



# 2025 and 2029 Final LCR Study Results Greater Fresno Area

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Stakeholder Call

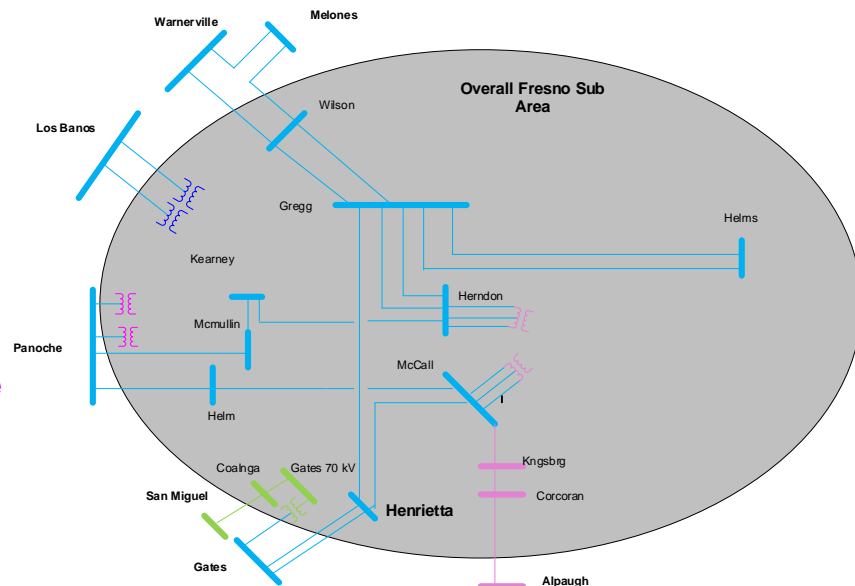
April 11, 2024

# 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
Giffen line Reconductoring	Completed
Panoche-Oro Loma 115 kV Reconductoring	Apr-24
Wilson 115 kV Area Reinforcement	Mar-25
Oro Loma 70 kV Area Reinforcement	Dec-26
Borden 230/70 kV Transformer Bank #1 Capacity Increase	Dec-27
Wilson-Oro Loma 115 kV Line Reconductoring	May-28
Bellota-Warnerville 230kV Reconductoring	Apr-24
Coppermine 70 kV Reinforcement	May-27
Los banos 70 kV area reinforcement	Dec-29

# Power plant changes

## Resource Additions:

- 4 smaller battery resources and
- 1 wind resource

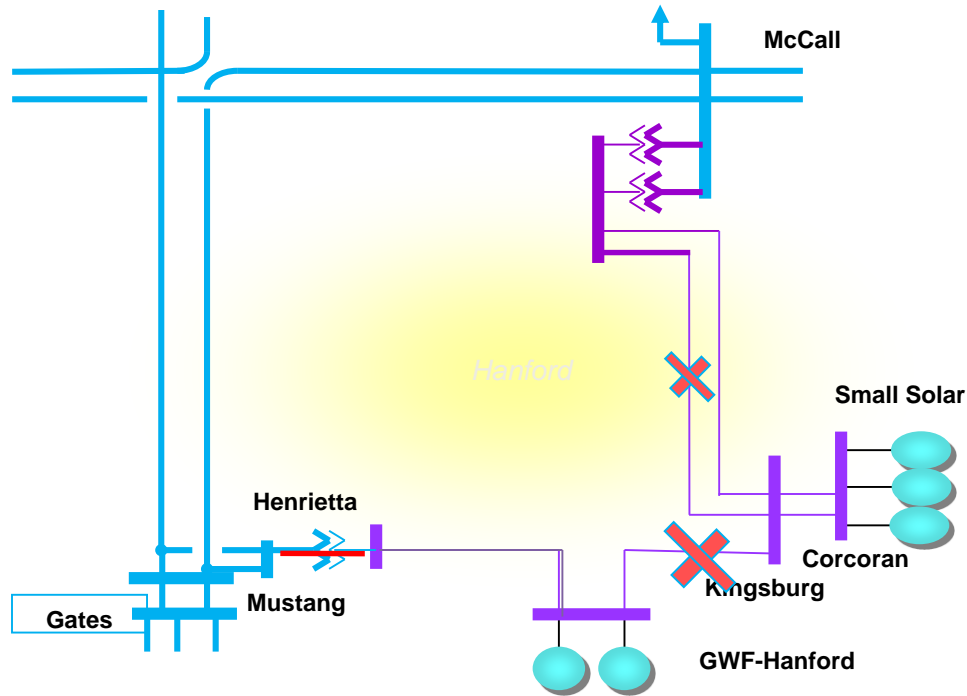
## Resource Retirements:

- None

## Hanford Sub-area: Load and Resources

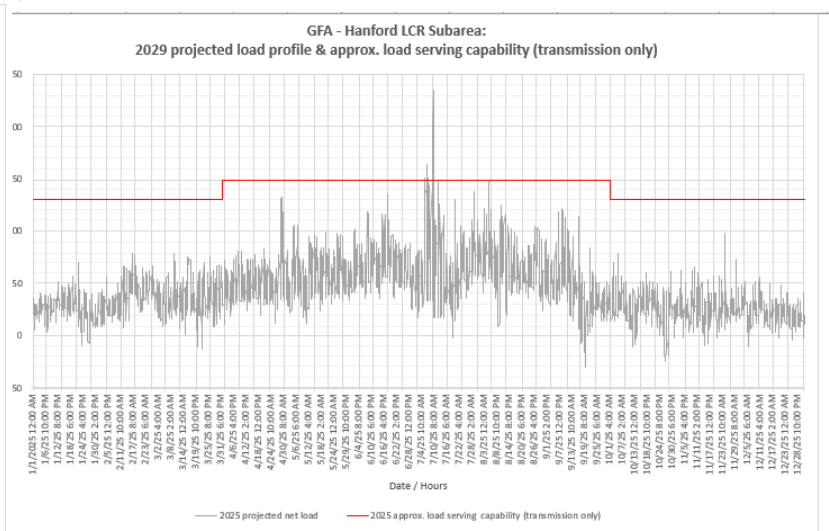
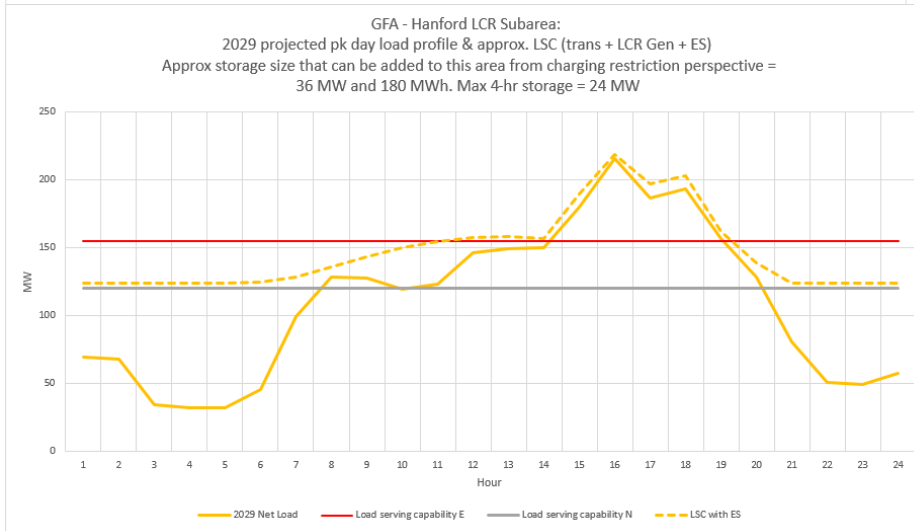
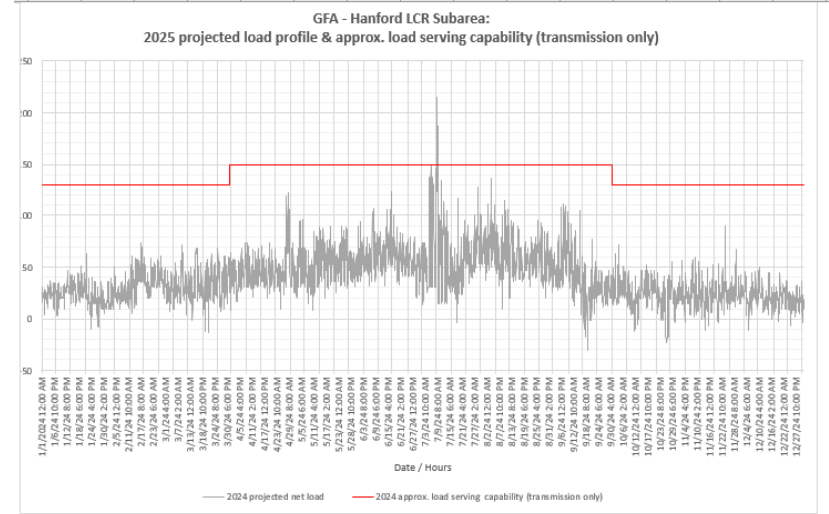
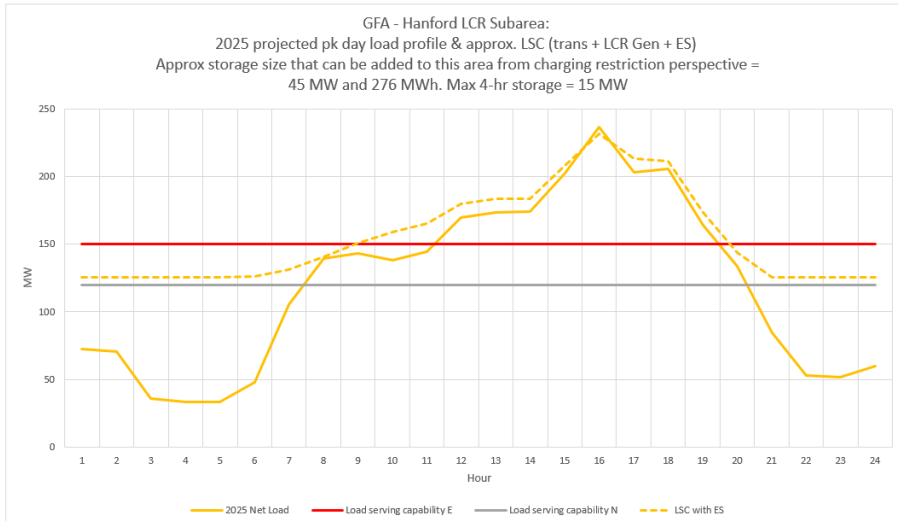
Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	237	228	Market/Net Seller	133	133
AAEE	-2	-3	Battery	0	0
Behind the meter DG	-10	-10	Muni/QF	0	0
<b>Net Load</b>	<b>233</b>	<b>216</b>	Solar	28	28
Transmission Losses	8	5	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
<b>Load + Losses + Pumps</b>	<b>233</b>	<b>223</b>	<b>Total Qualifying Capacity</b>	<b>161</b>	<b>161</b>

