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Description:	2C. Karen Lee, Ava Community Energy
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LSE Use Cases and Challenges with the RA Load Forecast

Karen Lee
Senior Manager, Power Resources
klee@avaenergy.org
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What is Ava Community Energy?

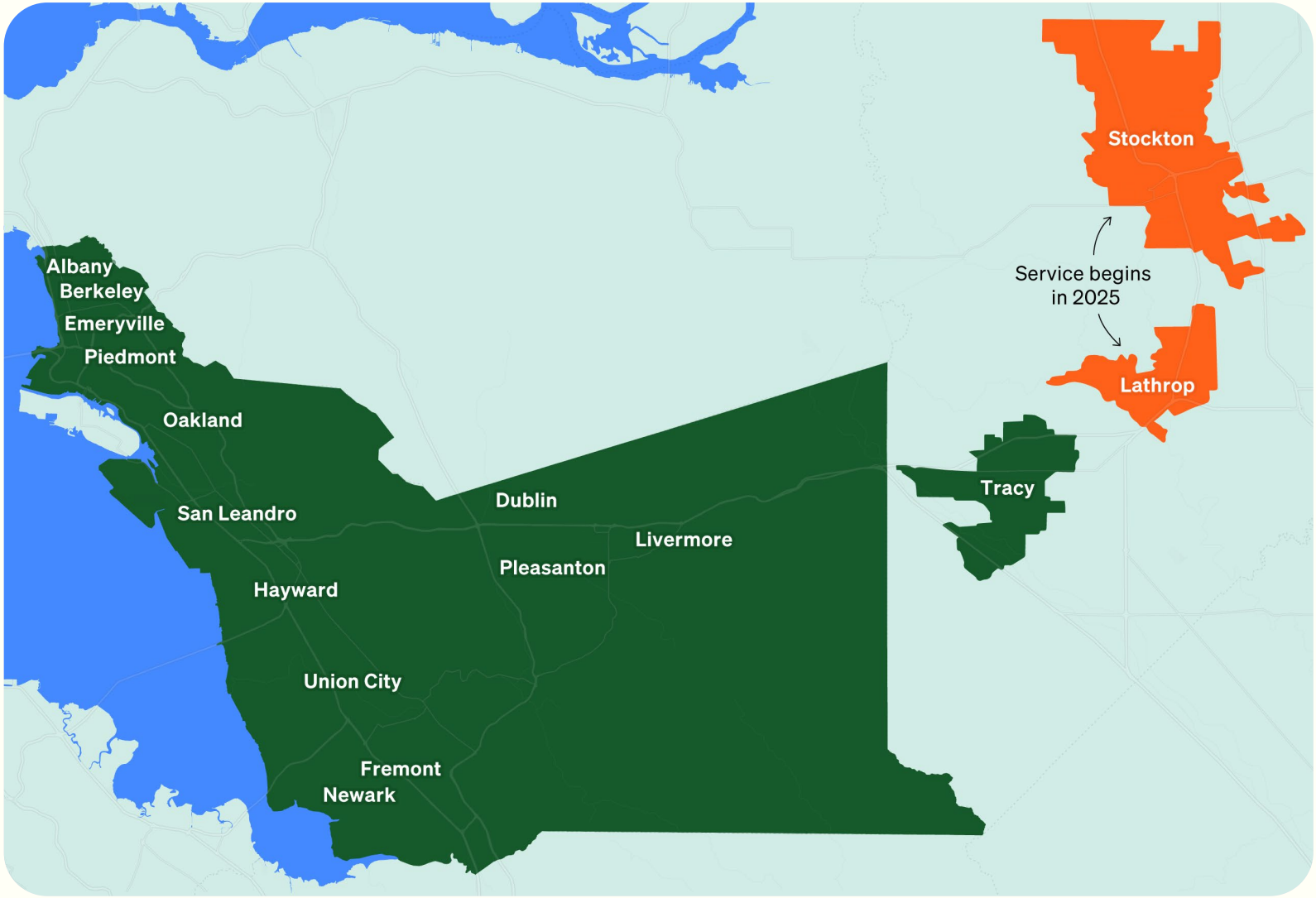
Ava Community Energy (Ava) is a local community choice power supplier committed to providing Alameda County and the City of Tracy with clean, green electricity at low rates.

Ava is a not-for-profit public agency that reinvests earnings back into the community to create local green energy jobs, local energy programs, and clean power projects.

