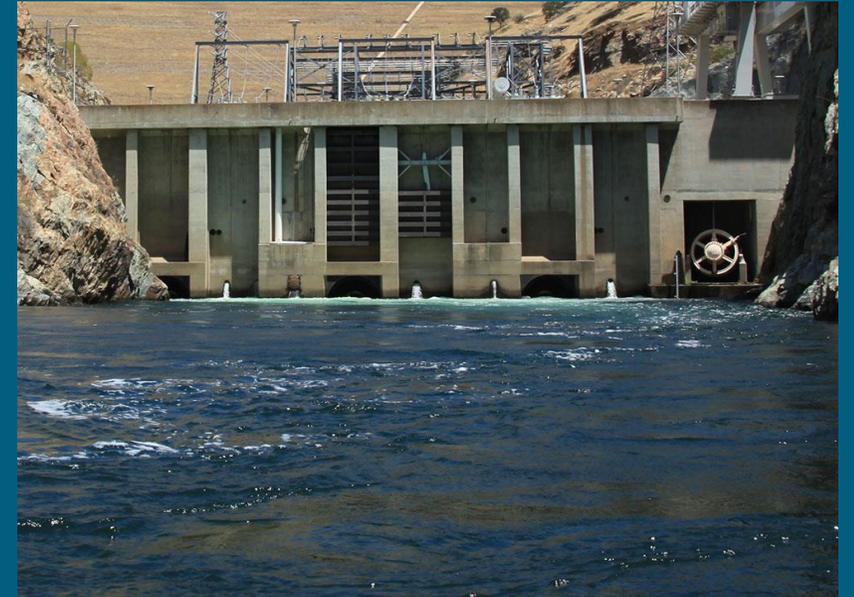




WATER & POWER
Serving Central California since 1887

Turlock Irrigation District Regional Issues Forum – EIM Go-Live



Andrew Crawford
June 29, 2021

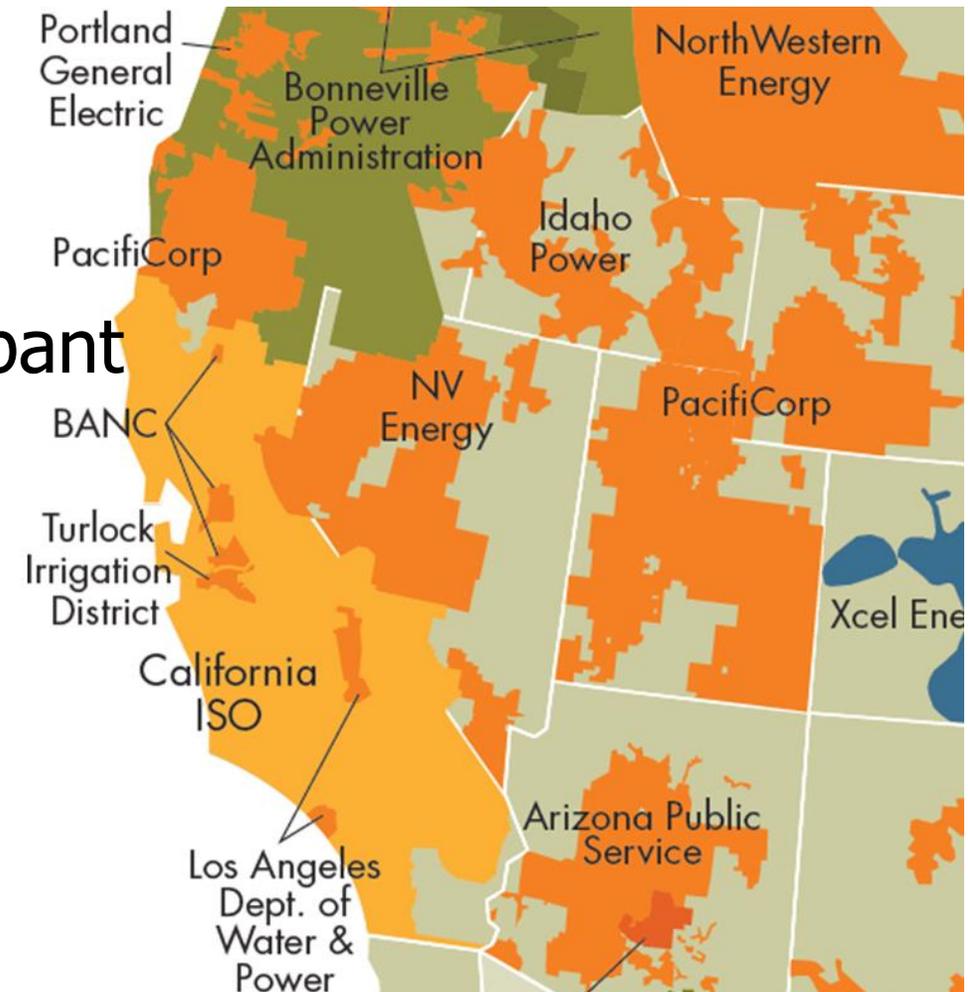




WATER & POWER
Serving Central California since 1887

Turlock Irrigation District (TID) Background

- Peak Load \approx 700 MW
- Hydro Generation \approx 220 MW
- Thermal Generation \approx 500 MW
- EIM Go-Live on 3/25/21
- Currently the smallest EIM Participant





WATER & POWER
Serving Central California since 1887

EIM Communication and Support

- Software Vendor – Power Costs Incorporated
- Consulting – Utilicast
- Settlements – Power Settlements
- CAISO – Track Meetings and Daily Reports
- TID – New Settlements Analyst



WATER & POWER
Serving Central California since 1887

Parallel Operations

- Satisfied Sufficiency Test Requirements in first 5 consecutive days
- Observed continued flex down failure when transitioning MSG unit up
 - i. Insufficient flex down contributions to offset negative contribution due to transition up
 - ii. Resolved by removing select hours of 2x1 bids



Post Go-Live

- **Grouping Constraint Implemented**

- i. Three identical thermal units that required a startup stagger

- **Operational Flow Order (OFO)**

- High OFO Solution

- i. Decrease bid prices throughout day by up to penalty price (\$/MWh) to satisfy OFO requirement

- Low OFO Solution

- i. Developed tool to forecast when or if OFO will be violated
 - ii. Increase bid prices by OFO penalty based when penalty is expected to incur

- **TID/ISO EIM Market Solution Quality and Analysis Meeting**

- Highly valued by TID



WATER & POWER
Serving Central California since 1887

Post Go-Live Continued

- Increased unit dispatches, startups, and transitions
 - i. Managed with GRDT parameters, bid breakpoints, bid removal, and Self schedules
- GRDT Changes
 - i. Ensuring that GRDT changes are reflected in both the Merchant and Entity software
- Validating and Interpreting the CAISO's EIM Benefit Calculation

Thank You!