

Perspective of a Community Choice
Aggregator:



Forecast to Procurement and Operations

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Ava at a Glance



Established by Alameda County as a Joint Power Authority in 2017...

- Began delivering energy to East Bay Area, CA June 2018
- Began serving San Joaquin County April 2025
- Peak load of 1.4GW October of 2024
- Around 15 people on Data/Software teams

Ava's objectives:

- Procure safe, reliable, affordable, clean energy
- Optimize Everything

Ava's Identity

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- Can't act as speculators (shouldn't hold excessive loss or profit positions)
- Must be sophisticated market participants on behalf of our ratepayers
- Understand customer and market data
- PCIA risks are existential for CCAs



Ava's Evolution



Physical and Financial Hedging

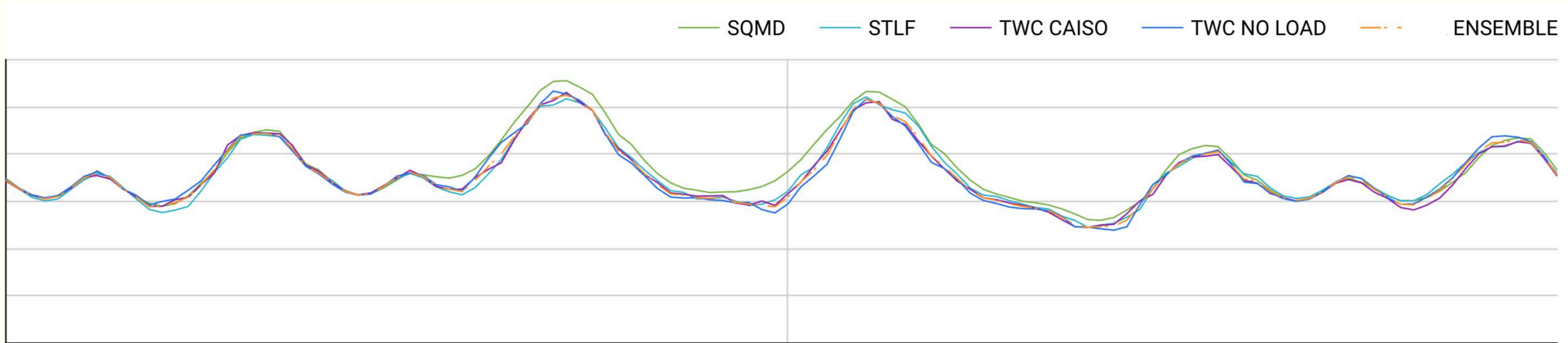
- Locating storage resources to mitigate load price and volume risk
- Financial hedging strategy mitigates PCIA and commodity price risk

Vertical Integration

- Of resource development
- Of market intelligence



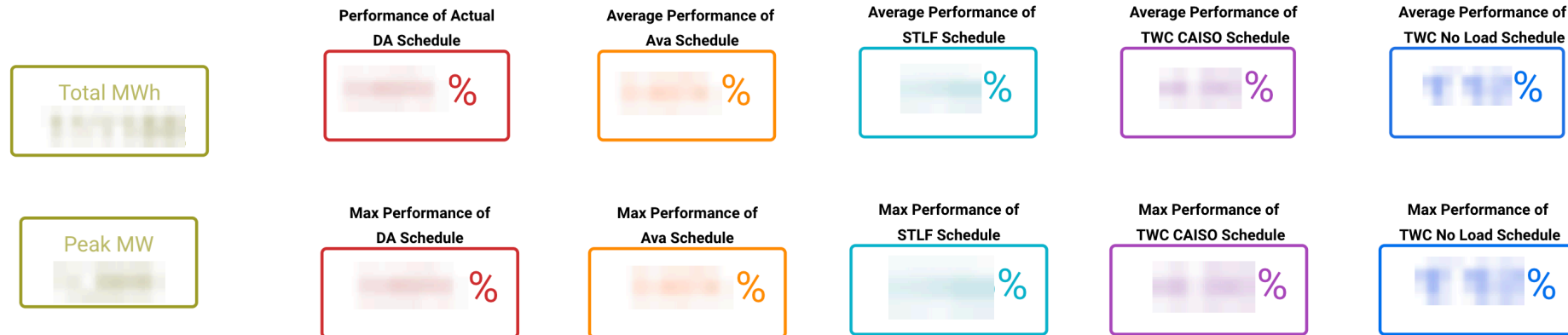
Forecasting Use Case – STLF's First San Joaquin Heat Wave



- 5-day horizon forecast generated daily
- Executed on serverless cloud architecture
- Distribution generated from point forecasts
- Ensemble generation
- Scenario stress testing

Forecasting Performance – Robust Accountability

Load Forecast Performance



- Internally transparent performance reporting
- Data quality monitoring

- Prefer models that are explainable
- Train on the physical, select on the financial
- Engage third party experts

Areas of Research

Integrating VPP dispatch into ML pipelines

- Generate optimal dispatch 24-48 hours in advance
- Predict VPP dispatch performance

Custom loss functions for ML models

- Instead of statistical error metrics (MAE, MAPE, MSE), define a revenue function to train an ML model



Areas of Engagement

Ava contracts with third party vendors...

...to maintain optimization and ML platforms that automate bidding our merchant resources in the CAISO market.

...to produce granular weather forecasts.

...to validate modeling that Ava produces internally.

Engaging with vendors requires investment in internal expertise and validation tooling



Operations are scaling

- The design, development, and maintenance of a short term load forecasting pipeline can be repeated and scaled to solve other time series modeling problems Ava is facing
- Ava plays a unique role as a non-profit load serving entity transacting in the CAISO market
- Building and maintaining forecasting capability that addresses these unique risks requires long term commitment to expertise in:

Energy Market Operations

Cloud Computing and Cloud
Software Development

Data Science