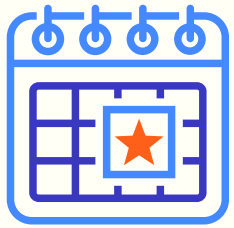
Service Area

We serve Alameda County and the City of Tracy. Stockton and Lathrop will begin service with Ava in 2025.

Ava is the default provider of electricity generation service for all customers in our service area. Customers are automatically enrolled in our service and are billed by PG&E.

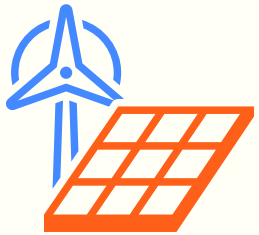


How Ava uses the RA Load Forecast



Compliance

CEC demand forecast directly impacts LSEs' resource adequacy (RA) requirements



Procurement Planning

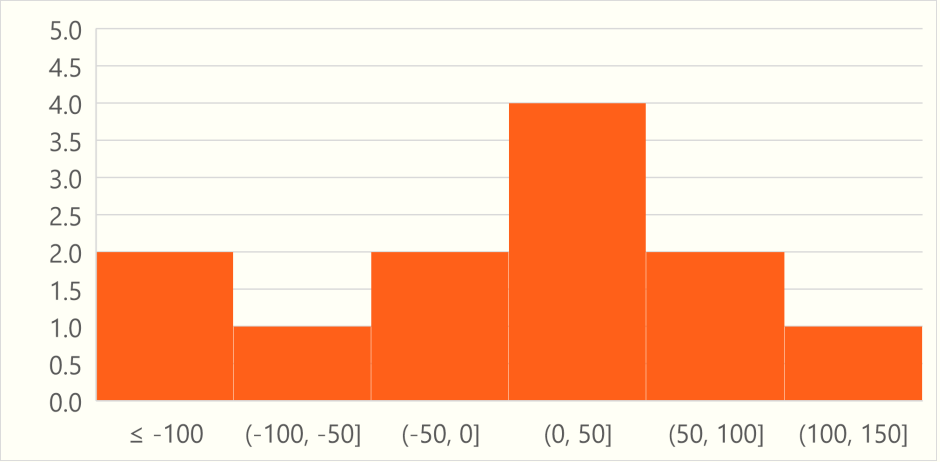
Ava uses the RA load forecast to inform procurement for future years

Program Planning

Ava uses the RA load forecast to inform load modification programs for future years

Procurement Challenges: 2024

- Delta of Ava's LSE-submitted and CEC final load forecasts exceeded 100 MW in 3 months.
- Risk: LSE's are either under-procured or over-procured.
- Risk: Affordability implications for both scenarios
  1) Under-procured in a high scarcity market means the LSE is exposed to the high prices prior to the year-ahead submittal, when all LSE's are working to procure and demonstrate compliance.
     100MW * $30/kW-mo * 1000kW/MW * 12mo = $36mm
  2) Over-procured in a low scarcity or low-price market means the LSE must sell off their long position, possibly incurring losses.
     100MW * $3/kW-mo * 1000kW/MW * 12mo = $3.6mm

