



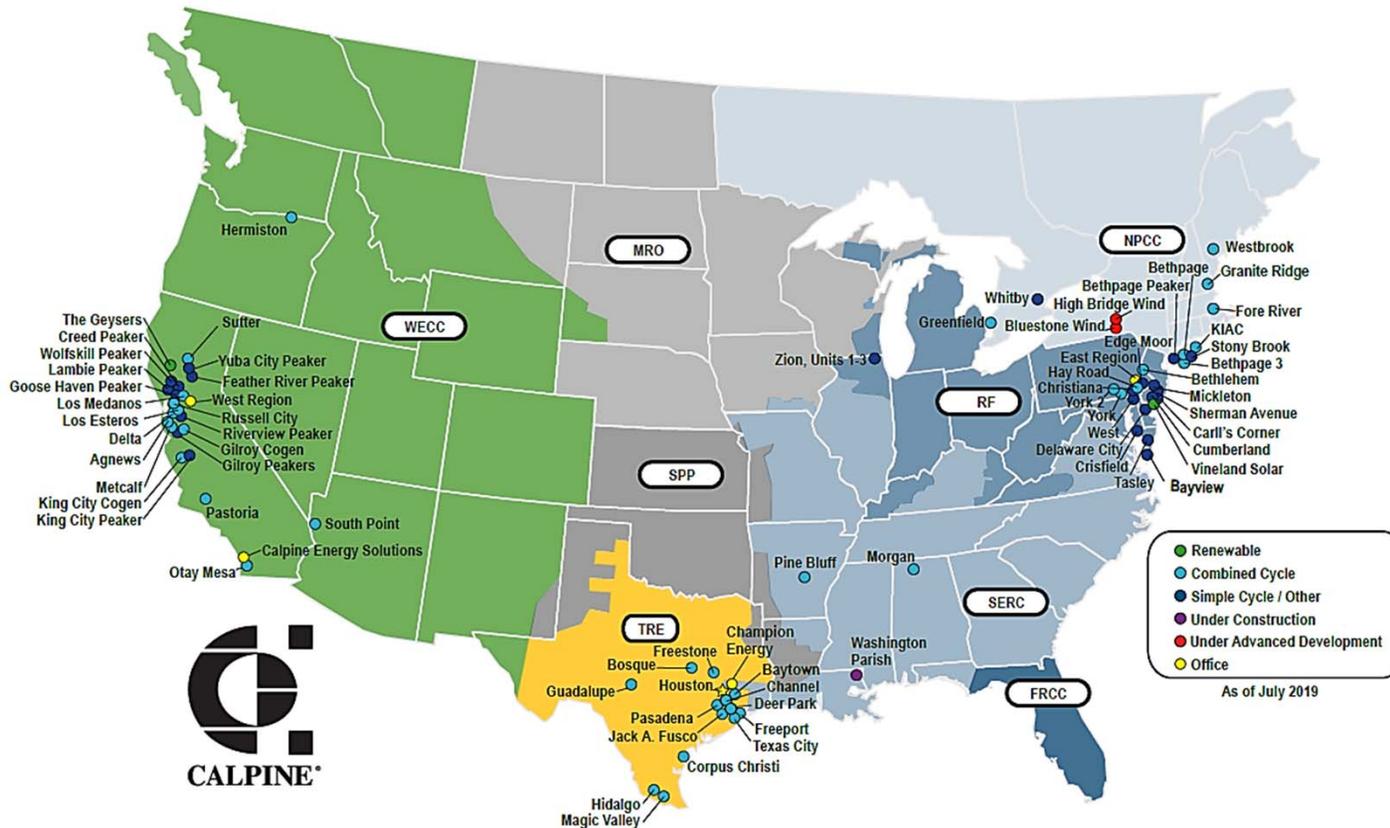
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The role of gas in a decarbonizing California/Western grid