# Hanford Sub-Area Requirements



Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First Limit	P6	Henrietta 230/115 kV Bank 3 (2025)	McCall-Kingsburg #1 115kV line and GWF-Kingsburg 115kV line	46	36
		Kingsburg-Contadina 115 kV line (2029)	McCall-Kingsburg #1 115kV line and McCall-Kingsburg #2 115kV line		

# Hanford Sub-area: Load Profiles

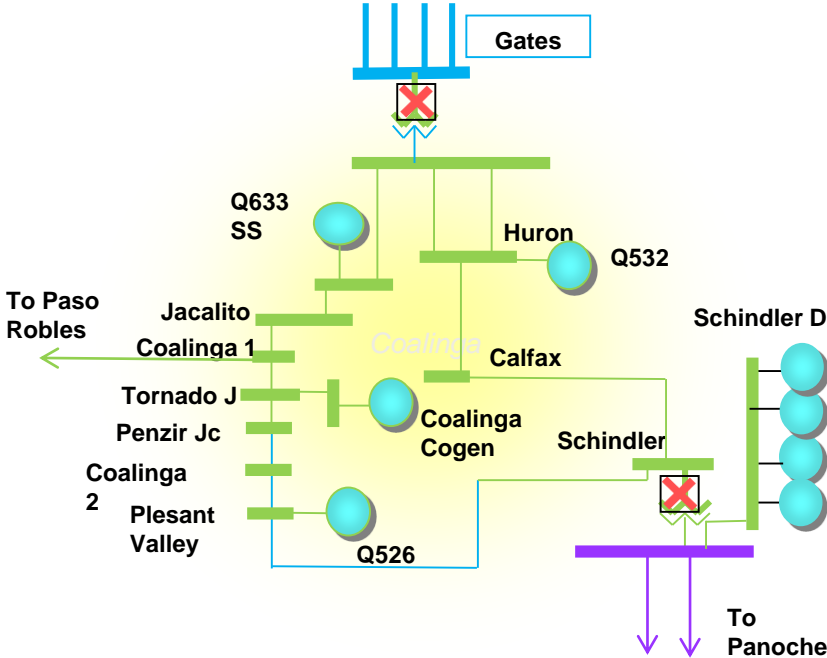


## Coalinga Sub-area: Load and Resources

Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	144	138	Market, Net Seller	0	0
AAEE	-1	-1	Battery	10	10
Behind the meter DG	-5	-5	Muni/QF	3	3
<b>Net Load</b>	<b>139</b>	<b>133</b>	Solar	14	14
Transmission Losses	3	2	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
<b>Load + Losses + Pumps</b>	<b>142</b>	<b>134</b>	<b>Total Qualifying Capacity</b>	<b>27</b>	<b>27</b>

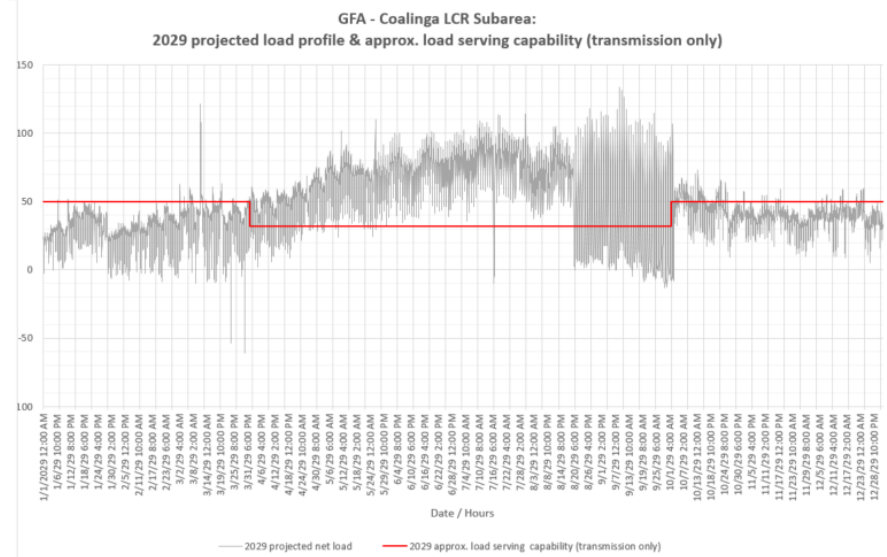
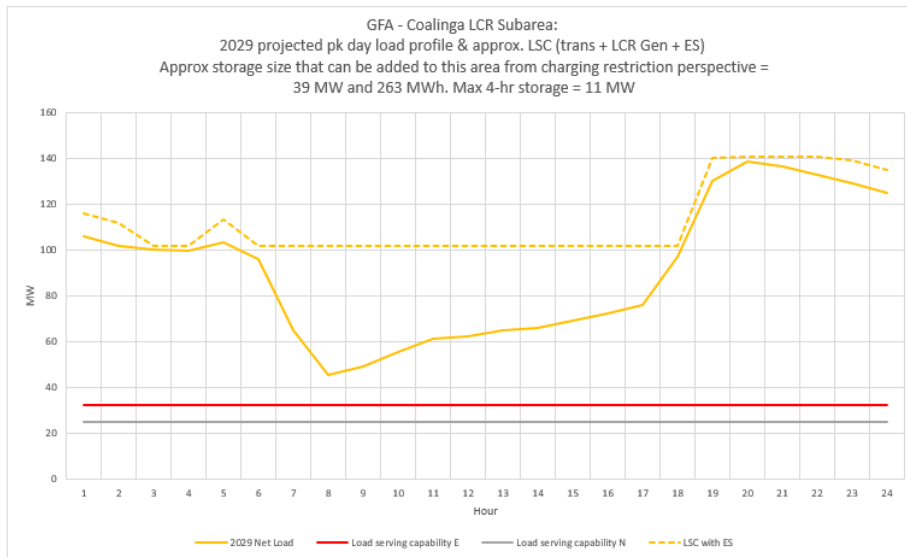
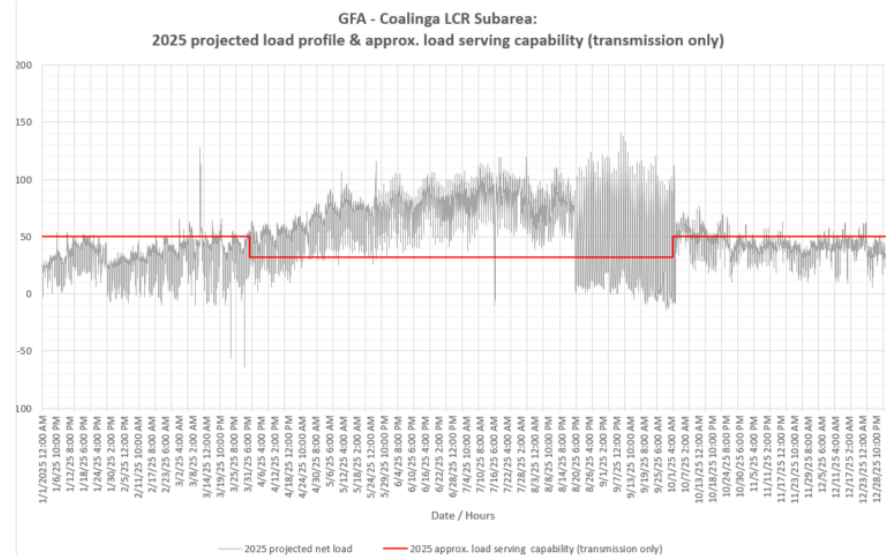
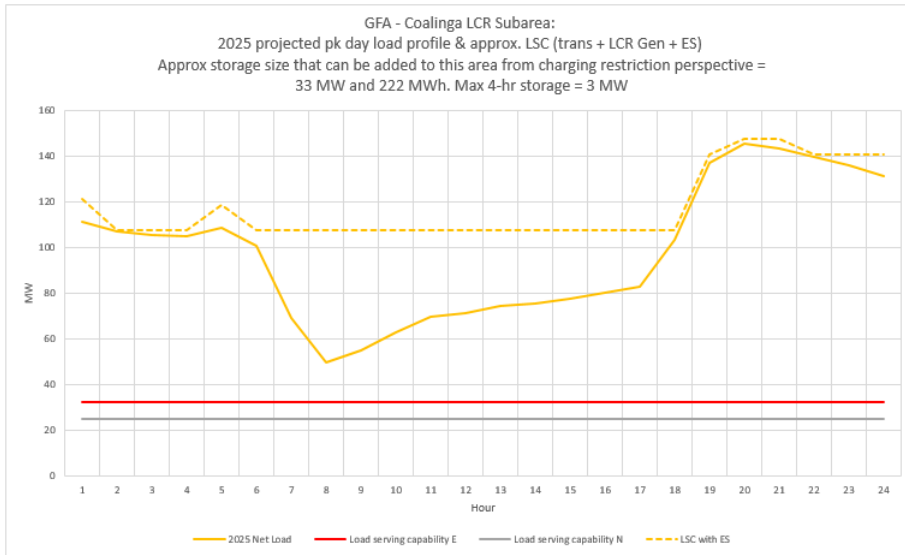