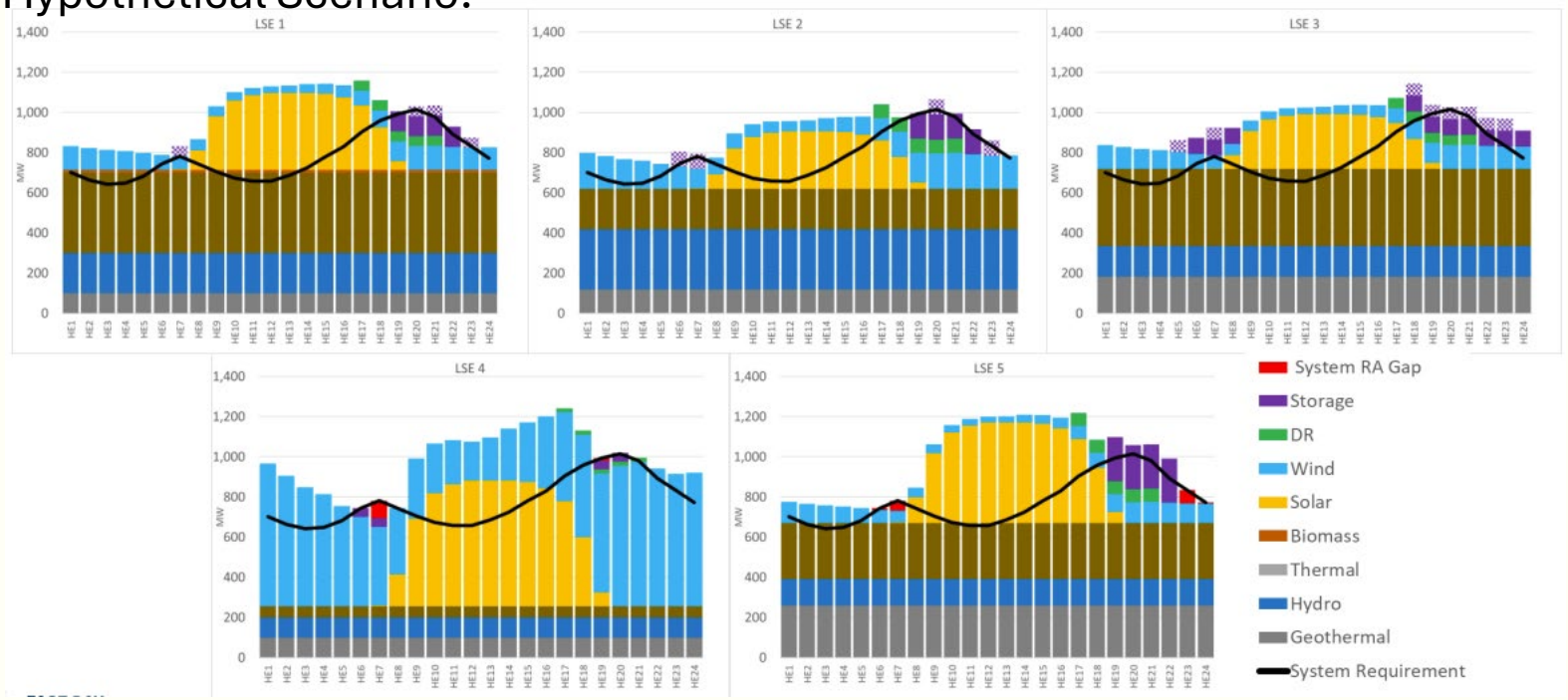


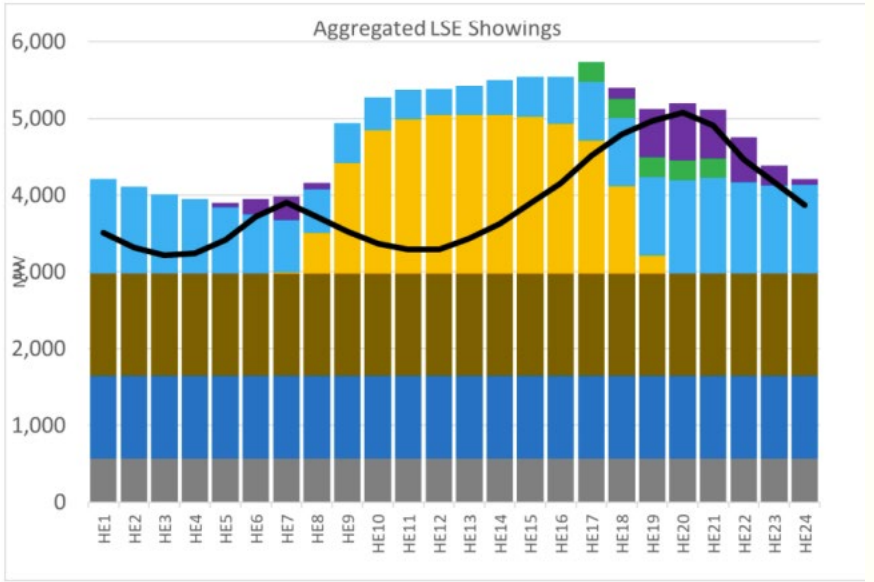
2024 Forecast Delta: LSE-Submitted vs. CEC Final (MW)

Procurement Challenges: 2025 Slice of Day

- 70 month-hour slices where delta exceeded 100MW
- 13 month-hour slices where the CEC final load forecast deviated from Ava-submitted by >200MW
- Large deviations in individual hours can result in portfolio inefficiency
- Need for hourly transactability for efficient portfolio management

Hypothetical Scenario:





Source: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/resource-adequacy-history/9-14-2022-planning-reserve-margin-part-2/workshop-7_ebce_220914.pdf

Procurement Challenges: Solutions

1. Ava has challenges with load forecasting due to service expansion and limited years of service.

- Solution: Ava staff to perform a comprehensive retrospective review of past models, forecasts, and ways to improve to narrow the gap between the Ava-submitted and CEC final load forecasts.
- Solution: CEC to provide additional modeling information on climate change and weather assumptions.