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Calpine



- 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

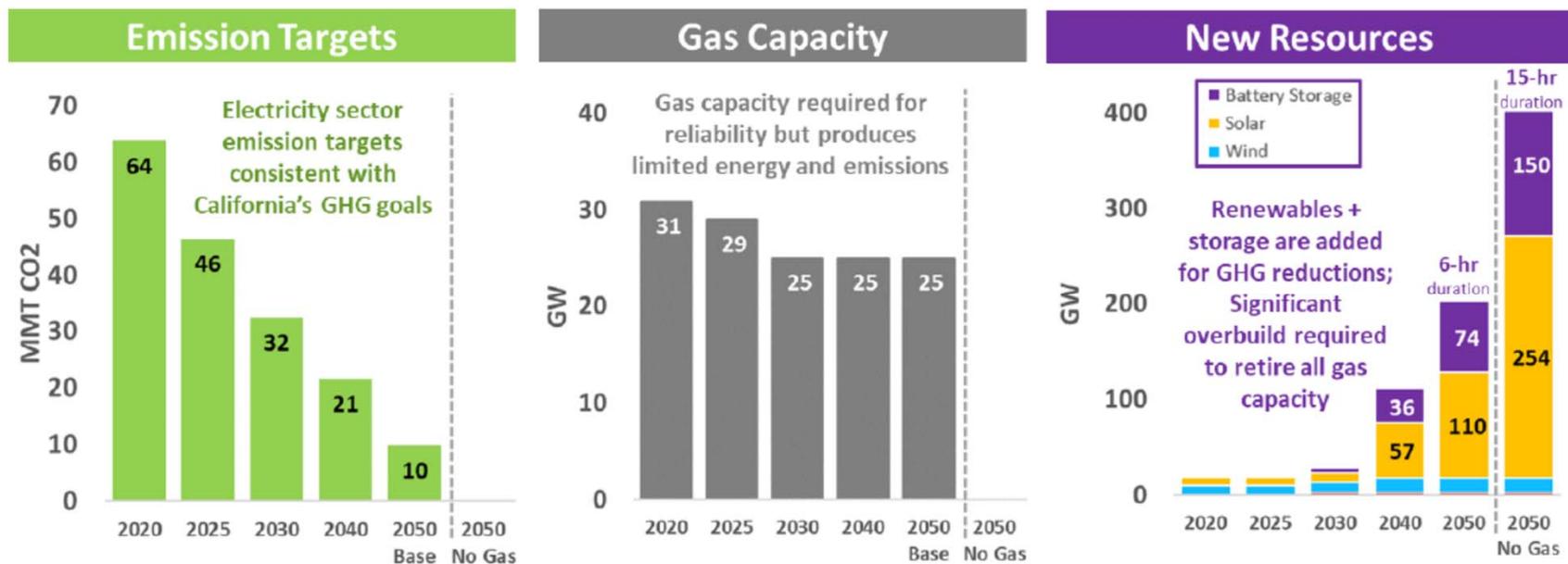


- 725 MW of baseload, geothermal capacity; largest single source supplier of renewable energy in California
- 6,195 MW of combined-cycle gas capacity; 515 MW of simple-cycle gas capacity
- Cogeneration provider, serving Covestra (Dow) and USS POSCO
- Selected to provide critical black-start service in 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