# Coalinga Sub-Area Requirements



Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First Limit	P6	Overload on Coalinga-Jacalito 70 kV line (2025)	Gates-Coalinga #2 70 kV line and Schindler-five points switching station 70 kV line	105 (78 NQC) (92 Peak)	101 (74 NQC) (88 Peak)
		Overload on San Miguel-Colinga #1 70 kV line(2029)	Gates 230/70 kV bank 5 and Schindler115/70 kV bank 2		

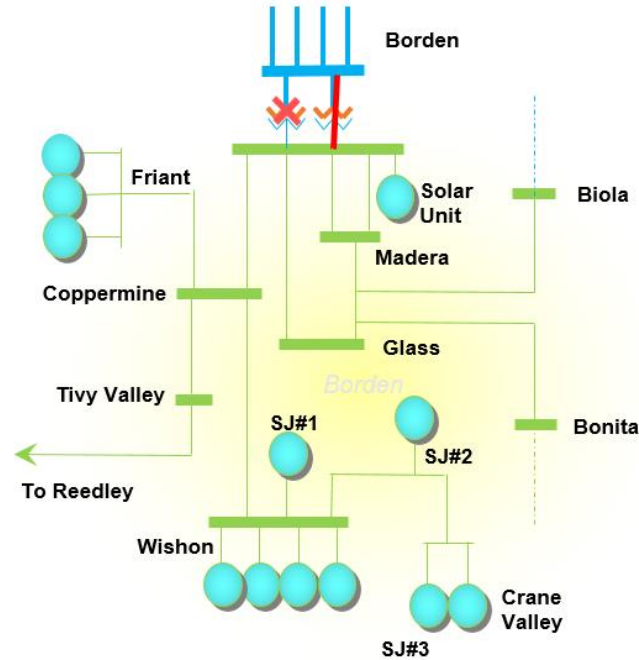
# Coalinga Sub-area: Load Profiles



## Borden Sub-area: Load and Resources

Load (MW)	2025	Generation (MW)	2025
Gross Load	182	Market/Net Seller	4
AAEE	-1	Battery	0
Behind the meter DG	-8	Muni/QF	0
<b>Net Load</b>	<b>172</b>	Solar	6
Transmission Losses	2	Existing 20-minute Demand Response	0
Pumps	0	Mothballed	0
<b>Load + Losses + Pumps</b>	<b>175</b>	<b>Total Qualifying Capacity</b>	<b>10</b>

# Borden Sub-Area Requirements



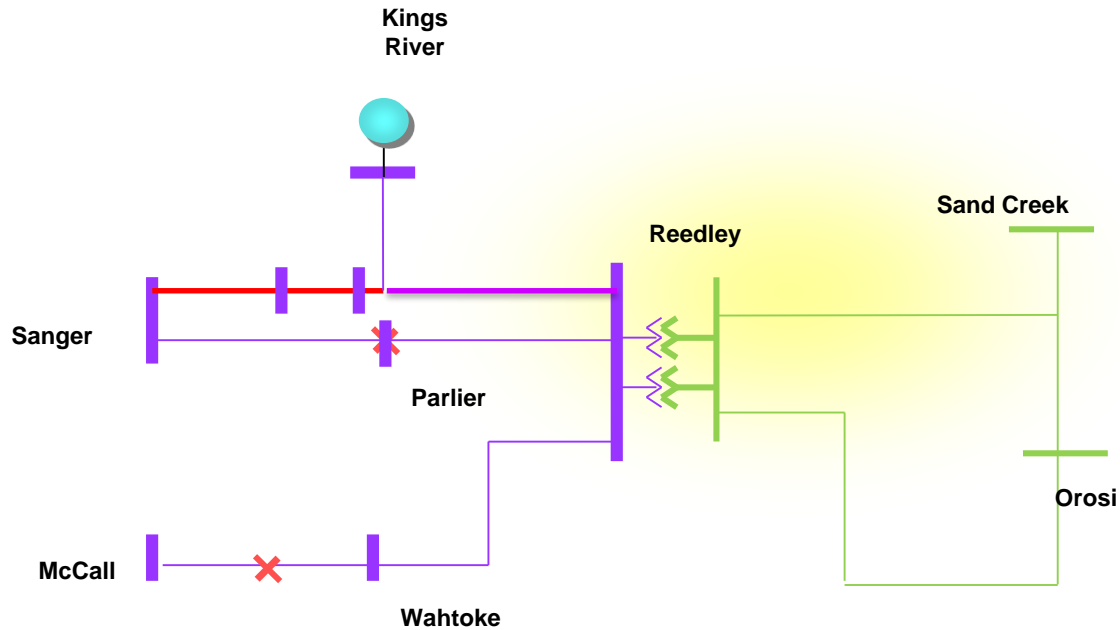
Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First Limit	P1	Borden 230/70 kV TB # 1	Borden 230/70 kV TB # 4	68 (58 NQC) (64 Peak)	Eliminated due to Project



