



2021 & 2025 Final LCR Study Results Kern Area

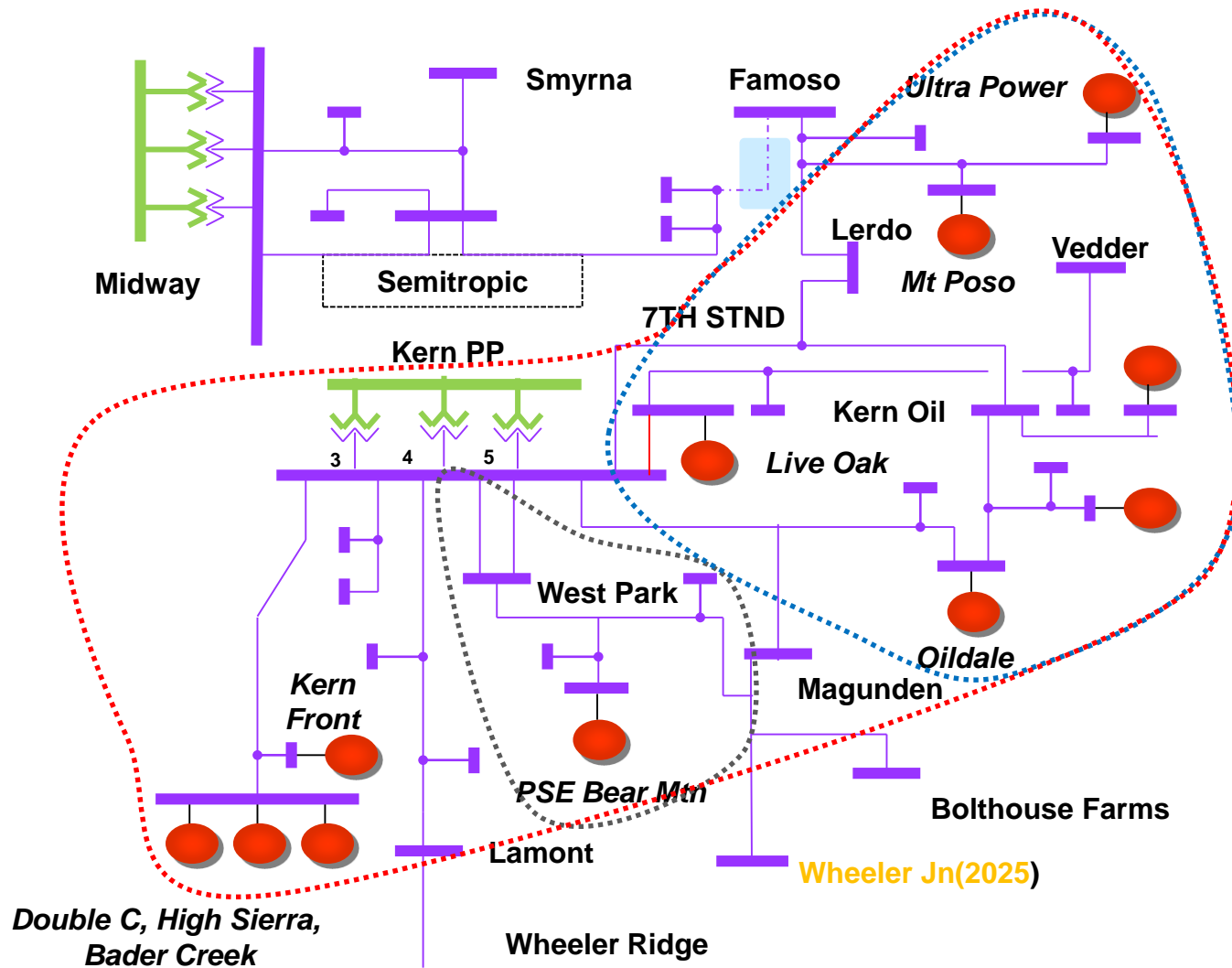
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Stakeholder Call

April 13, 2020

Kern Area LCR Sub-Areas



New Major Projects

Project Name	Expected ISD
Kern PP 230 kV Area Reinforcement	2021
Kern PP 115 kV Area Reinforcement Project	2023
Midway – Kern PP #2 230 kV Line	2023
Wheeler Ridge Junction Station Project	2024