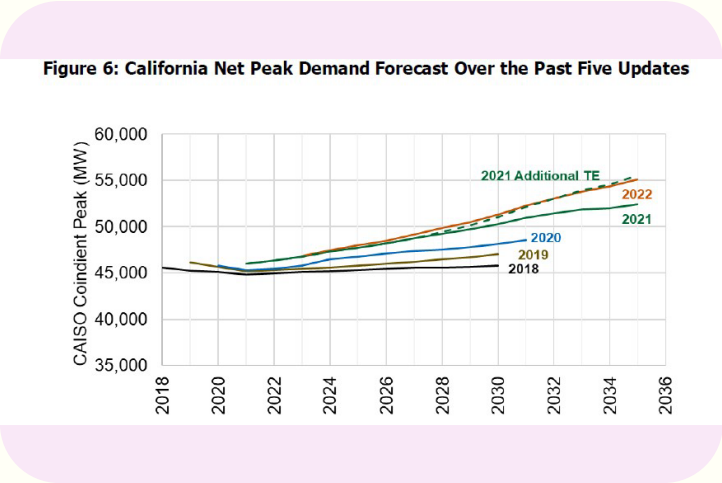
2. Portfolio inefficiencies from Slice of Day

- Solution: CPUC and CAISO continue to evaluate hourly RA obligation transactability to improve portfolio efficiency and reduce costs

3. Large changes in CEC IEPR forecasts have significant impacts for CPUC and CAISO planning which use the demand forecast as a core input, and downstream impacts for LSE's.

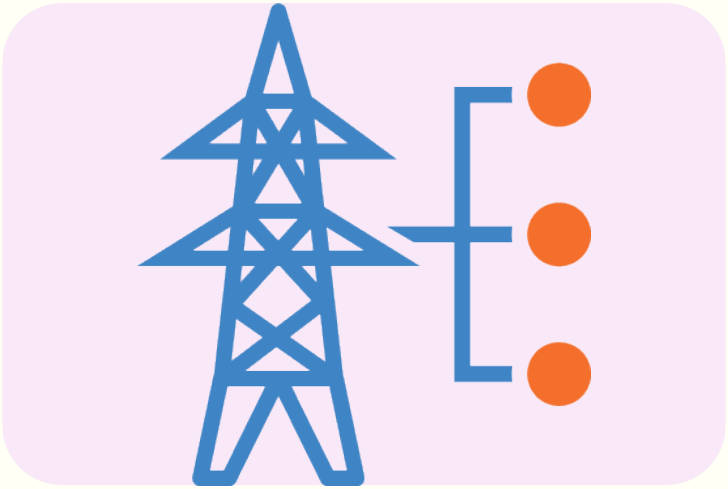
- Solution: CEC demand forecasts should maintain smooth transitions from year to year for near-term demand forecasting.
- Solution: Major changes to RA obligations should be addressed through IRP so LSE's have the sufficient lead time to procure.

VPP and DER Programs



Load Growth

CEC's 2030 peak demand forecast has increased by more than 5GW over 5 updates, driven by rapid transportation electrification and climate change (Source: 2023 IEPR)



Interconnection Challenges

The process for new resources to interconnect is increasingly complex. CAISO's Cluster 15 has 347 GW in queue.

Answer: VPPs

Aggregate and control devices to reduce, shift, or manage load.

VPP and DER Programs Challenges

1. Growing VPP/DER programs hold promise to significantly shift peak load. Ava is interested in enhancing our programs to account for not just customer bill savings and wholesale energy prices, but also distribution grid needs
    - Lack of coordination and signals from distribution grid
    - Lack of consistency in funding cycles
2. As programs and load modification volumes grow, CEC should provide guidance on the assumptions already accounted for, and what should be submitted as an incremental load modifier
3. Load modifiers: Some LSE programs are contemplating i) forecasting the “worst day of the month” and ii) reducing load during the highest two load hours of the worst days
    - Both energy and RA benefits for LSE
    - Challenges with matching hourly ranking in LSE Submitted Forecast to the Final Forecast

RA Slice of Day Forecast	Number of hours (HE18-21)
Submitted Rank = Final Rank	21
Submitted Rank <> Final Rank	39