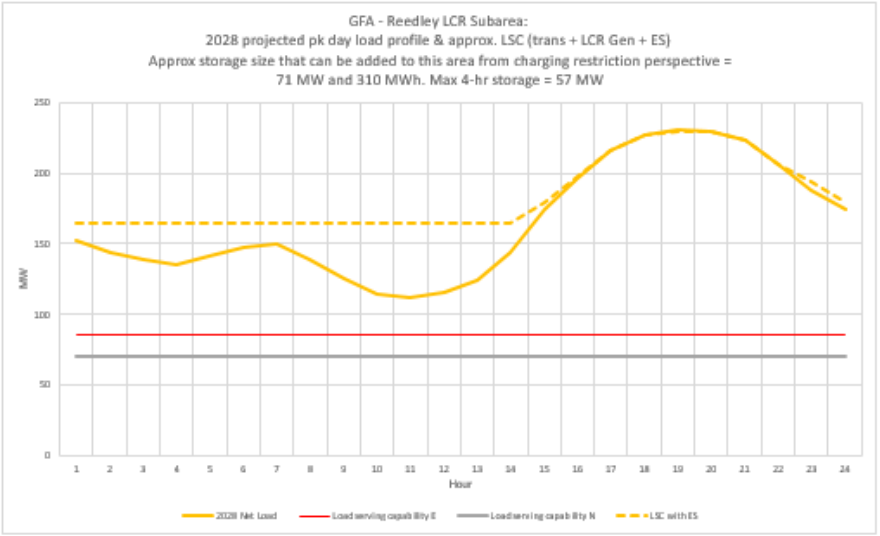


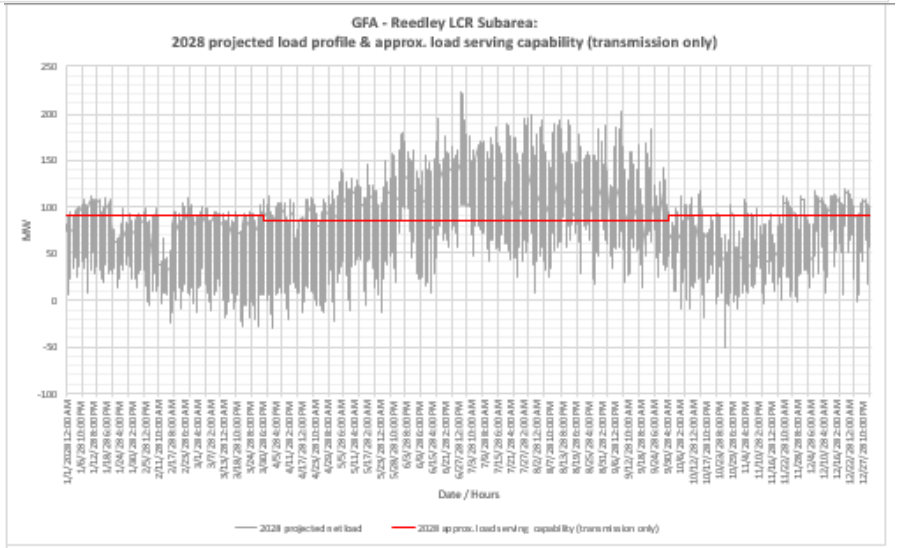
Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First Limit	P6	Kings River-Sanger-Reedley 115kV line with Wahtoke load online	McCall-Reedley 115kV Line & Sanger-Reedley 115kV line	132 (93)	148 (109)

