

California's Energy Market: Challenges and Opportunities

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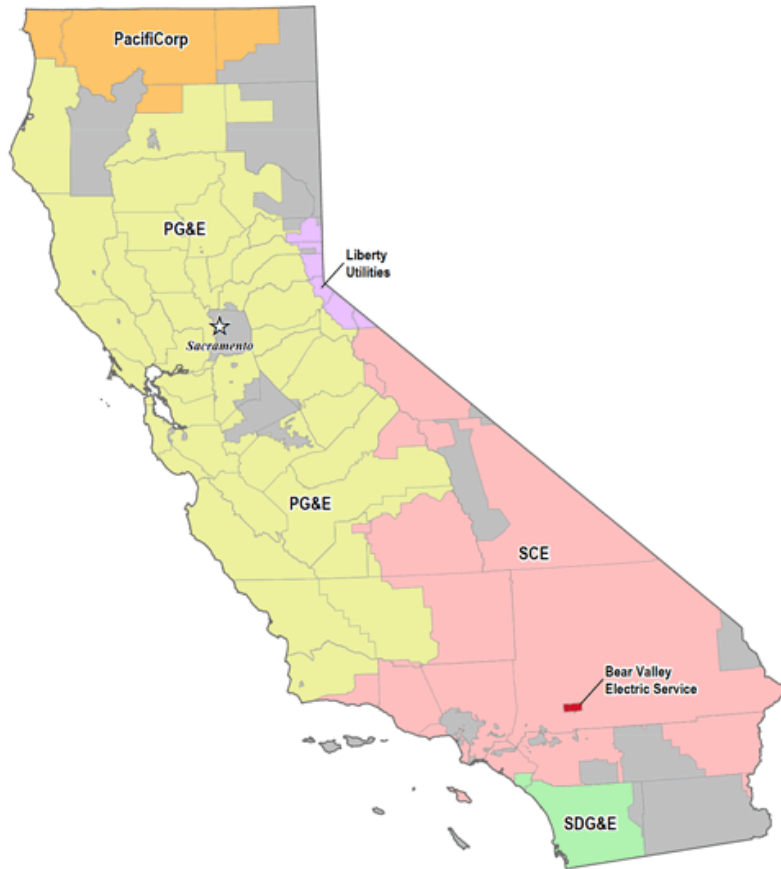


