2021 & 2025 Final LCR Study Results
Kern Area

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Regional Transmission Engineer Lead
Stakeholder Call
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Kern Area LCR Sub-Areas

- Midway
- Kern PP
- Semitropic
- 7TH STND
- Kern Oil
- Live Oak
- Oildale
- Magunden
- Mt Poso
- Ultra Power
- Lerdo
- Vedder
- Bolthouse Farms
- Wheeler Jn(2025)

Locations:
- Double C, High Sierra, Bader Creek
- Wheeler Ridge
- Live Oak
- PSE Bear Mtn
- West Park
- Kern Front
- Lamont
- Bader Creek
## New Major Projects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Expected ISD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kern PP 230 kV Area Reinforcement</td>
<td>2021</td>
</tr>
<tr>
<td>Kern PP 115 kV Area Reinforcement Project</td>
<td>2023</td>
</tr>
<tr>
<td>Midway – Kern PP #2 230 kV Line</td>
<td>2023</td>
</tr>
<tr>
<td>Wheeler Ridge Junction Station Project</td>
<td>2024</td>
</tr>
</tbody>
</table>
# Kern Area Overall: Load and Resources

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

*Kern Area LCR definition has changed due to modeling of approved transmission upgrades*
<table>
<thead>
<tr>
<th>Year</th>
<th>Category</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>P3</td>
<td>Kern-West Park #2 115 kV</td>
<td>Kern-West Park #1 115 kV and PSE-Bear Generation</td>
<td>58 (14)</td>
</tr>
<tr>
<td>2025</td>
<td>P6</td>
<td>Kern-West Park #2 or # 1 115 kV</td>
<td>Kern-West Park #1 or # 2 115 kV and Magunden-Wheeler J # 115 kV line</td>
<td>20</td>
</tr>
</tbody>
</table>
West Park Sub-area: Load Profiles

Kern - Westpark 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
= 135 MW and 540 MWh

Kern - Westpark 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
= 180 MW and 540 MWh
Kern Area LCR
Kern Oil Sub-Area Contingencies

- Smyrna
- Famoso
- Lerdo
- Mt Poso
- Live Oak
- Magunden
- Oildale
- Discovery
- Ultra Power
- Kern Front
- Double C, High Sierra, Bader Creek
- West Park
- Kern PP
- Semi-Tropic
- 7TH STND
- Wheeler Ridge
- PSE Bear Mtn
- Bolthouse Farms
- Lamont
- Bolthouse Farms

ISO Public
Kern Area LCR
Kern Oil Sub-Area

<table>
<thead>
<tr>
<th>Year</th>
<th>Cat</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>P2</td>
<td>Kern PP-7th Standard 115 kV Line</td>
<td>KERN PWR 115 kV Section 2E</td>
<td>155 (55*)</td>
</tr>
</tbody>
</table>

* NQC deficiency is 48 MW

<table>
<thead>
<tr>
<th>Year</th>
<th>Cat</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2025</td>
<td>P6</td>
<td>Kern Oil Jn to Golden Bear 115 kV line section</td>
<td>Kern PP-7th Standard 115 kV lines &amp; Kern PP-Live Oak 115 kV Line</td>
<td>69</td>
</tr>
</tbody>
</table>
Kern Oil Sub-area: Load Profiles

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

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Category</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>P6</td>
<td>Weedpatch to Weedpatch SF 70 kV</td>
<td>Kern PW1 115/70 T/F &amp; Kern PW2 115/70 T/F</td>
<td>80 (76*)</td>
</tr>
<tr>
<td>2025</td>
<td>P6</td>
<td>Weedpatch to Weedpatch SF 70 kV</td>
<td>Kern PW1 115/70 T/F &amp; Kern PW2 115/70 T/F</td>
<td>90 (86**)</td>
</tr>
</tbody>
</table>

* NQC deficiency is 63 MW
** NQC deficiency is 73 MW

<table>
<thead>
<tr>
<th>Year</th>
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<th>Limiting Facility</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>P2</td>
<td>Kern-Lamont 115 kV Lines (Kern-Tevis Jct 2/Tevis J1)</td>
<td>KERN PWR 115kV - Section 1E &amp; 1D</td>
<td>55 (55*)</td>
</tr>
<tr>
<td>2025</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

* NQC deficiency is 3 MW
Kern Area LCR
South Kern PP Sub-Area

- Midway
- Kern PP
- Double C, High Sierra, Badger Creek
- Kern Front
- Smyrna
- Semitropic
- Famoso
- Ultra Power
- Lerdo
- Mt Poso
- Vedder
- 7TH STND
- Kern Oil
- Live Oak
- West Park
- Magunden
- Oildale
- Bolthouse Farms
- PSE Bear Mtn
- Lamont
- Wheeler Ridge
- Double C, High Sierra, Badger Creek
- Kern Front
- Smyrna
- Semitropic
- Famoso
- Ultra Power
- Lerdo
- Mt Poso
- Vedder
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- Kern Oil
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- Lamont
- Wheeler Ridge
## Kern Area LCR
### South Kern PP Sub-Area

<table>
<thead>
<tr>
<th>Year</th>
<th>Cat</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>P7</td>
<td>Midway-Kern #1 230 kV Line (Kern PP-Stockdale Jct 1)</td>
<td>Midway-Kern PP # 2 &amp; # 3 230 kV lines</td>
<td>632 (297*)</td>
</tr>
</tbody>
</table>

* NQC deficiency is 219 MW

<table>
<thead>
<tr>
<th>Year</th>
<th>Cat</th>
<th>Limiting Facility*</th>
<th>Contingency</th>
<th>LCR (MW) (Deficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2025</td>
<td>P6</td>
<td>Kern 230/115 kV T/F # 5</td>
<td>Kern 230/115 kV T/F # 3 &amp; Kern 230/115 kV T/F # 4</td>
<td>186</td>
</tr>
</tbody>
</table>
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:
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 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 load profile & approx. no local gen N-1-1 trans. capability
## Kern Total LCR Need

<table>
<thead>
<tr>
<th>Year</th>
<th>Existing Generation Capacity Needed (MW)</th>
<th>NQC Deficiency (MW)</th>
<th>Total (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td><strong>LCR Need</strong></td>
<td><strong>413</strong></td>
<td><strong>632</strong></td>
</tr>
<tr>
<td></td>
<td><strong>NQC Deficiency</strong></td>
<td><strong>219</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Existing Generation Capacity Needed (MW)</th>
<th>NQC Deficiency (MW)</th>
<th>Total (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2025</td>
<td><strong>LCR Need</strong></td>
<td><strong>200</strong></td>
<td><strong>276</strong></td>
</tr>
<tr>
<td></td>
<td><strong>NQC Deficiency</strong></td>
<td><strong>76</strong></td>
<td></td>
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</tbody>
</table>
### Changes Compared to Previous LCR Requirements

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

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 overall 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.