Reedley Sub-area: Load Profiles





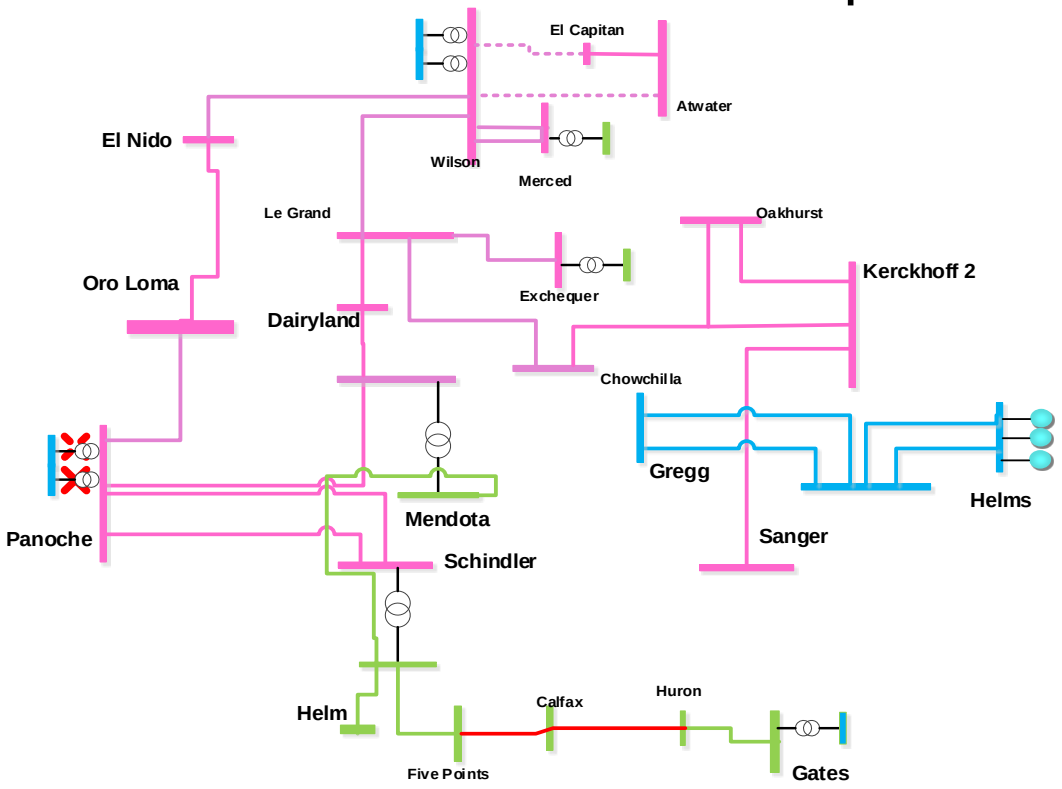




Panoche Sub-area: Load and Resources

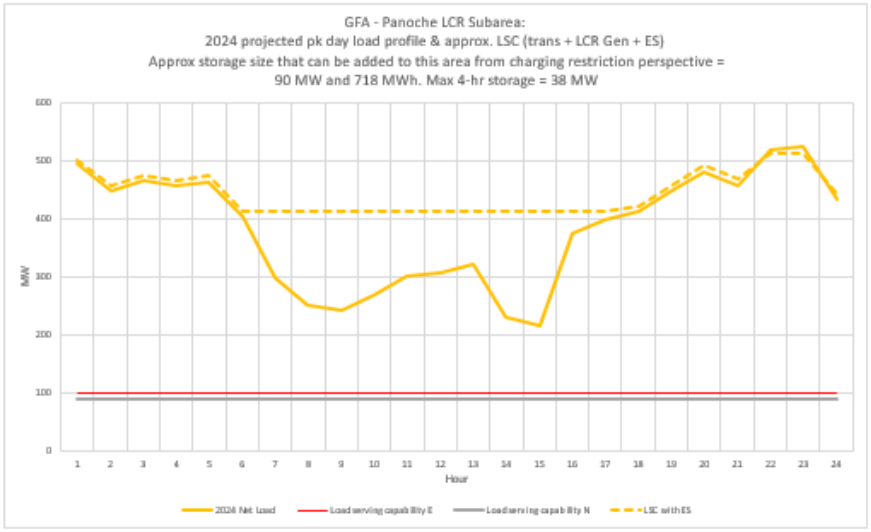
Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	527	543	Market, Net Seller	284	284
AAEE	-3	-5	Battery	0	0
Behind the meter DG	-16	0	Muni/QF	104	104
Net Load	**508**	**538**	Solar	43	43
Transmission Losses	14	16	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**522**	**554**	**Total Qualifying Capacity**	**431**	**431**