Together, Building
a Better California



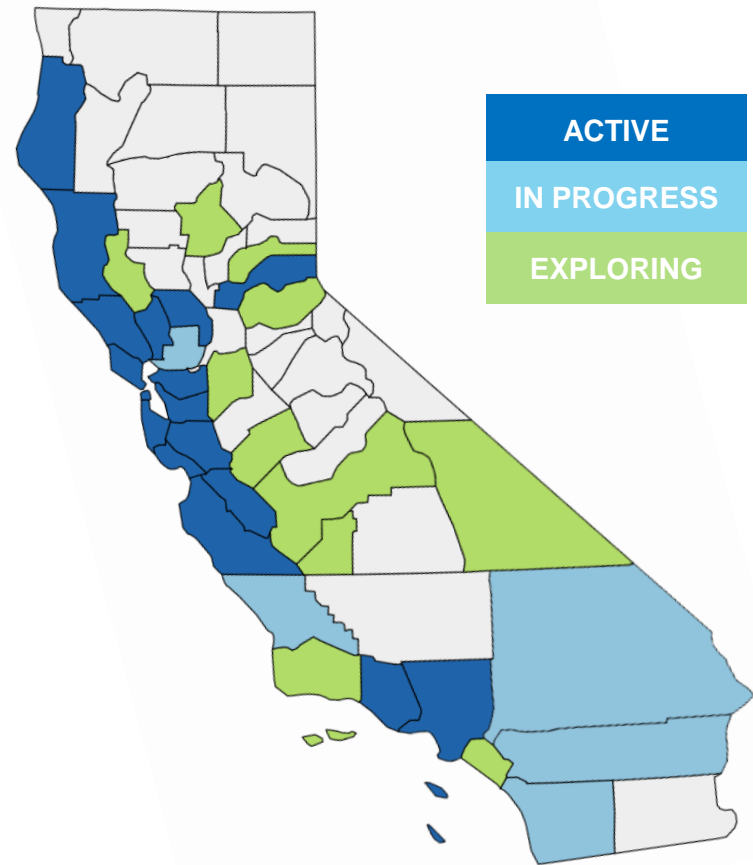
California's Load-Serving Entities

THEN: Majority Investor-Owned Utilities



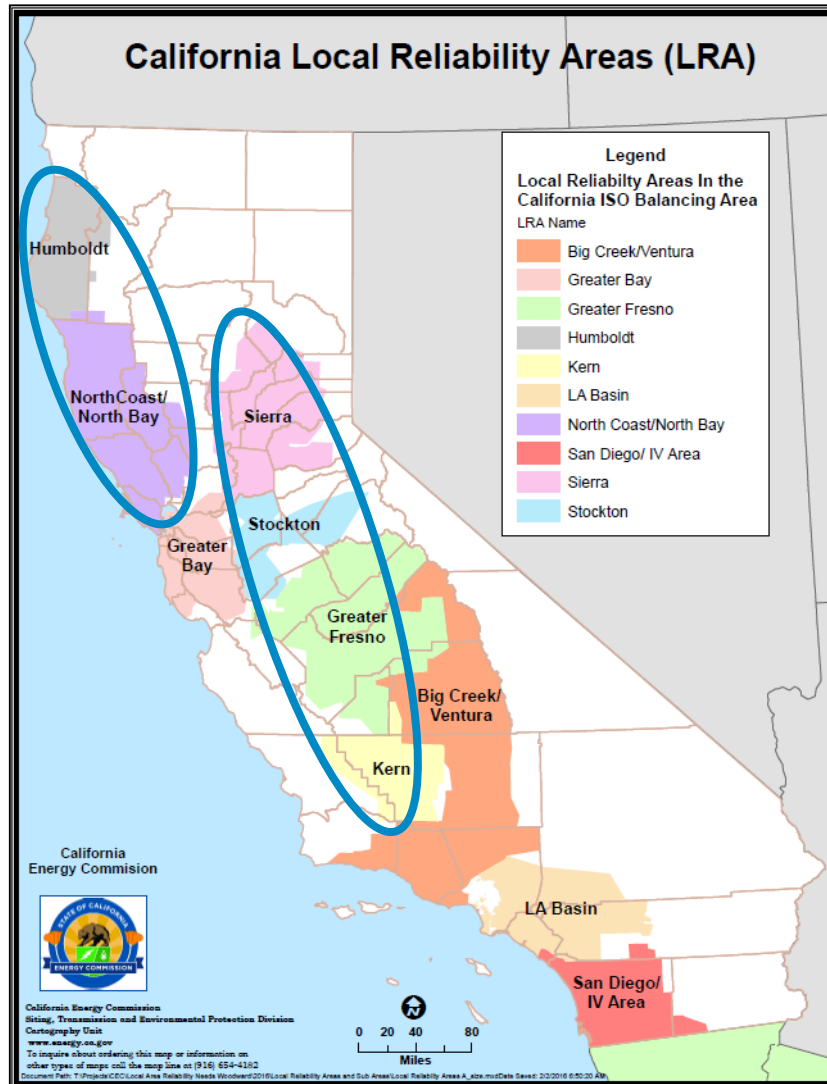
Source: California Energy Commission

NOW: 19 Operational Community Choice Aggregators (CCAs)