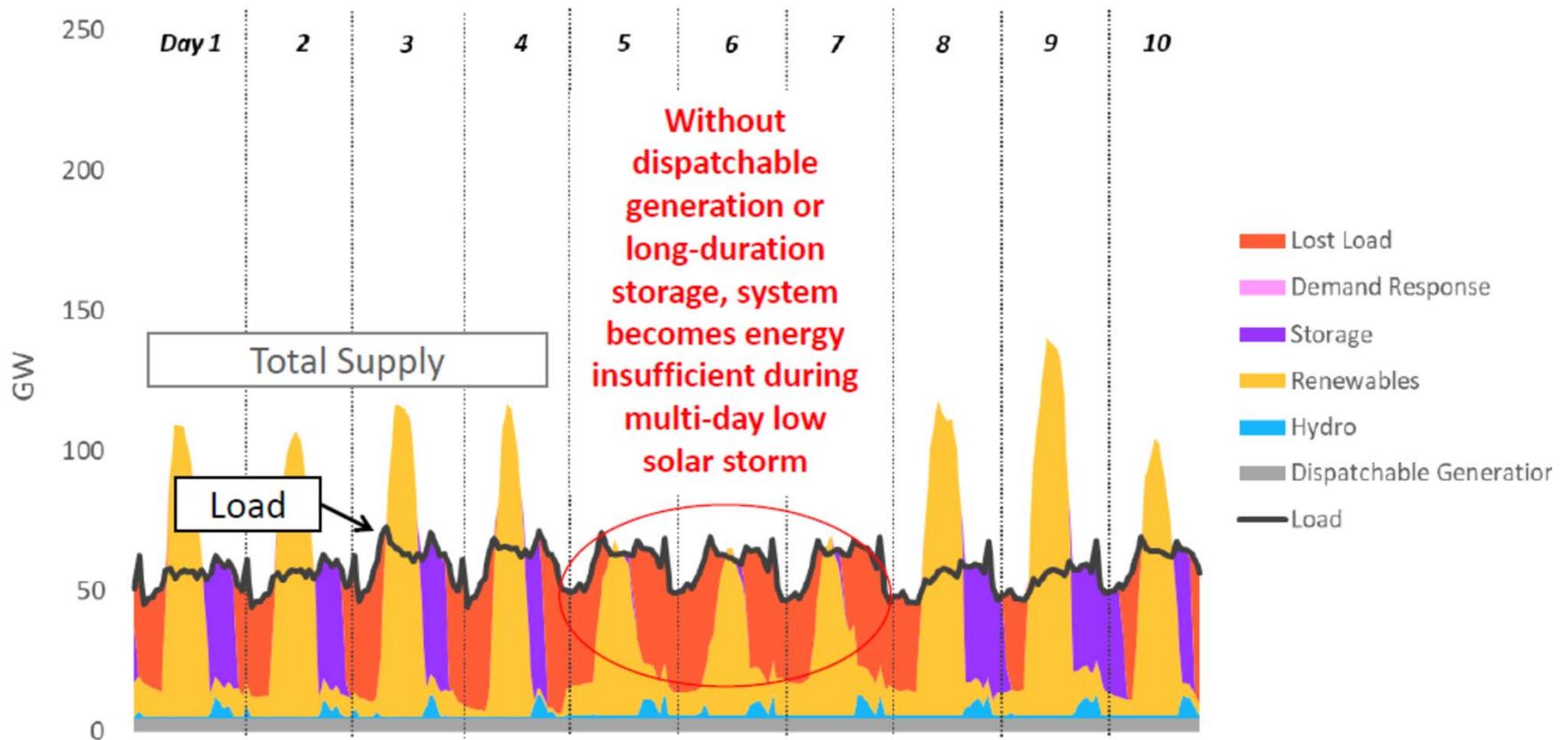
- Gas capacity retention part of a cost-effective resource mix to meet aggressive GHG goals
- Gas needed even with large storage buildout



https://www.ethree.com/wp-content/uploads/2019/06/E3_Long_Run_Resource_Adequacy_CA_Deep-Decarbonization_Final.pdf