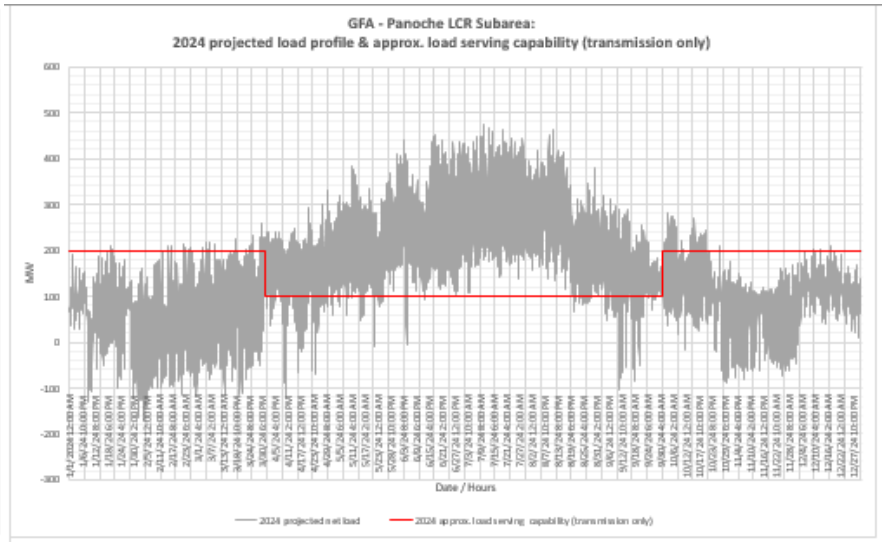
Panoche Sub-Area Requirements

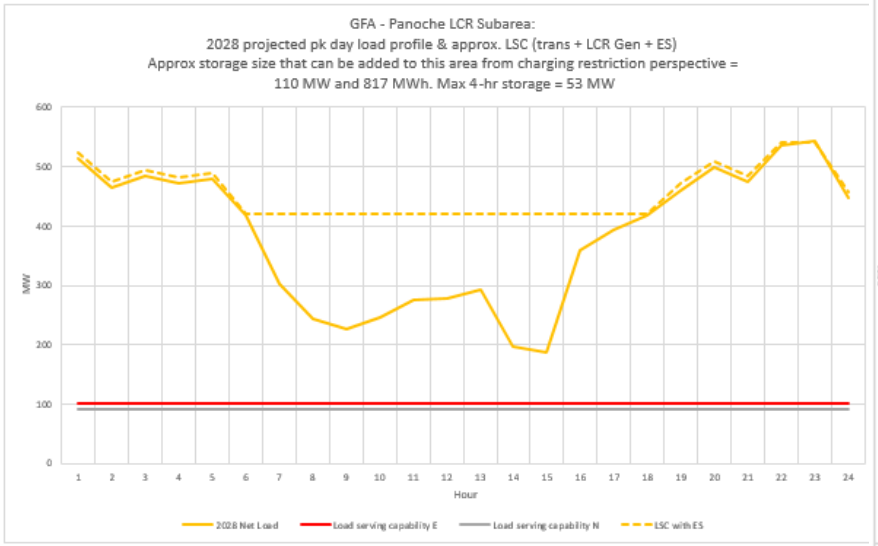


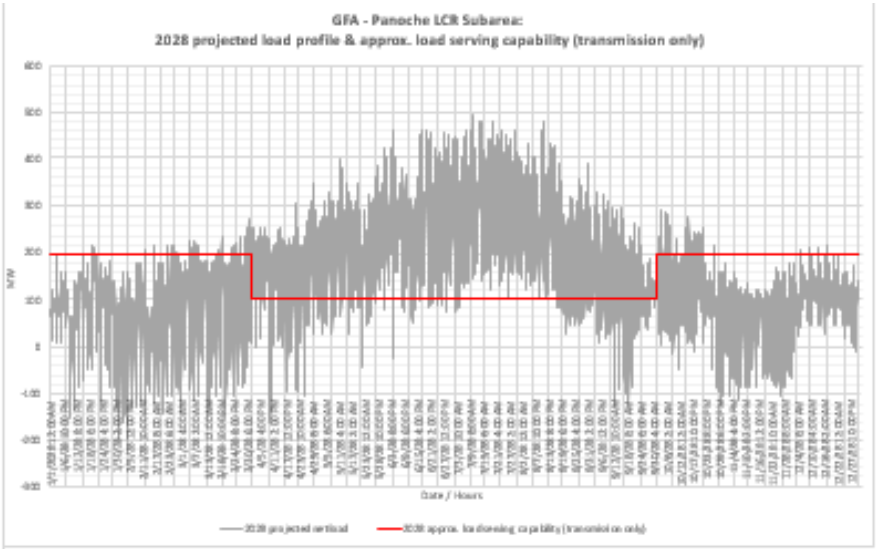
Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First Limit	P6	Five Points-Huron-Gates 70kV line	Panoche 230/115kV TB #2 and Panoche 230/115kV TB #1	412 (0 NQC) (24 Peak)	441 (10 NQC) (53 Peak)