Source: PG&E, Clean Power Exchange

Local RA Disaggregation



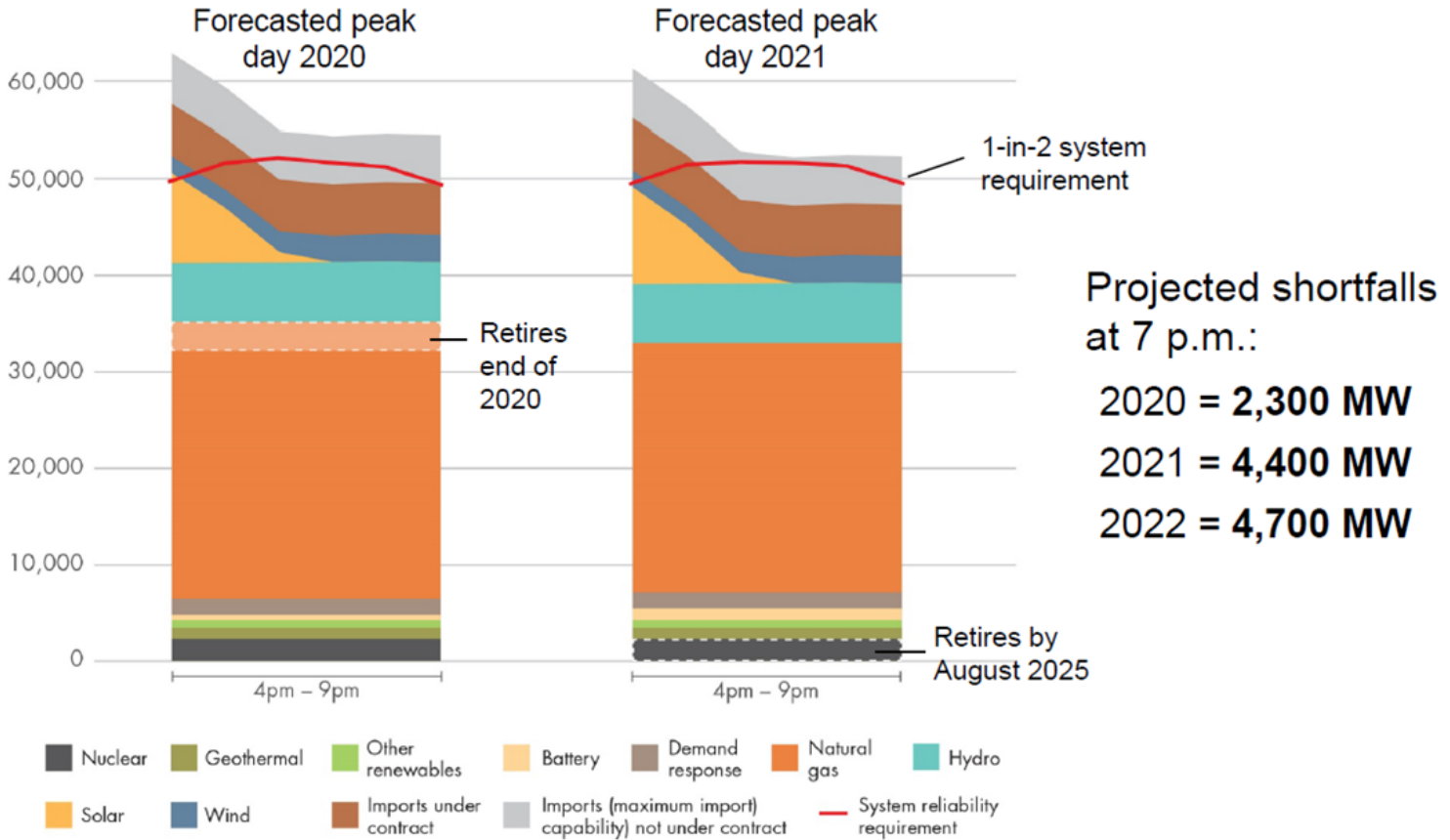
In February 2019, the CPUC adopted a minimum three-year forward multi-year RA requirement and disaggregated **6 local areas** in PG&E’s service territory that were previously grouped into “PG&E Other”.

As a result:

- There are **20+** entities
- Buying across **7 local areas** in Northern California
- Over **36 individual monthly requirements**

System Resource Adequacy (RA)

Recent CAISO analysis shows a potential resource shortage¹ starting in 2020.



¹ Assumes no transmission outages or other significant events affecting availability of generation

Where do we go from here?

1. Central Buyer for Local RA
 - Administrative efficiency
 - Right Resources
 - Indifference to Load Shifts

2. Integrated Resource Planning
 - Support states long-term environmental goals
 - Right resource mix to support reliability

3. CAISO
 - Address increasing ramping needs and renewable unavailability issues
 - Participate in IRP to address long-term capacity shortfall risk



Questions?

Thank you!

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