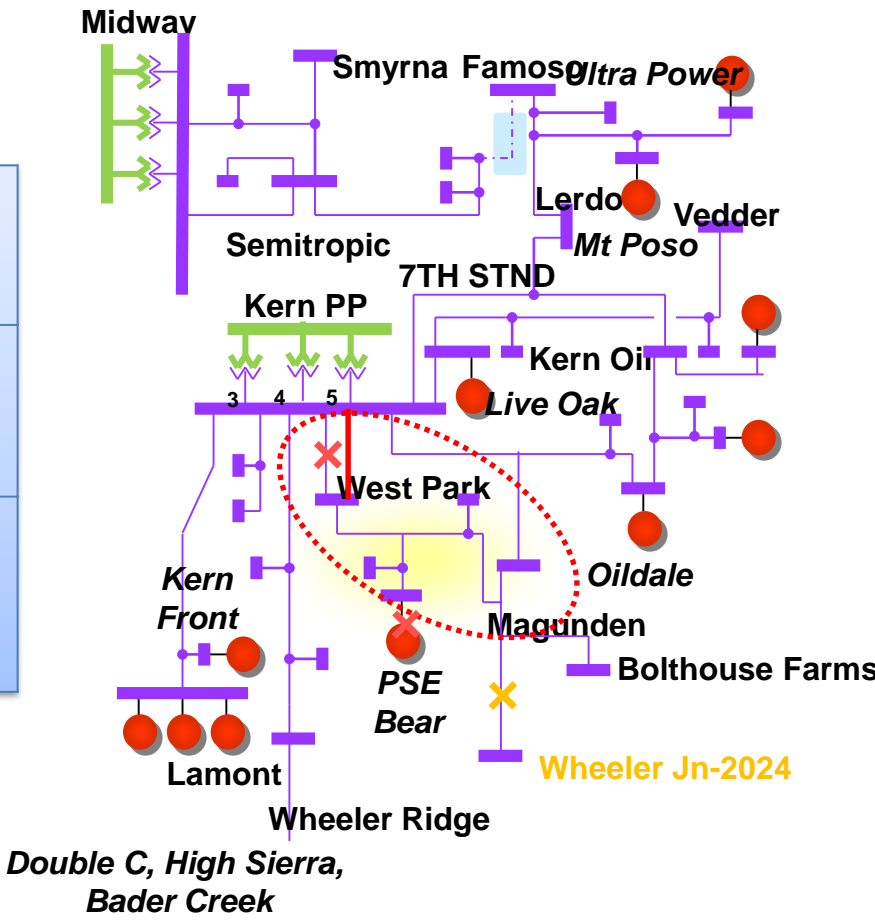
Kern Area Overall: Load and Resources

Load (MW)	2021	2025	Generation (MW)	2021	2025
Gross Load	1278	1327*	Market/ Net Seller/ Battery	330	330
AAEE	-5	-11	Solar	78	78
Behind the meter DG	0	0	Wind	0	0
Net Load	1273	1316	Muni	0	0
Transmission Losses	12	15	QF	5	5
Pumps	0	320	Future preferred resource and energy storage	0	0
Load + Losses + Pumps	1285	1651	Total Qualifying Capacity	413	413