Panoche Sub-area: Load Profiles





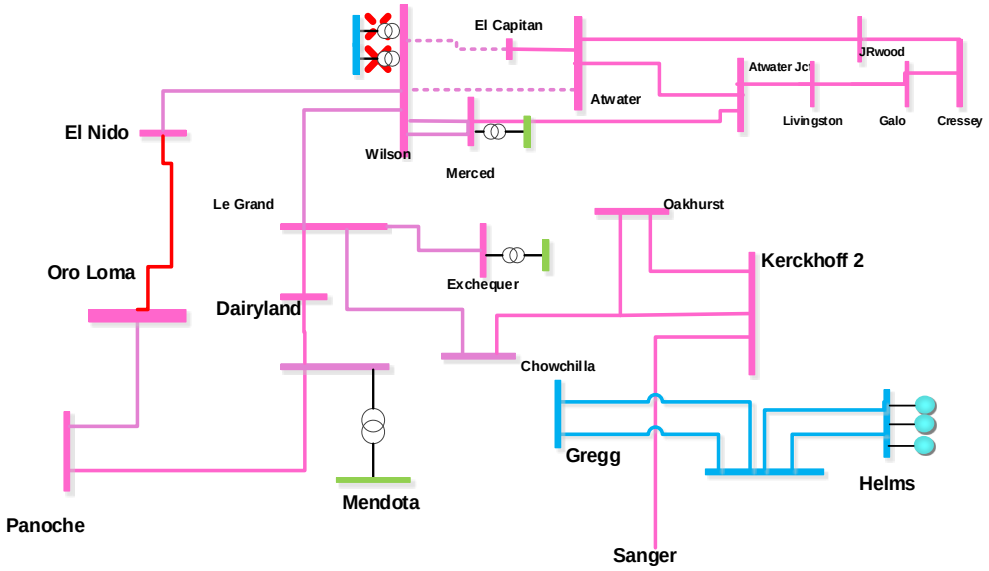




Wilson Sub-area: Load and Resources

Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	**NA – Flow through area.**		Market/Net Seller	146	146
AAEE			Battery	0	0
Behind the meter DG			Muni/QF	101	101
Net Load			Solar	27	27
Transmission Losses			Existing 20-minute Demand Response	0	0
Pumps			Mothballed	0	0
Load + Losses + Pumps			**Total Qualifying Capacity**	**274**	**274**

Wilson Sub-Area Requirements

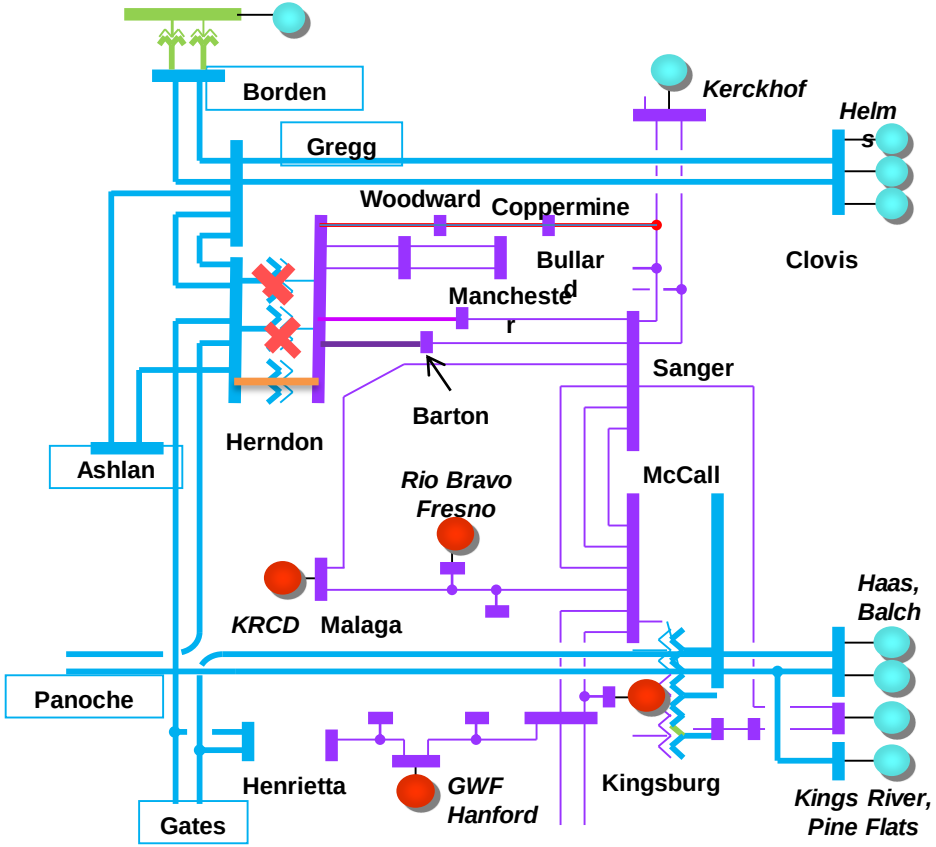


Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First Limit	P6	El Nido – Oro Loma 115 kV Line	Wilson 230/115kV TB #1 and Wilson 230/115kV TB #2	361 (87 NQC) (114 Peak)	Eliminated due to Project