## Reedley Sub-area: Load and Resources

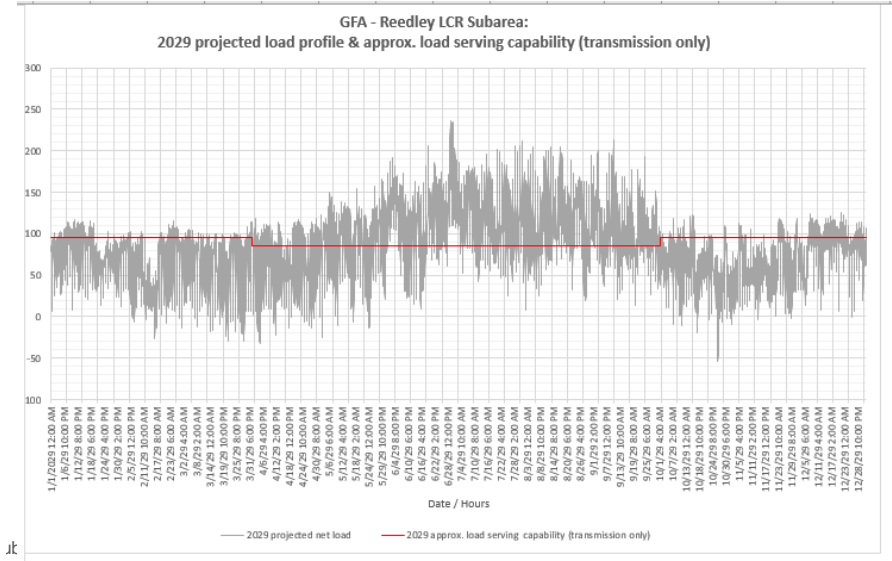
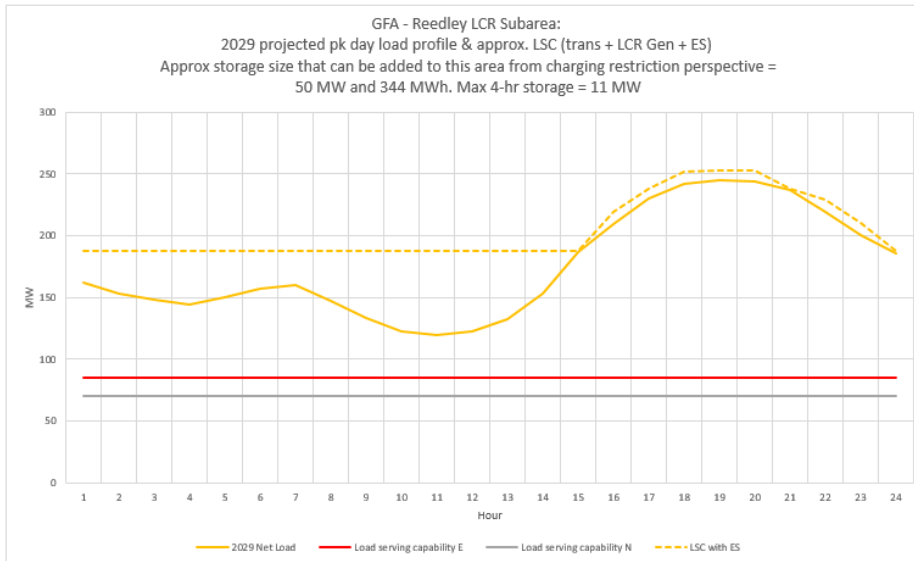
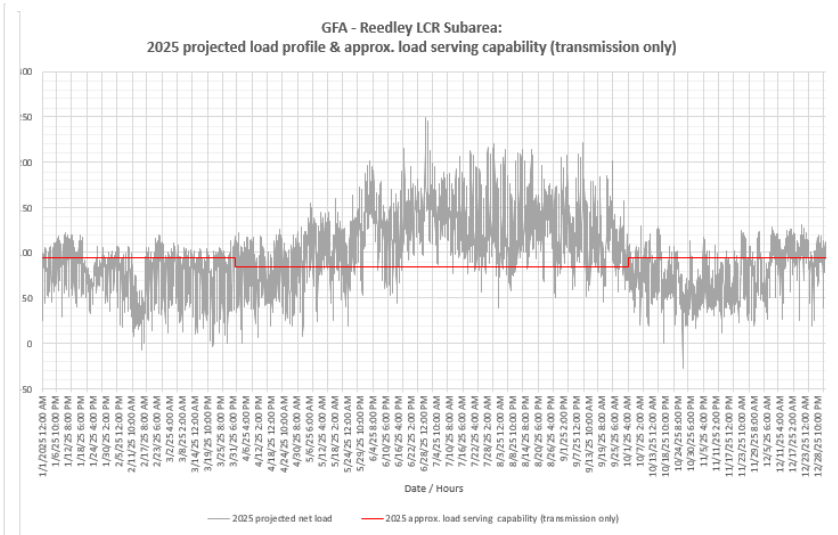
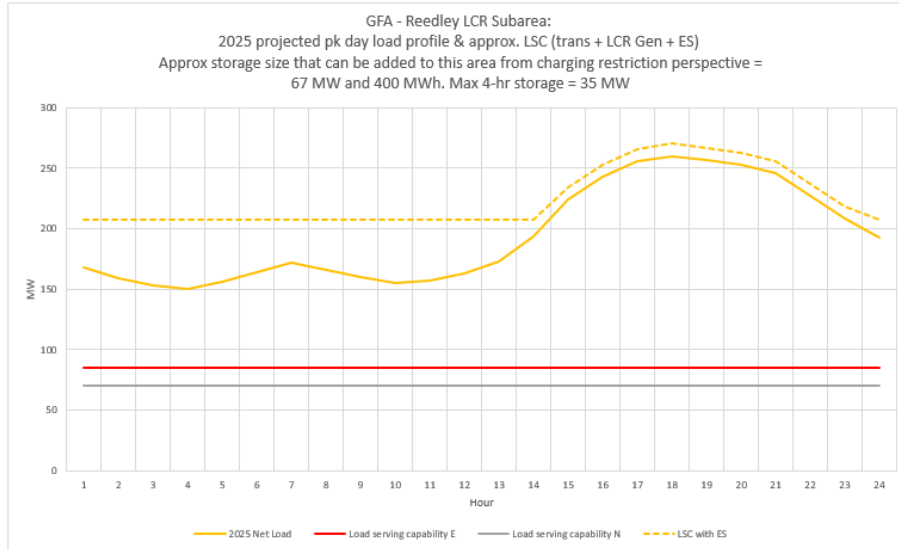
Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	262	253	Market, Net Seller	41	41
AAEE	-2	-4	Battery	0	0
Behind the meter DG	-11	-11	Muni/QF	0	0
<b>Net Load</b>	<b>248</b>	<b>238</b>	Solar	0	0
Transmission Losses	74	67	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
<b>Load + Losses + Pumps</b>	<b>323</b>	<b>305</b>	<b>Total Qualifying Capacity</b>	<b>41</b>	<b>41</b>

# Reedley Sub-Area Requirements



Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First Limit	P6	Kings River-Sanger-Reedley 115kV line with Wahtoke load in-service	McCall-Reedley 115kV Line & Sanger-Reedley 115kV line	170 (129)	165 (124)