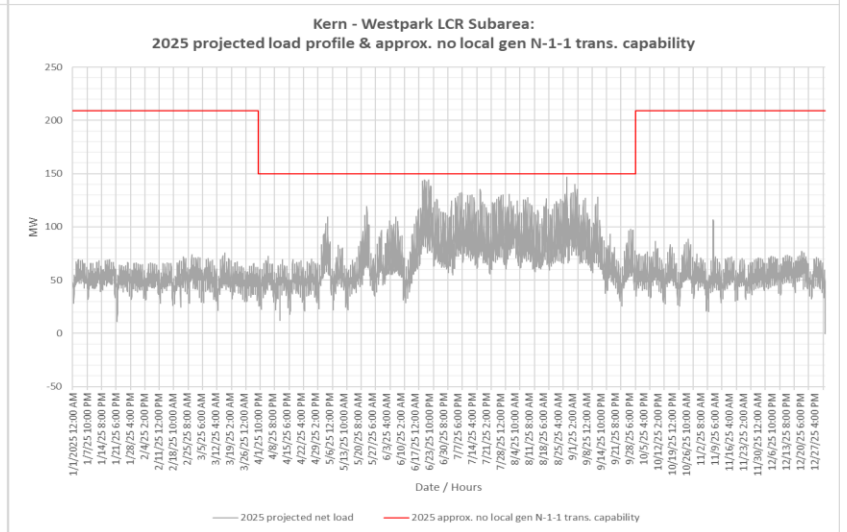
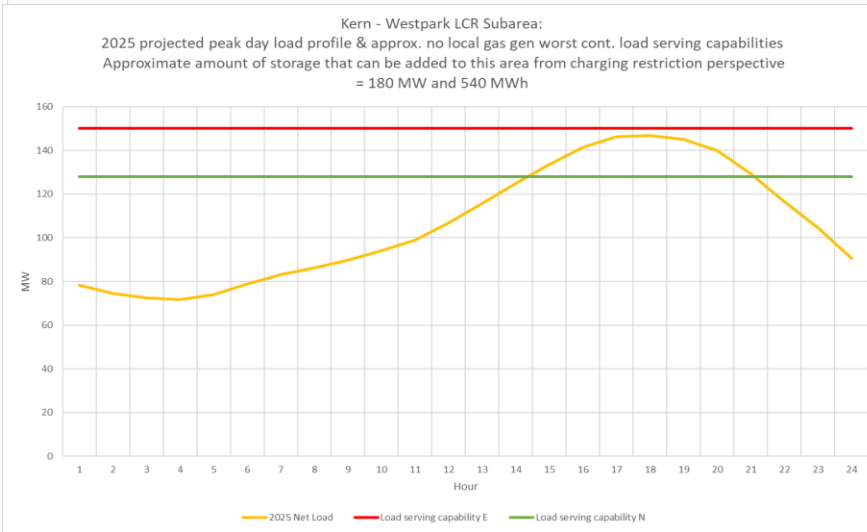
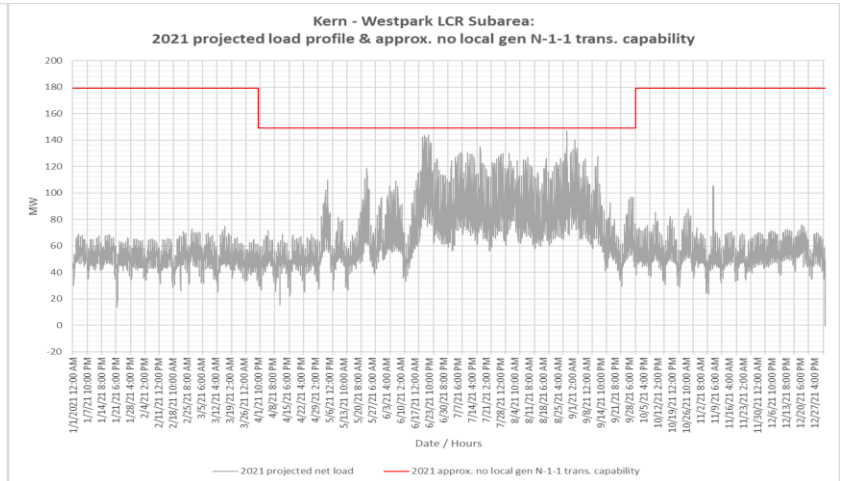
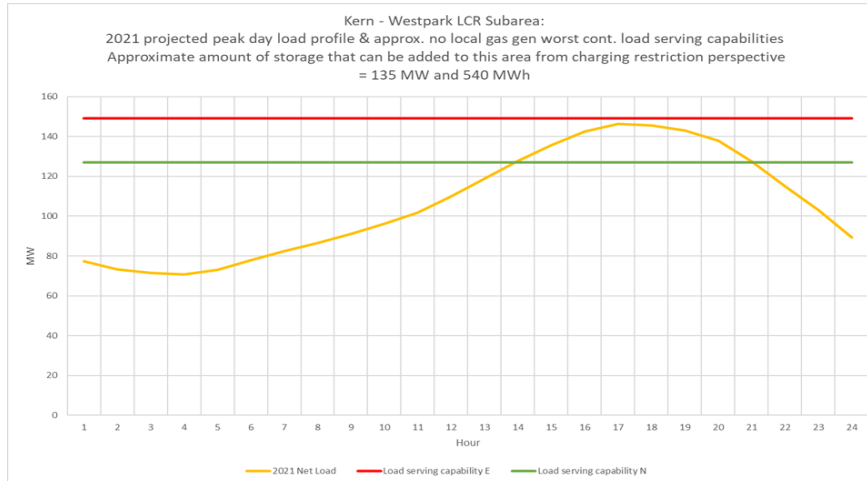
*Kern Area LCR definition has changed due to modeling of approved transmission upgrades

Kern Area LCR Westpark Sub-Area

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2021	P3	Kern-West Park #2 115 kV	Kern-West Park #1 115 kV and PSE-Bear Generation	58 (14)
2025	P6	Kern-West Park #2 or # 1 115 kV	Kern-West Park #1 or # 2 115 kV and Magunden-Wheeler J # 115 kV line	20