Herndon Sub-area: Load and Resources

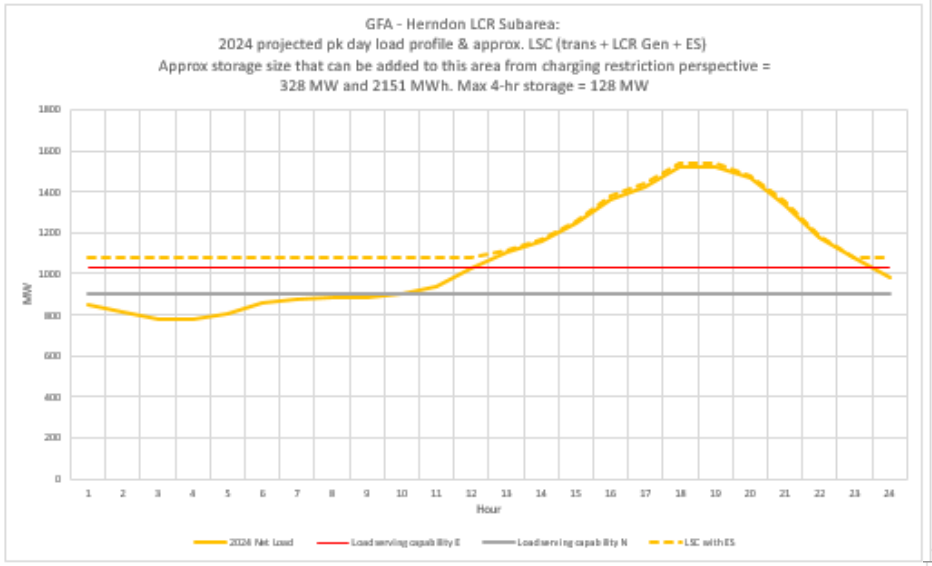
Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	1522	1603	Market/Net Seller	873	873
AAEE	-11	-13	Battery	0	0
Behind the meter DG	-62	0	Muni/QF	100	100
Net Load	**1447**	**1589**	Solar	29	29
Transmission Losses	29	31	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**1476**	**1620**	**Total Qualifying Capacity**	**1002**	**1002**