Energy/duration limits matter

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

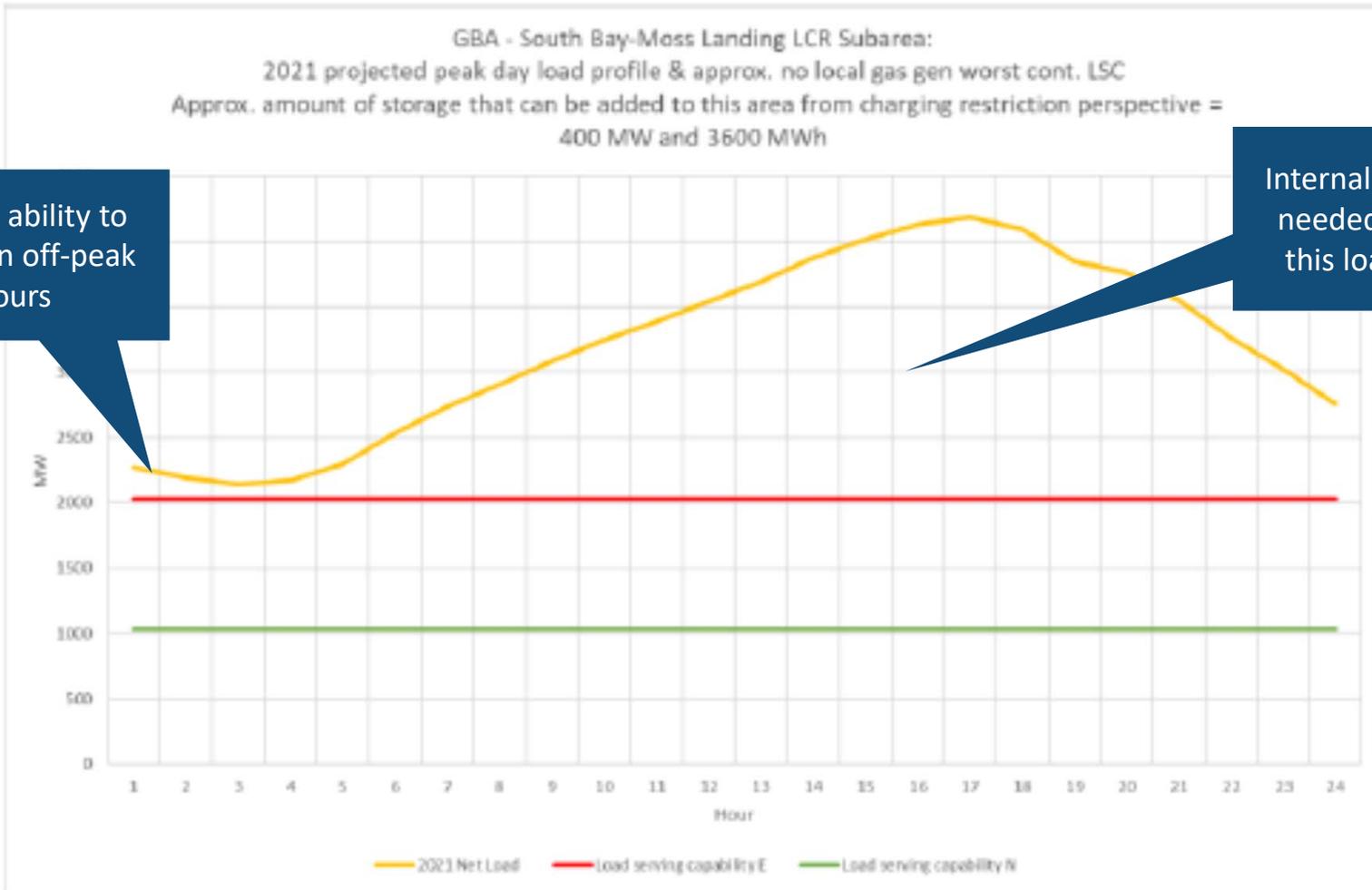


Energy duration limits matter—local areas

GBA - South Bay-Moss Landing LCR Subarea:
2021 projected peak day load profile & approx. no local gas gen worst cont. LSC
Approx. amount of storage that can be added to this area from charging restriction perspective =
400 MW and 3600 MWh

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

Plant Name	Merchant Capacity ~2010 (MW)	AZ LSE Control ~2021 (MW)	Remaining Merchant (MW)
Gila River	2,200	2,200 (1,650 SRP, 550 TEP)	0
Arlington Valley	565	565	0
Griffith	570	570	0
Harquahala	1,100	0	1,100
Mesquite	1,250	1,250 (625 SRP, 625 SWPPR)	0
South Point	520	520	0
Desert Star	480	0	0
TOTAL	6,685		1,100