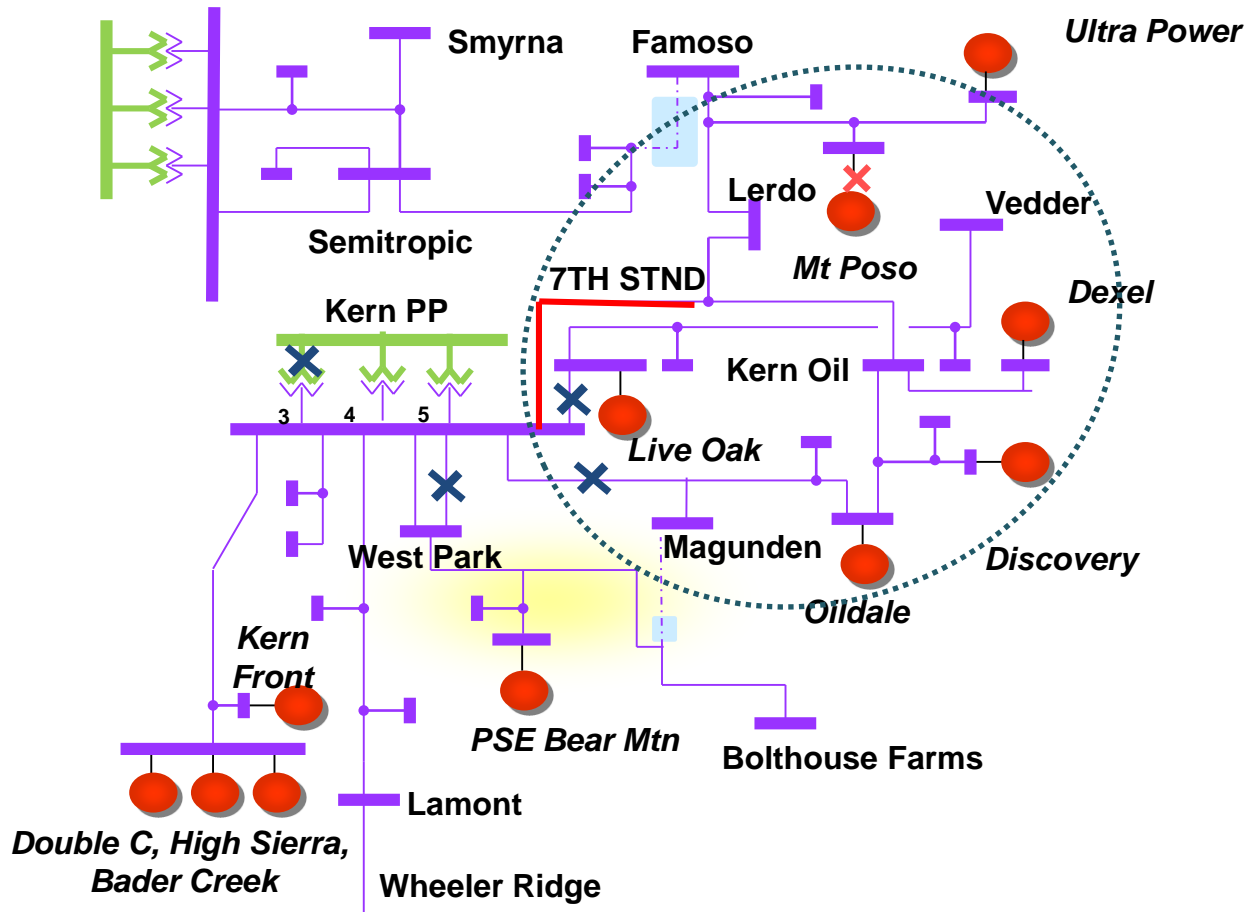


West Park Sub-area: Load Profiles



Kern Area LCR

Kern Oil Sub-Area Contingencies



Kern Area LCR

Kern Oil Sub-Area

Year	Cat	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2021	P2	Kern PP-7th Standard 115 kV Line	KERN PWR 115 kV Section 2E	155 (55*)