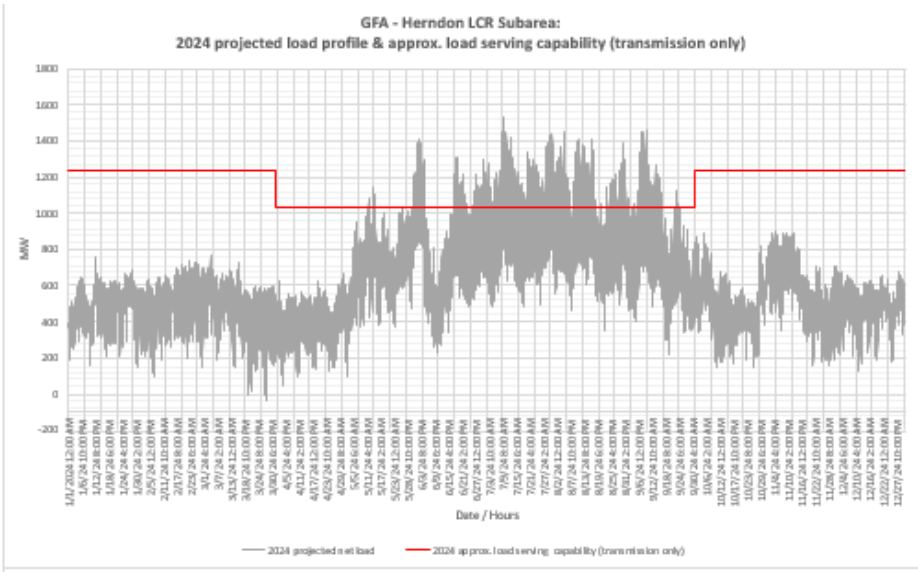
Herndon Sub-Area Requirements

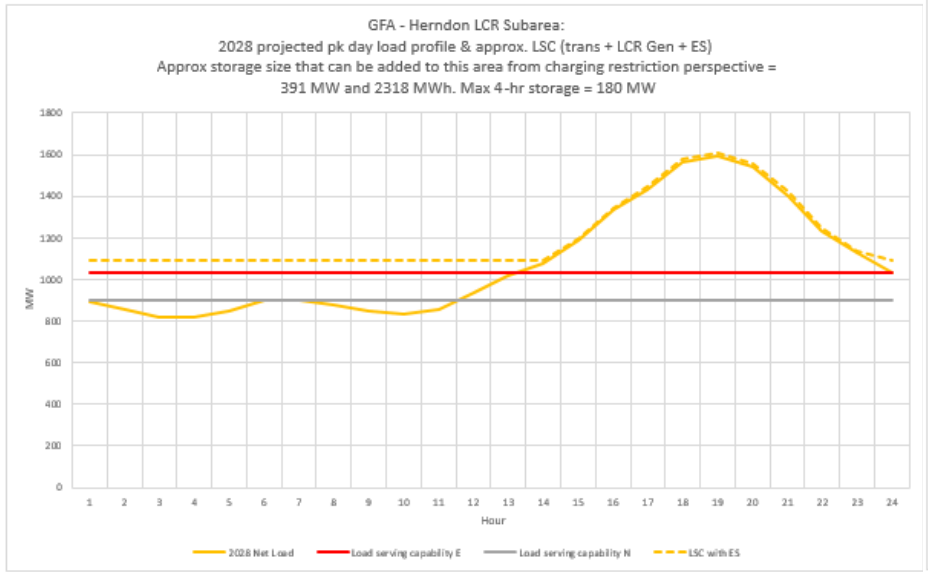


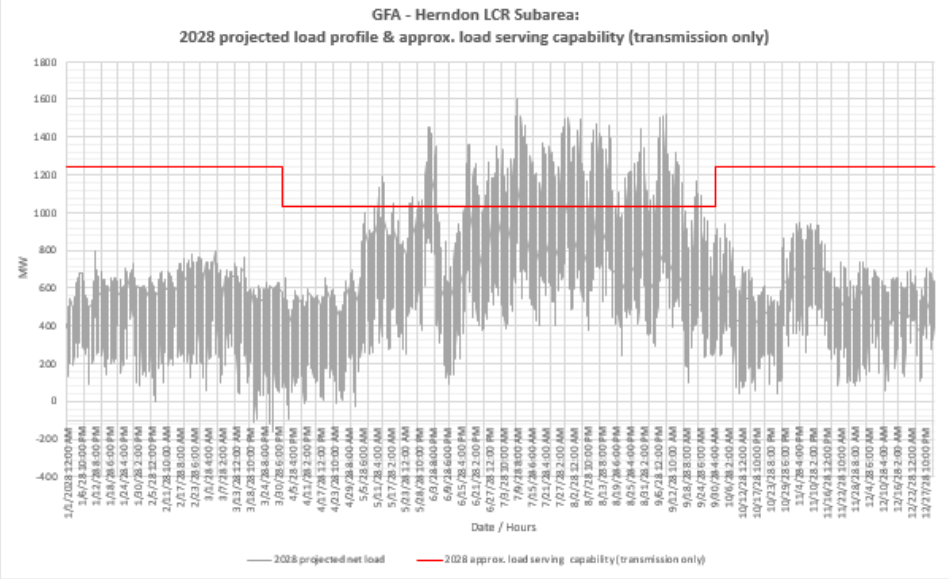
Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First limit	P6	Herndon 230/115kV Bank 3	Herndon 230/115 kV Bank 1 and Herndon 230/115 kV Bank 2	459	530