# Reedley Sub-area: Load Profiles

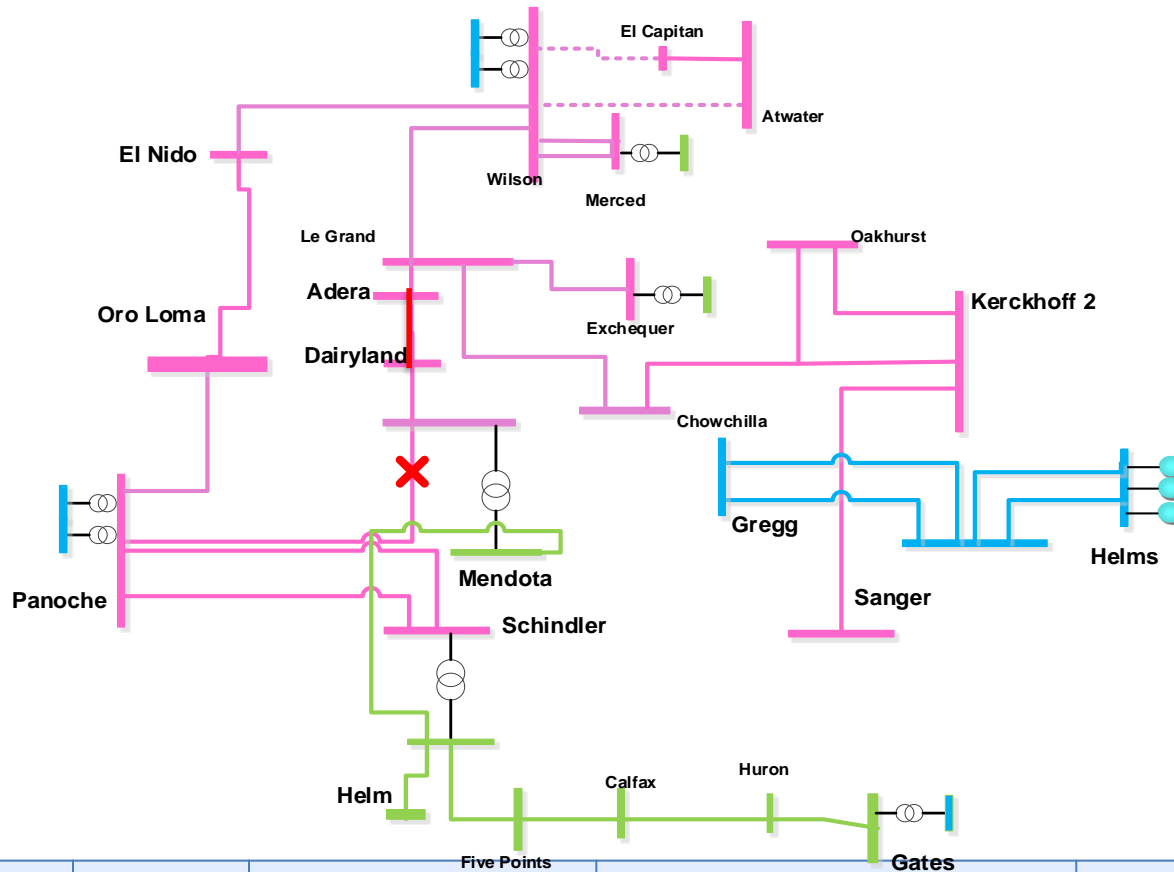




## Panoche Sub-area: Load and Resources

Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	541	504	Market, Net Seller	274	274
AAEE	-4	-6	Battery	0	0
Behind the meter DG	-18	-18	Muni/QF	107	107
<b>Net Load</b>	<b>519</b>	<b>479</b>	Solar	43	43
Transmission Losses	15	15	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
<b>Load + Losses + Pumps</b>	<b>535</b>	<b>494</b>	<b>Total Qualifying Capacity</b>	<b>424</b>	<b>424</b>

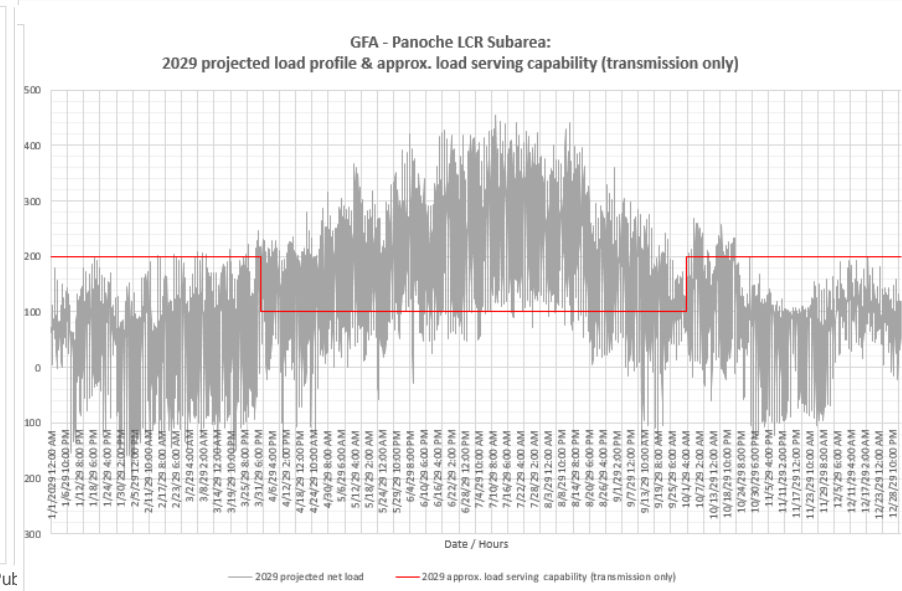
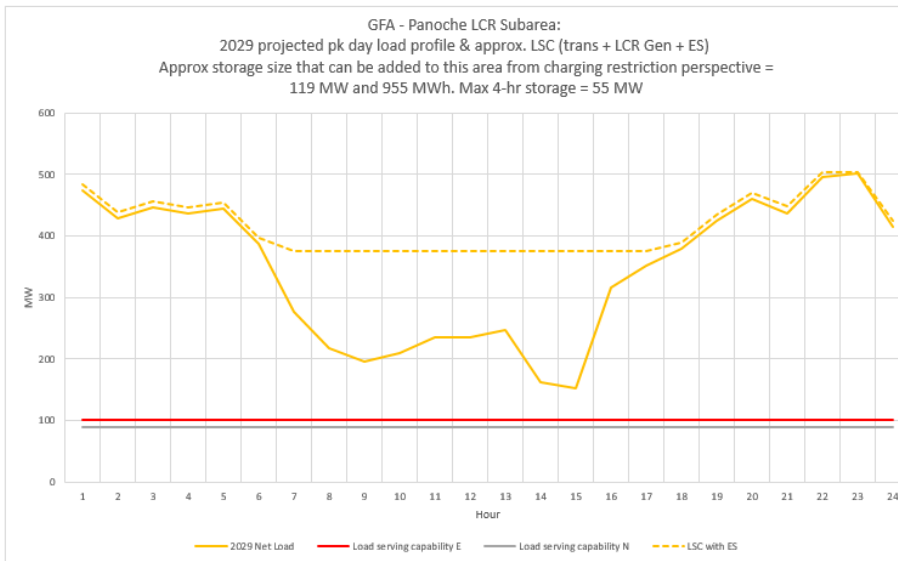
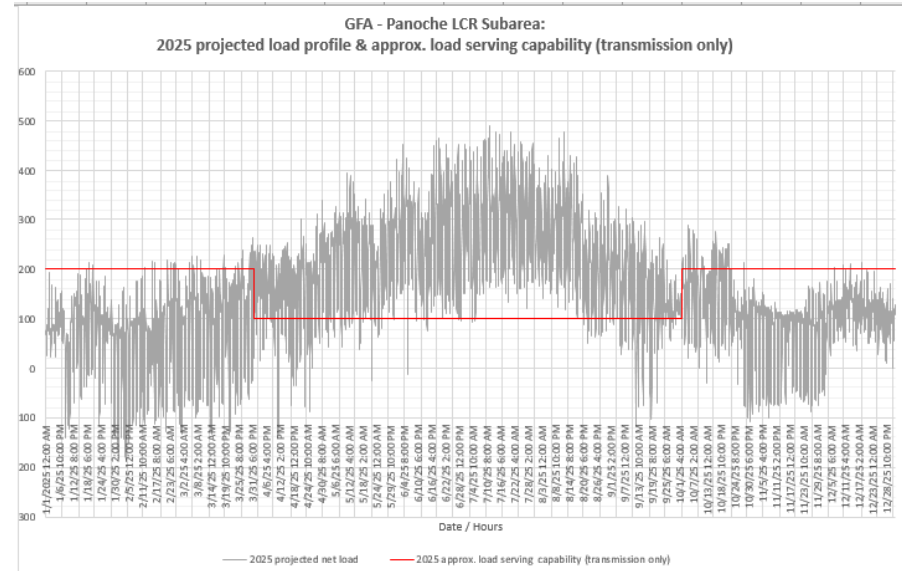
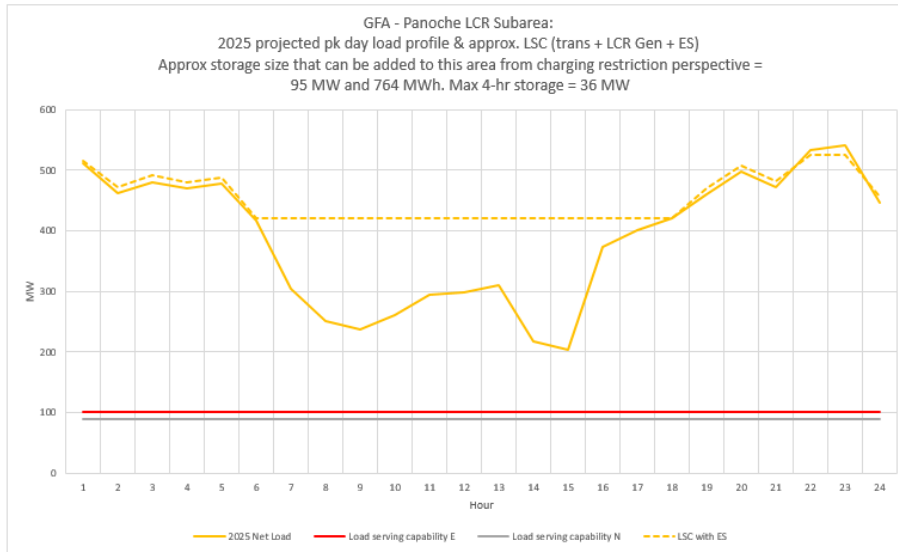
# Panoche Sub-Area Requirements



Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First Limit	P1	Dairyland-Adera Solar Junction 115 kV	Panoche-Mendota 115 kV	426 (2 NQC) (45 Peak)	404 (23 Peak)



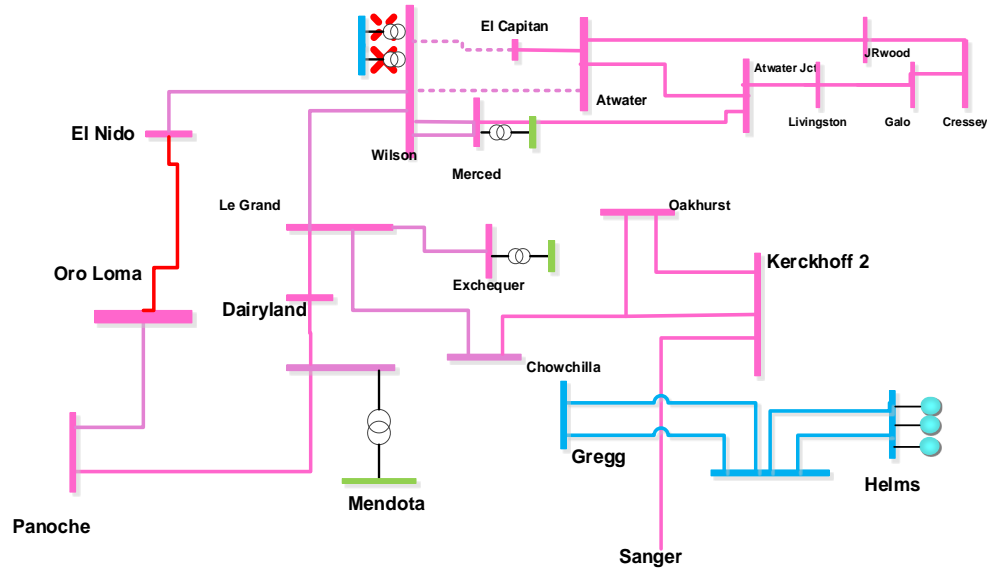
# Panoche Sub-area: Load Profiles



## Wilson Sub-area: Load and Resources

Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	<b>NA – Flow through area.</b>		Market/Net Seller	127	127
AAEE			Battery	0	0
Behind the meter DG			Muni/QF	104	104
<b>Net Load</b>			Solar	27	27
Transmission Losses			Existing 20-minute Demand Response	0	0
Pumps			Mothballed	0	0
<b>Load + Losses + Pumps</b>			<b>Total Qualifying Capacity</b>	<b>258</b>	<b>258</b>

# Wilson Sub-Area Requirements

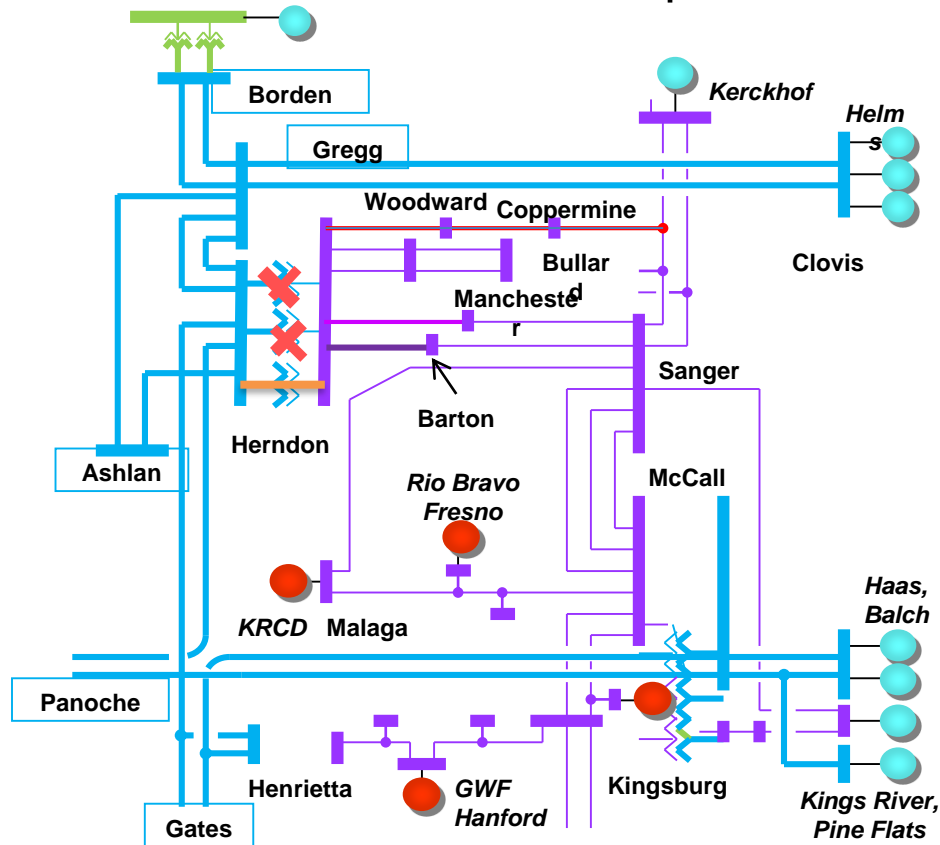


Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First Limit	P6	Orr Loma –El Nido 115 kV Line	Wilson 230/115kV TB #1 and Wilson 230/115kV TB #2	435 (177 NQC) (204 Peak)	Eliminated due to Project