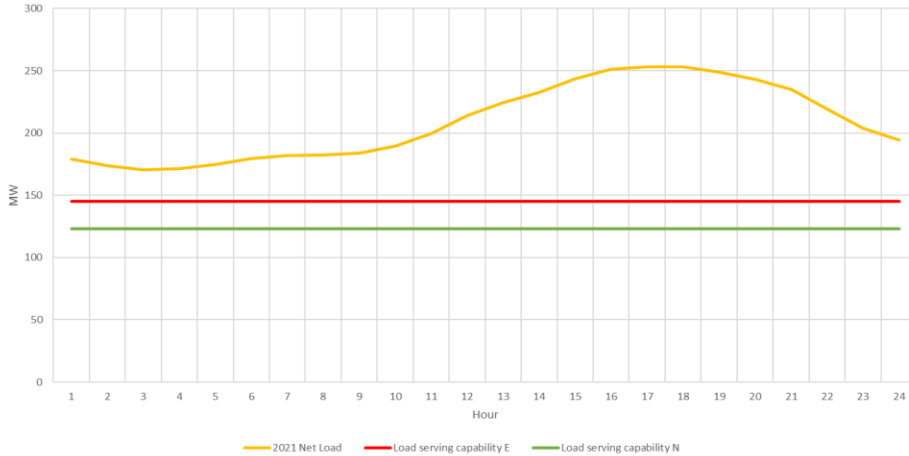
* NQC deficiency is 48 MW

Year	Cat	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2025	P6	Kern Oil Jn to Golden Bear 115 kV line section	Kern PP-7th Standard 115 kV lines & Kern PP-Live Oak 115 kV Line	69

Kern Oil Sub-area: Load Profiles

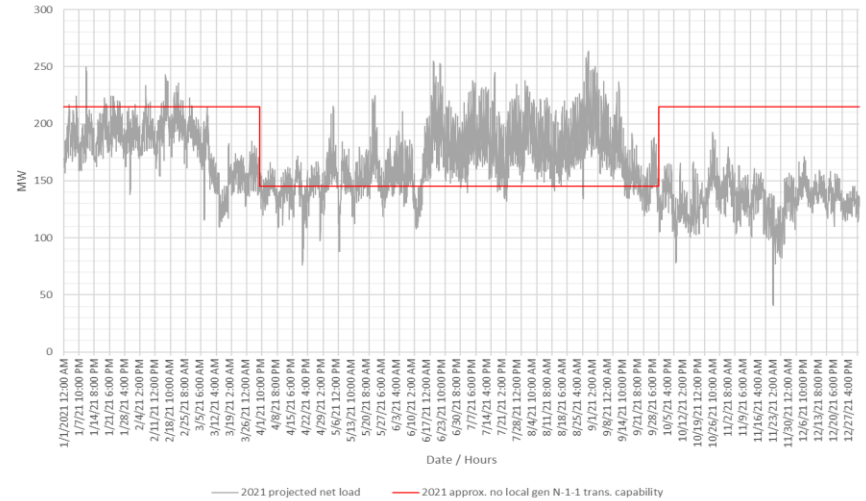
Kern - Kern Oil LCR Subarea:

2021 projected peak day load profile & approx. no local gas gen worst cont. load serving capabilities
 Approximate amount of storage that can be added to this area from charging restriction perspective
 = 0 MW and 0 MWh



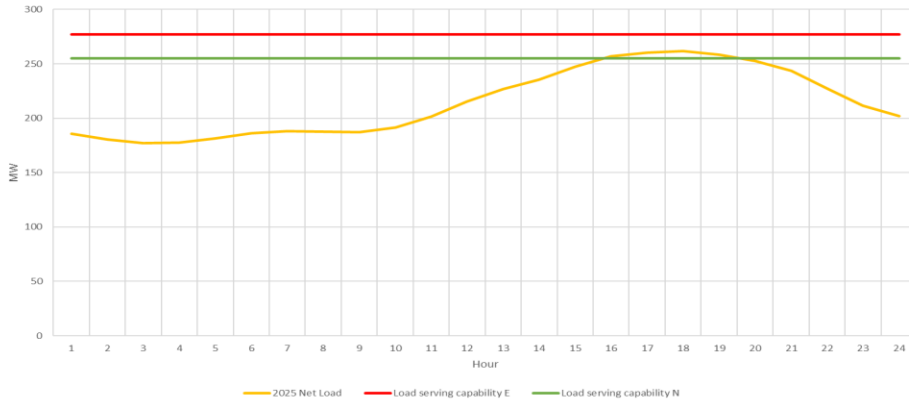
Kern - Kern Oil LCR Subarea:

