The role of gas in a decarbonizing California/Western grid

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• 76 generation facilities; approximately 26,000 MW
• Wholesale and retail customers in 24 states, Canada and Mexico
• Largest geothermal power producer in America
• Largest operator of combined heat and power (cogeneration) in America
• More than 2,300 employees
Calpine in the West

Calpine owns & operates 7,435 MW in the West

- 725 MW of baseload, geothermal capacity; largest single source supplier of renewable energy in California
- 6,195 MW of combined-cycle gas capacity; 515 MW of simple-cycle gas capacity
- Cogeneration provider, serving Covestra (Dow) and USS POSCO
- Selected to provide critical black-start service in the Bay Area
- Over 800 employees in California
- Owner of more than 500 miles of pipeline in California
- Provide reliability products to nearly all load-serving entities in California
- Among largest service providers to direct access customers in California
- Largest data management (back-office) provider to CCAs
- One of the largest contracted PG&E providers
- Battery storage, solar plus battery storage, and carbon capture utilization and sequestration projects under development

Supplying stable, reliable power while supporting a variety of customers
Gas is an important capacity resource—E3/Calpine study

- Gas capacity retention part of a cost-effective resource mix to meet aggressive GHG goals
- Gas needed even with large storage buildout
Energy/duration limits matter

California PATHWAYS, 2050 High Electrification Portfolio
No Gas or Imports, Winter Days

Without dispatchable generation or long-duration storage, system becomes energy insufficient during multi-day low solar storm

Load

Total Supply

GW
Energy duration limits matter—local areas

Limited ability to charge in off-peak hours

Internal resources needed to serve this load shape

http://www.caiso.com/Documents/Presentation-Final2021and2025LCRBayAreaLocalArea.pdf
Gas capacity is getting scarcer

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Merchant Capacity ~2010 (MW)</th>
<th>AZ LSE Control ~2021 (MW)</th>
<th>Remaining Merchant (MW)</th>
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</thead>
<tbody>
<tr>
<td>Gila River</td>
<td>2,200</td>
<td>2,200 (1,650 SRP, 550 TEP)</td>
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<tr>
<td>Arlington Valley</td>
<td>565</td>
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<td>Griffith</td>
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<td>Harquahala</td>
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<td>1,250 (625 SRP, 625 SWPR)</td>
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<td>Mesquite</td>
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<td>South Point</td>
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<tr>
<td>Desert Star</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>1,100</strong></td>
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