Herndon Sub-area: Load Profiles





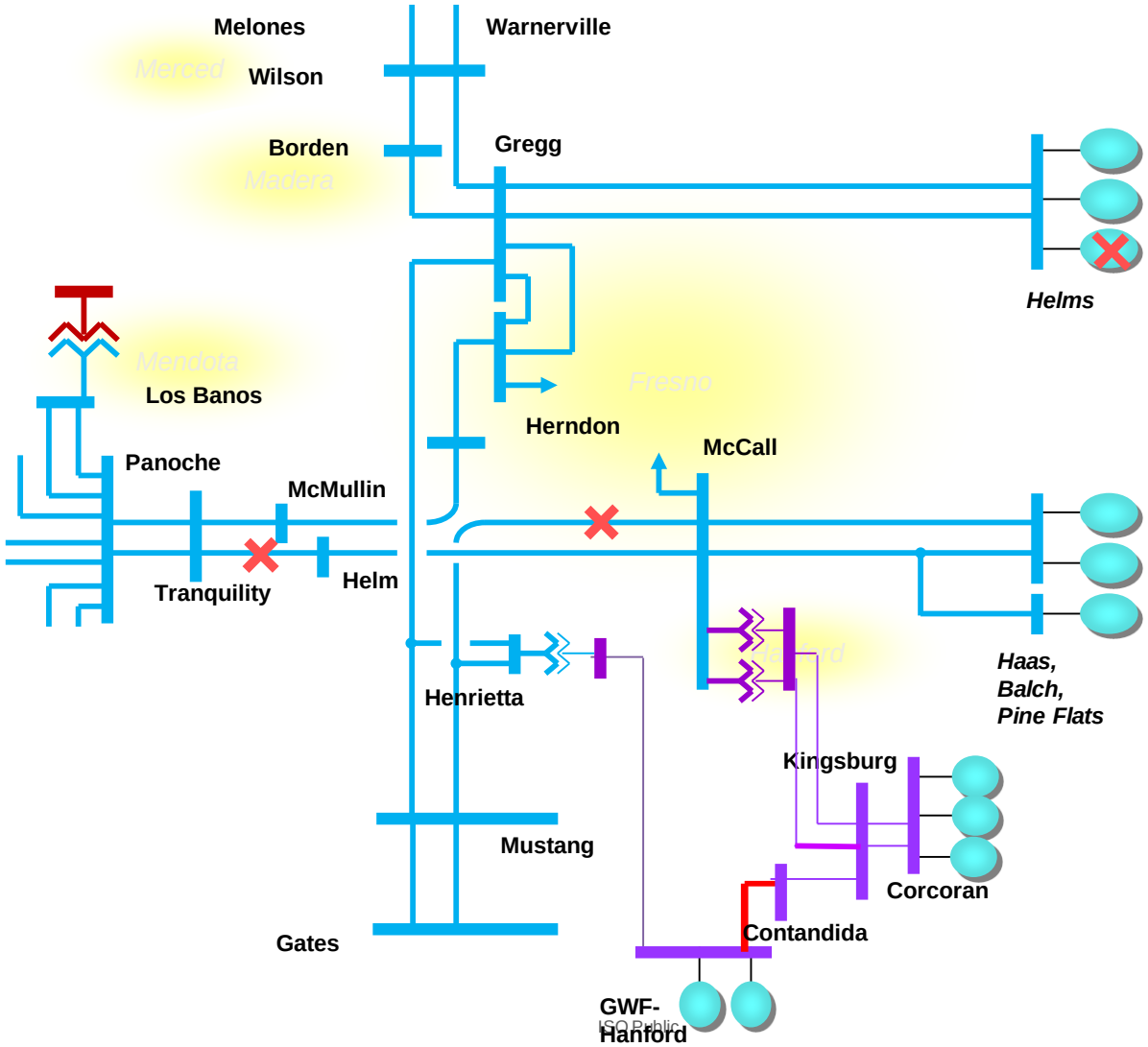




Overall Load and Resources

Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	3375	3524	Market/Net Seller	2382	2382
AAEE	-23	-30	Battery/Hybrid	358	358
Behind the meter DG	134	3	Muni/QF	206	206
Net Load	**3217**	**3492**	Solar	181	181
Transmission Losses	135	143	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**3354**	**3637**	**Total Qualifying Capacity**	**3127**	**3127**