2021 projected load profile & approx. no local gen N-1-1 trans. capability



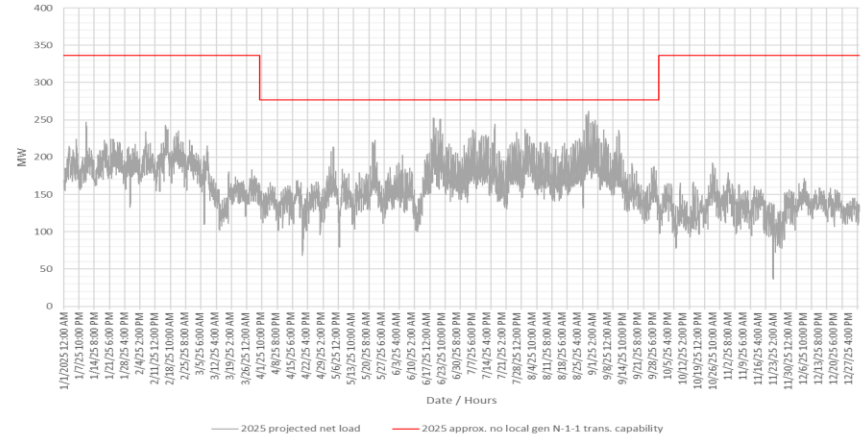
Kern - Kern Oil LCR Subarea:

2025 projected peak day load profile & approx. no local gas gen worst cont. load serving capabilities
 Approximate amount of storage that can be added to this area from charging restriction perspective
 = 215 MW and 860 MWh



Kern - Kern Oil LCR Subarea:

2025 projected load profile & approx. no local gen N-1-1 trans. capability



Kern PP 70 kV & Kern Pwr-Tevis 115 kV Sub-Area : Requirements

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2021	P6	Weedpatch to Weedpatch SF 70 kV	Kern PW1 115/70 T/F & Kern PW2 115/70 T/F	80 (76*)
2025	P6	Weedpatch to Weedpatch SF 70 kV	Kern PW1 115/70 T/F & Kern PW2 115/70 T/F	90 (86**)