## Herndon Sub-area: Load and Resources

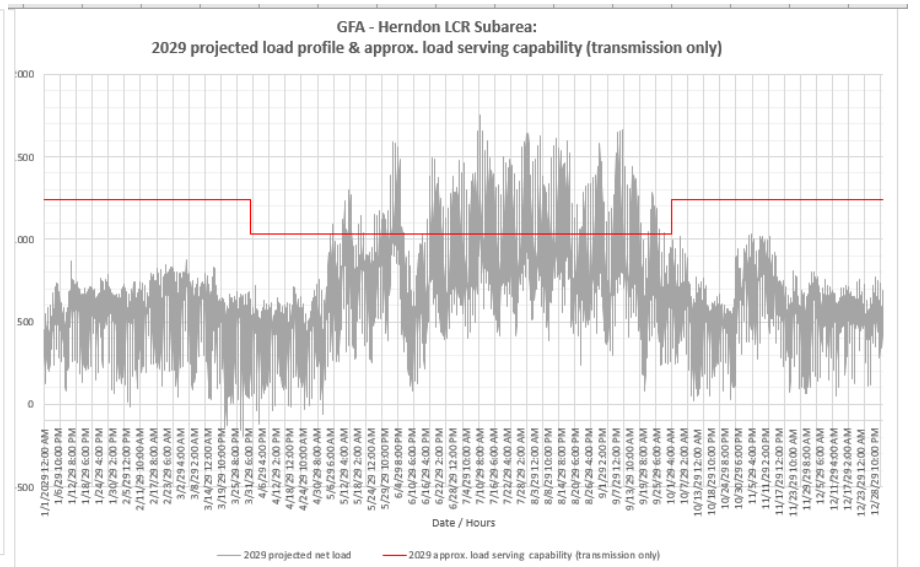
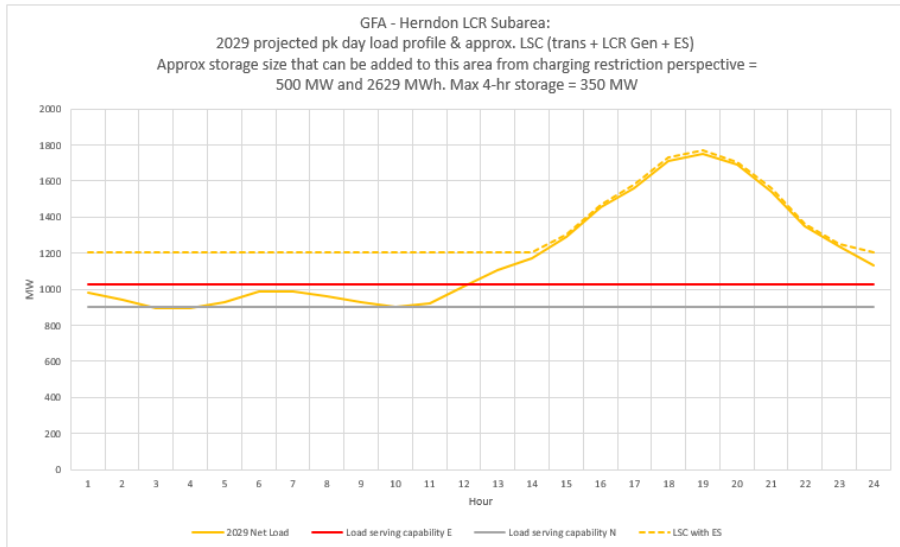
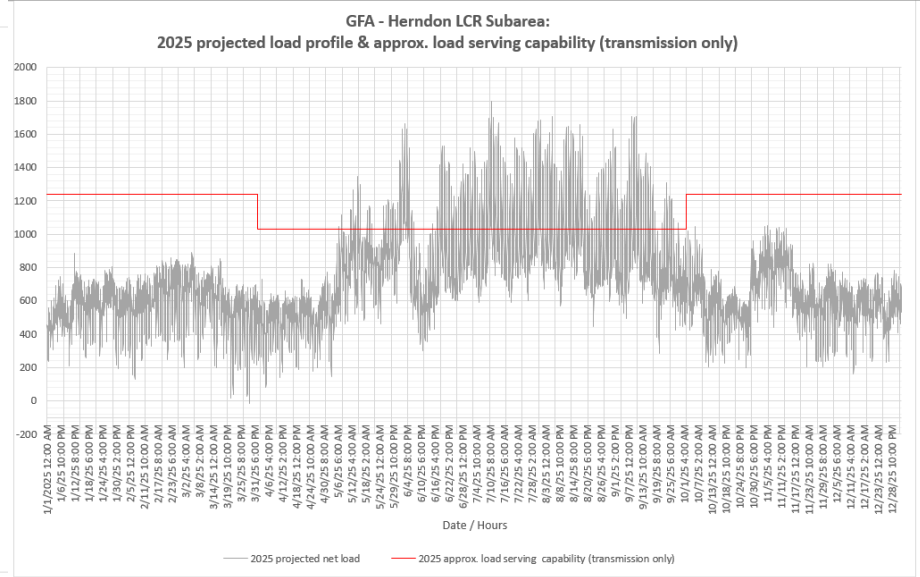
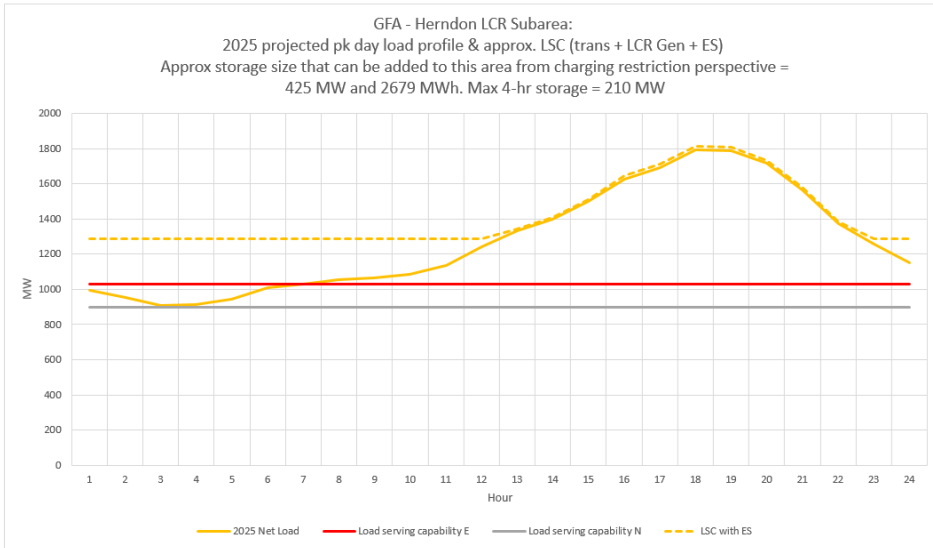
Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	1798	1775	Market/Net Seller	864	864
AAEE	-15	-28	Battery	16	16
Behind the meter DG	-70	-70	Muni/QF	121	121
<b>Net Load</b>	<b>1712</b>	<b>1676</b>	Solar	31	31
Transmission Losses	40	38	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
<b>Load + Losses + Pumps</b>	<b>1752</b>	<b>1714</b>	<b>Total Qualifying Capacity</b>	<b>1032</b>	<b>1032</b>

# Herndon Sub-Area Requirements



Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First limit	P6	Herndon 230/115kV Bank 3	Herndon 230/115 kV Bank 1 and Herndon 230/115 kV Bank 2	812	803

# Herndon Sub-area: Load Profiles

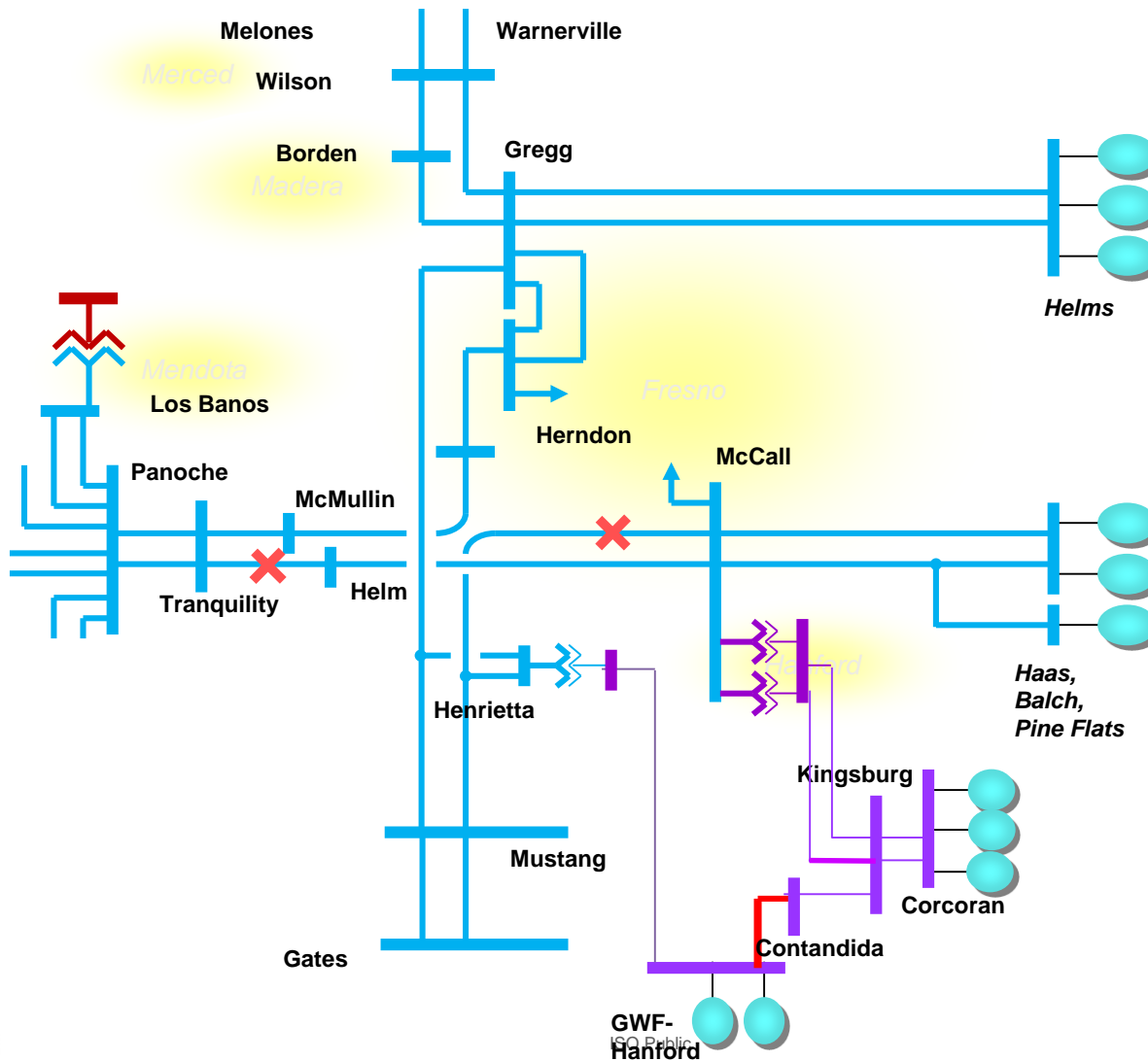




# Overall Load and Resources

Load (MW)	2025	2029	Generation (MW)	2025	2029
Gross Load	3914	3832	Market/Net Seller	2382	2382
AAEE	-31	-57	Battery/Hybrid	457	457
Behind the meter DG	-150	-150	Muni/QF	229	229
<b>Net Load</b>	<b>3732</b>	<b>3625</b>	Solar	199	199
Transmission Losses	156	148	Existing 20-minute Demand Response	0	0
Pumps	0	0	Wind	17	17
<b>Load + Losses + Pumps</b>	<b>3888</b>	<b>3773</b>	<b>Total Qualifying Capacity</b>	<b>3267</b>	<b>3267</b>