Overall Sub-Area Requirements

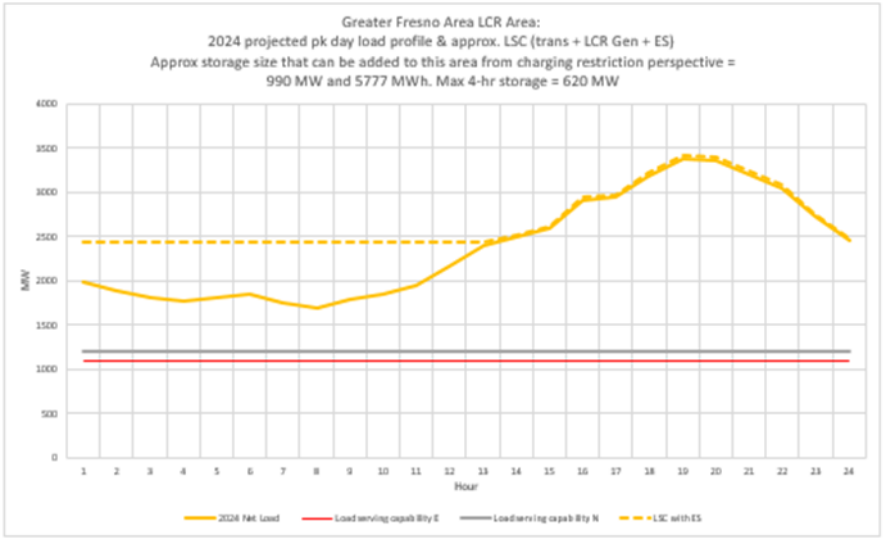


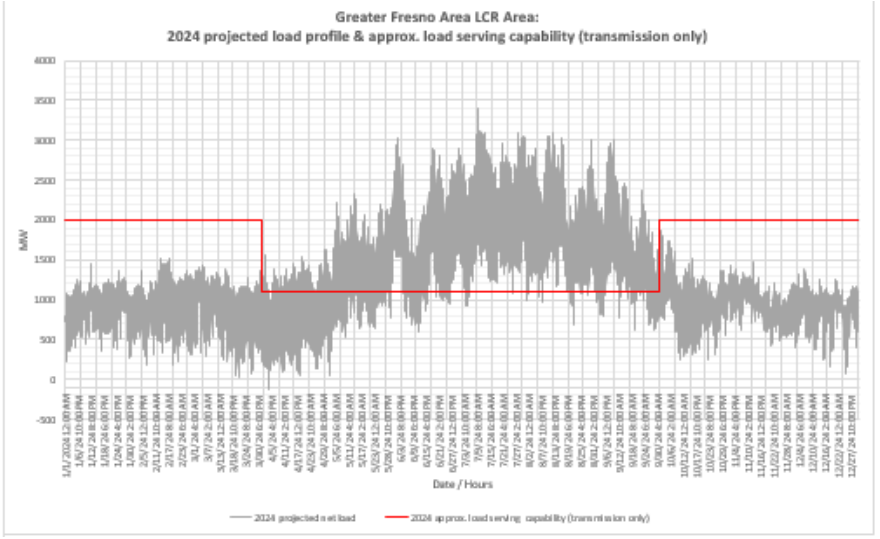
Overall Fresno Area: Requirements

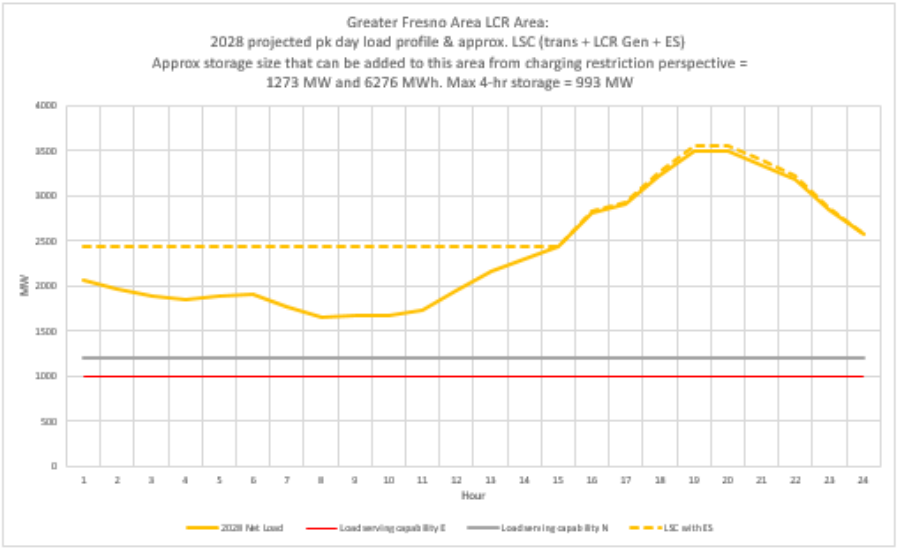
Limit	Category	Limiting Facility	Contingency	2024 LCR (MW)	2028 LCR (MW)
First limit	P6	Kingsburg-Contadina 115 kV Line (2024) Henrietta 230/115 kV Bank 3 (2028)	Helm-Mccall 230kV Line and Mustang-Mc Call 230 kV Line (2024) Helm-Mccall 230kV Line and CHSR09 sw sta-Mustang 230kV Line (2028)	2028	2728

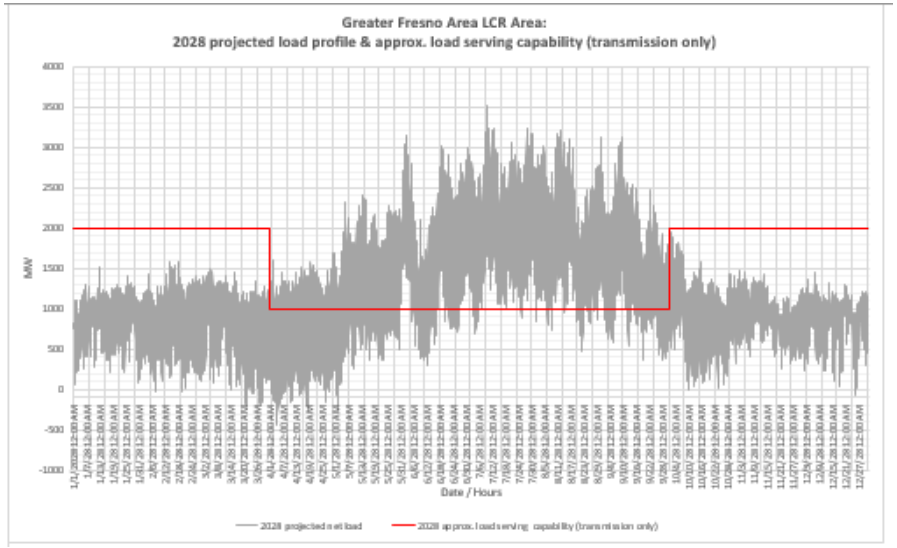
Study Year	Generation Capacity Needed (MW)	NQC Deficiency (MW)	Total MW Need
2024	2028	275	2303
2028	2728	210	2938

Overall Sub-area: Load Profiles









Changes Compared to Previous LCR Requirements

Sub-area	2023		2024		2027		2028	
	Load	LCR	Load	LCR	Load	LCR	Load	LCR
Hanford	199	50	208	58	206	58	224	62
Coalinga	110	73 (70 Peak; 45 NQC)	150	110 (107 Peak; 95 NQC)	115	77 (74 Peak, 49 NQC)	156	116 (113 Peak, 101 NQC)
Borden	143	9	137	9	Eliminated due to Project		Eliminated due to Project	
Reedley	217	118 (81)	261	132 (93)	248	134 (97)	288	148 (109)
Panoche 115 kV	463	295	522	412 (24 Peak; 0 NQC)	479	383	554	441 (53 peak; 10 NQC)
Wilson 115/70 kV	Flow-Through	422* (107 NQC) (165 Peak)	Flow-Through	361* (114 Peak) (87 NQC)	Flow-Through	500 (186 NQC) (244 Peak)	Eliminated due to Project	
Herndon	1494	327	1476	459	1557	363	1620	530
Overall	3288	1870	3354	2028	3292	2179	3637	2728

The overall Fresno requirements have increased mostly due to load forecast increase.