* NQC deficiency is 63 MW

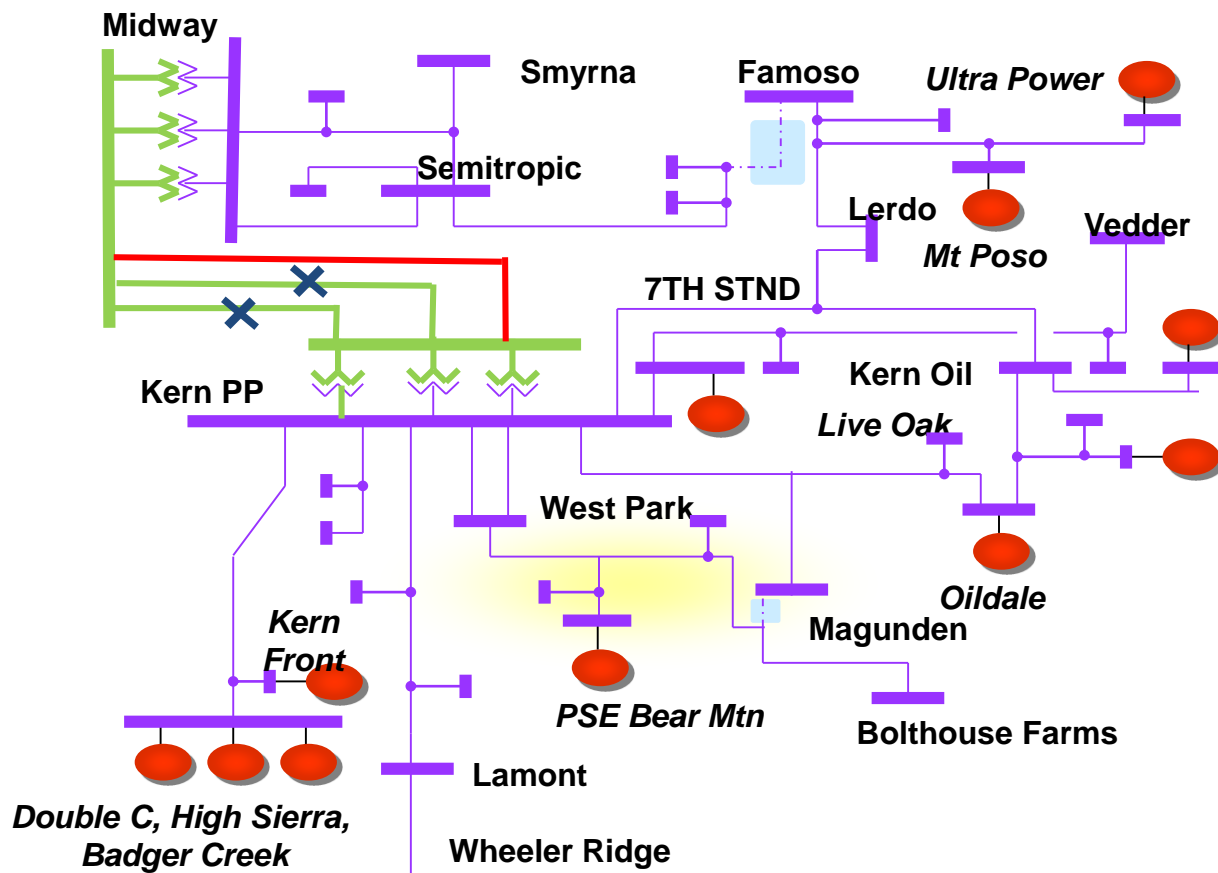
** NQC deficiency is 73 MW

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2021	P2	Kern-Lamont 115 kV Lines (Kern-Tevis Jct 2/Tevis J1)	KERN PWR 115kV - Section 1E & 1D	55 (55*)
2025	NA	NA	NA	NA

* NQC deficiency is 3 MW

Kern Area LCR

South Kern PP Sub-Area



Kern Area LCR

South Kern PP Sub-Area

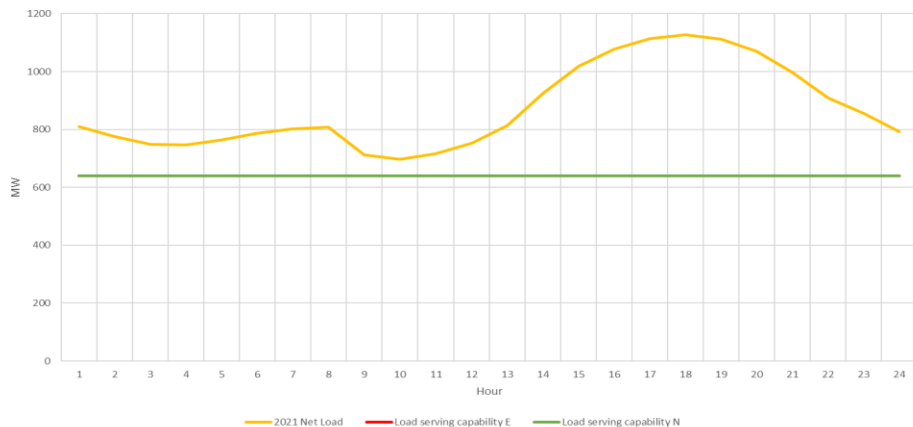
Year	Cat	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2021	P7	Midway-Kern #1 230 kV Line (Kern PP-Stockdale Jct 1)	Midway-Kern PP # 2 & # 3 230 kV lines	632 (297*)

* NQC deficiency is 219 MW

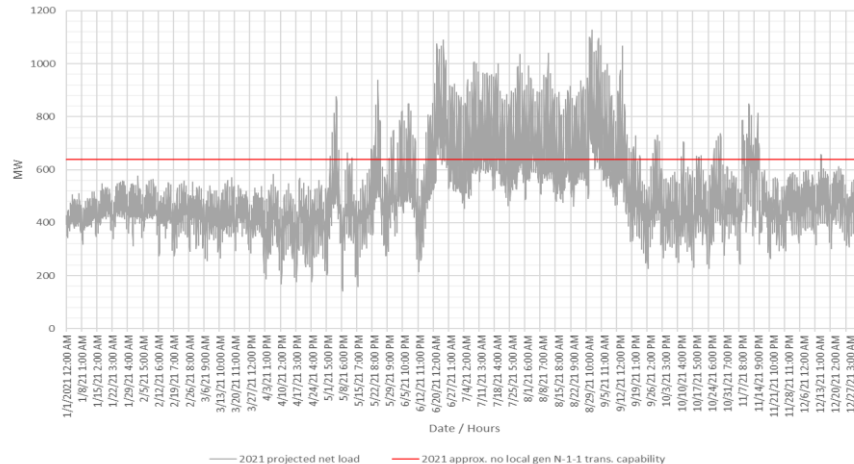
Year	Cat	Limiting Facility*	Contingency	LCR (MW) (Deficiency)
2025	P6	Kern 230/115 kV T/F # 5	Kern 230/115 kV T/F # 3 & Kern 230/115 kV T/F # 4	186