# Overall Sub-Area Requirements



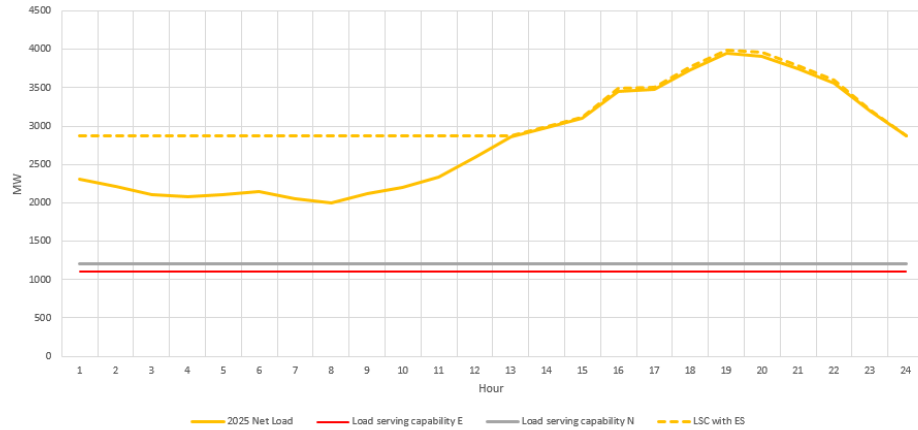
# Overall Fresno Area: Requirements

Limit	Category	Limiting Facility	Contingency	2025 LCR (MW)	2029 LCR (MW)
First limit	P6	(2025) Henrietta 230/115 kV Bank 3 (2029) Kingsburg-Contadina 115 kV Line	Helm-Mccall 230kV Line and Henrietta tap-Mustang 230kV Line	2532	2512

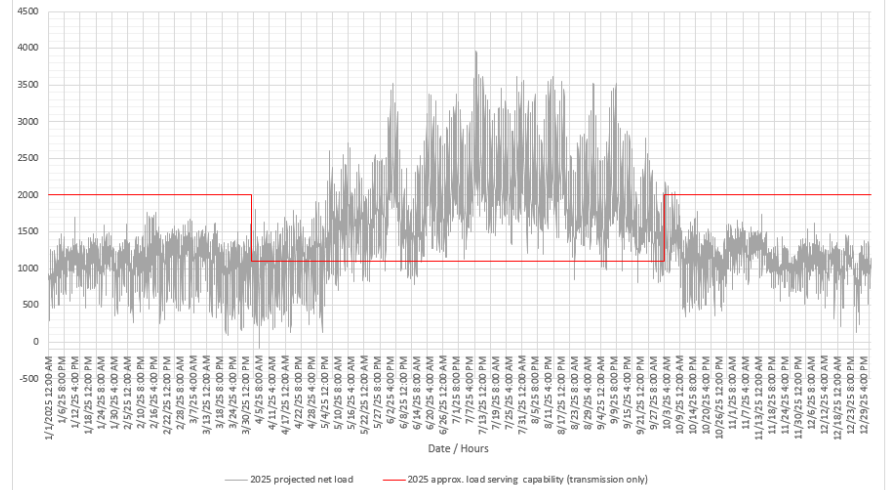
Study Year	Generation Capacity Needed (MW)	NQC Deficiency (MW)	Total MW Need
2025	2532	444	2976
2029	2512	198	2710

# Overall Sub-area: Load Profiles

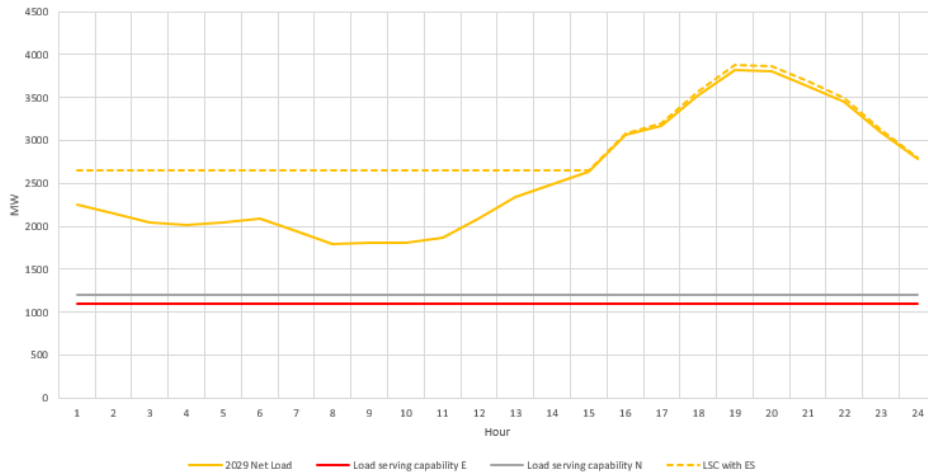
Greater Fresno Area LCR Area:  
 2025 projected pk day load profile & approx. LSC (trans + LCR Gen + ES)  
 Approx storage size that can be added to this area from charging restriction perspective =  
 1110 MWh and 6658 MWh. Max 4-hr storage = 650 MW



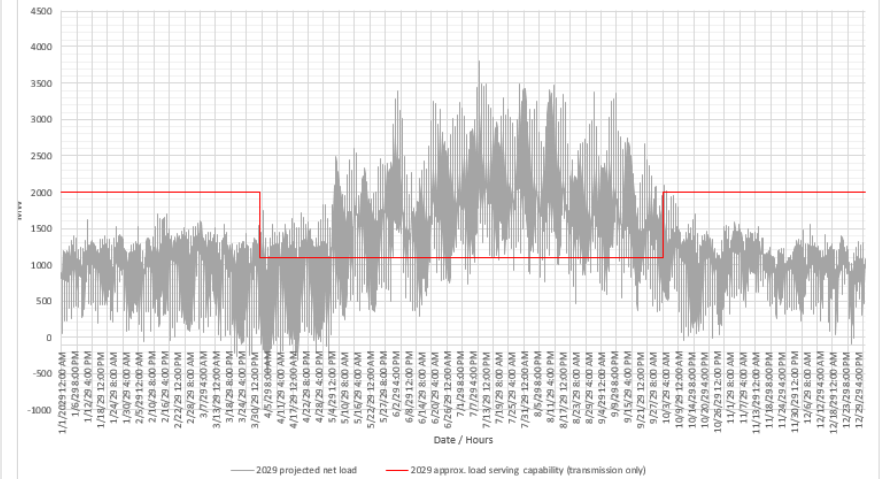
Greater Fresno Area LCR Area:  
 2025 projected load profile & approx. load serving capability (transmission only)



Greater Fresno Area LCR Area:  
 2029 projected pk day load profile & approx. LSC (trans + LCR Gen + ES)  
 Approx storage size that can be added to this area from charging restriction perspective =  
 1315 MWh and 6855 MWh. Max 4-hr storage = 980 MW



Greater Fresno Area LCR Area:  
 2029 projected load profile & approx. load serving capability (transmission only)



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# Changes Compared to Previous LCR Requirements

Sub-area	2024		2025		2028		2029	
	Load	LCR	Load	LCR	Load	LCR	Load	LCR
Hanford	208	58	237	46	224	62	228	36
Coalinga	150	110 (107 Peak; 95 NQC)	142	105 (78 NQC) (92 Peak)	156	116 (113 Peak, 101 NQC)	134	101 (74 NQC) (88 Peak)
Borden	137	9	175	68 (58 NQC) (64 Peak)	Eliminated due to Project		Eliminated due to Project	
Reedley	261	132 (93)	262	170 (129)	288	148 (109)	253	165 (124)
Panoche 115 kV	522	412 (24 Peak; 0 NQC)	535	426 (2 NQC) (45 Peak)	554	441 (53 peak; 10 NQC)	494	404 (23 Peak)
Wilson 115/70 kV	Flow-Through	361* (114 Peak) (87 NQC)	Flow-Through	435 (177 NQC) (204 Peak)	Eliminated due to Project		Eliminated due to Project	
Herndon	1476	459	1798	812	1620	530	1775	803
Overall	3354	2028	3732	2532	3637	2728	3625	2512

The 2025 overall Fresno requirement has increased mostly due to load forecast increases, the 2029 requirement has decreased mostly due to new transmission projects.