South Kern PP Sub-area: Load Profiles

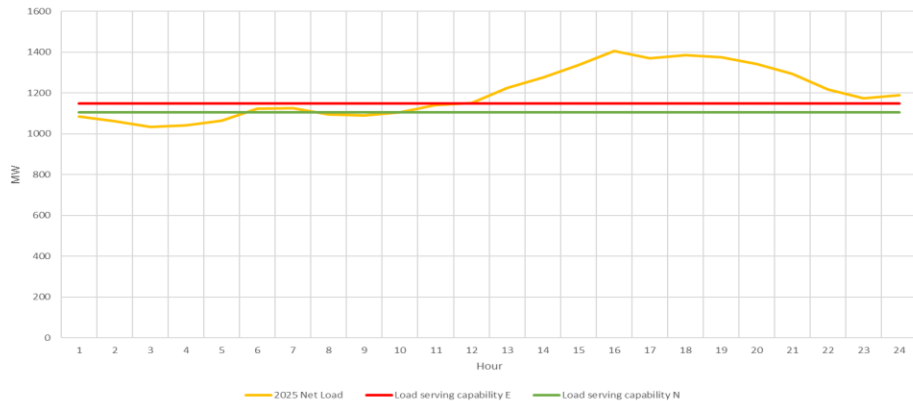
Kern - South Kern PP LCR Subarea:
 2021 projected peak day load profile & approx. no local gas gen worst cont. load serving capabilities
 Approximate amount of storage that can be added to this area from charging restriction perspective
 = 0 MW and 0 MWh



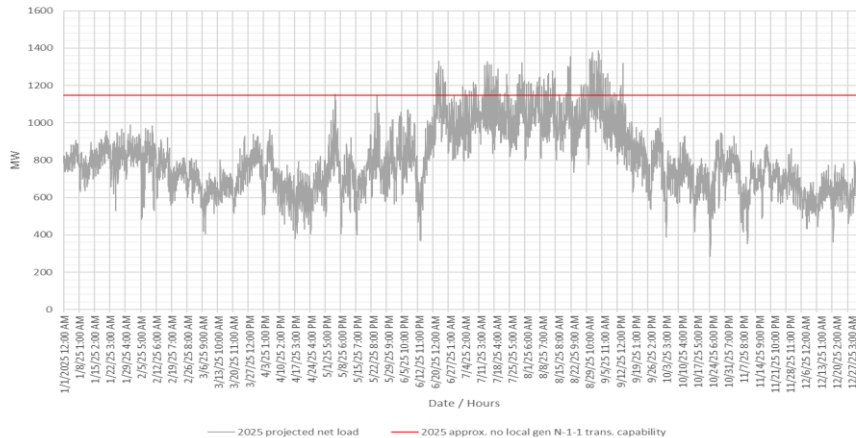
Kern - South Kern PP LCR Subarea:
 2021 projected load profile & approx. no local gen N-1-1 trans. capability



Kern - South Kern PP LCR Subarea:
 2025 projected peak day load profile & approx. no local gas gen worst cont. load serving capabilities
 Approximate amount of storage that can be added to this area from charging restriction perspective
 = 210 MW and 1470



Kern - South Kern PP LCR Subarea:
 2025 projected load profile & approx. no local gen N-1-1 trans. capability



Kern Total LCR Need

2021	Existing Generation Capacity Needed (MW)	NQC Deficiency (MW)	Total (MW)
LCR Need	413	219	632

2025	Existing Generation Capacity Needed (MW)	NQC Deficiency (MW)	Total (MW)
LCR Need	200	76	276

Changes Compared to Previous LCR Requirements

Sub-area	2020		2021		2024		2025	
	Load	LCR	Load	LCR	Load	LCR	Load	LCR
Kern PP 70 kV	147	65*	226	81*	154	73*	243	90*
West Park	165	60*	162	58*	164	14	164	20
Kern Oil**	745	131*	768	156*	749	65	780	69
KernPP- Tevis 115 kV	200	NA	198	55*	NA	NA	NA	NA
South Kern	1155	592*	1285	632*	NA	NA	1636	186
Kern Overall	1155	592*	1285	632*	903/1561	152*	1651	276*

Load is Net Load+Losses

* Includes Deficiency

** Kern Oil Load includes West Park & Tevis Loads

- Kern PP-Tevis 115 kV pocket is the new pocket due to P2 contingencies. It gets eliminated in 2025 due to TP project
- Kern PP 70 kV definition changed due to closing of Magunden CB 22 and removal of Weedpatch shoofly
- 2021 area load has increased by 130 MW. This is primarily due to removal of Weed patch Shoofly which expands the boundary of over all Kern LCR area. The LCR requirement increases proportionally to the load growth.
- 2025 area load has increased by 748 MW due to addition of Pumping load, Bakersfield, Stockdale and additional 70 kV load due to closing of Weedpatch Shoofly . This results in bigger Kern LCR area definition.