WAPA and markets

Executive VP and Chief Operating Officer Kevin Howard
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Western State Members
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Extensive history with markets

• 45-year history of providing power in the West and Central US.

• Upper Great Plains-East region joined SPP as a full member in 2015; Upper Great Plains-West under SPP transmission tariff since 2015.

• Mountain West Transmission Group participant from 2013 to 2018.


• Sierra Nevada joined CAISO’s Western Energy Imbalance Market March 25, 2022.

• DSW to join CAISO’s Western EIM in April 2023.
Market strategy and vision

Value Statement
• Ensure WAPA’s ability to meet our mission, serve our customers and operate in a changing environment.

Objectives
• Protect and reinforce the importance of federal hydropower and WAPA’s transmission system.
• Maintain and ensure reliability.
• Determine and manage outcomes supporting the viability of WAPA’s mission.
• Ensure market participation optimizes value for WAPA’s customers.
• Balance lowest possible cost with sound business principles.
• Accommodate resource diversity for WAPA’s customers.

One size does not fit all.
WAPAs service territory
Looking forward

- SPP RTO Exploration
- DSW EIM Implementation
- SPP Markets+
- CAISO Extended Day-Ahead Market (EDAM)
- Northwest Power Pool Western Resource Adequacy Program (WRAP)
SPP RTO Exploration: The History

- October 14, 2020: RM and UGP committed to evaluating the SPP RTO (along with Tri-State, Basin, MEAN, Deseret)
- April 9, 2021: CRSP committed to evaluating the SPP RTO
- May 27, 2021: Colorado Springs Utilities committed to evaluating the SPP RTO
- Since January 2021: Weekly meetings with SPP
- July 27, 2021: SPP Board approved terms and conditions document
- October 26, 2021: SPP Board approved high-level DC tie construct
Why Join the SPP RTO?

• Overall RTO benefits
• Optimized resource dispatch
• Optimized transmission expansion
• Integration of renewables
• Resource adequacy management
• Proven track record in Eastern Interconnection

Source: 2020 SPP Member Value Study
SPP RTO Exploration: Critical Milestones

- Brattle Study (Estimated completion mid to late March)
- DC tie cost allocation and congestion revenue (Q1 2022)
- Recommendation report (Complete soon after Brattle Study)
- FRN and public process
- Commitment agreement (Q3 2022)
- FERC tariff filings
- Technical implementation for each organization
- Target go-live October 2024
SPP RTO Exploration: Updated Brattle Study

- Participants updating the Brattle Study benefits study commissioned by SPP in 2020.
- Adding Colorado Springs Utilities as a new market participant.
- Updating hydrology and gas price forecasts.
- Adding hydrology sensitivities for WEIS and RTO.
- Expected completion by spring 2022.

Source: SPP RTO-West website.
DC Ties

- WAPA and its neighboring utilities own and operate seven “Back-to-Back” AC-DC-AC ties to allow power transfers between the asynchronous (i.e., not directly tied together) Eastern and Western Interconnections.
SPP RTO Expansion Key Topics: DC ties, Congestion Revenue Allocation

• Two SPP working groups related to the DC ties:
  • Cost recovery for legacy DC-tie assets and future DC-tie investments.
  • Allocation of congestion revenue

• Challenging process but making progress.

• Goal is recommendations for April BOD meeting.

Miles City Converter Station
RTO Public Process

• Once benefits study is complete and DC tie solutions are defined, WAPA will evaluate and determine whether to proceed to a recommendation to pursue final negotiations for RTO membership.

• Issue *Federal Register* notice and publish recommendation report. Projected for Q1 or Q2 2022.

• Host public meetings and request customer and stakeholder input.

• Administrator will decide to proceed or not based on internal recommendations, stakeholder input and collaboration with customers around fall 2022.
DSW’s EIM Implementation

Customer Meeting

- Cost-Benefits Study
- Gap Assessment

Implementation Agreement

- Decision Framework/Memo
- Project Charter

DSW Kickoff

- WAPA Public Announcement
Major EIM Activities Over Time

- **2021**
  - Q3: Project Initiation
  - Q4: System Design & Market Pre-Reqs

- **2022**
  - Q1: System Build
  - Q2: Testing & Readiness
  - Q3: Joint Integration Testing & Connectivity
  - Q4: Day-In-The-Life

- **2023**
  - Q1: Market Simulation
  - Q2: Parallel Operations

- **4/5/2023 Go Live**

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We are here
Current EIM Implementation Activities

Generation
- Generation Resource Data Template
- Outreach to BA generators
- Hydro operations

Balancing Authority Area
- Sub-Entity Scheduling Coordinator (DSW's sub-BA AEPCO)
- Full Network Model
- IT tools
- Metering
- Energy Transfer System Resources
- Settlements

WAPA Business
- Agreements
- OATT
- Business Practice Manual
- Rates
- Training
- Change Management
New Market Activities

- SPP Markets+
- CAISO Extended Day Ahead Market (EDAM)
- Northwest Power Pool Western Resource Adequacy Program (WRAP)
Day-ahead market initiatives

• Day-ahead market initiatives
  • SPP Markets+
  • CAISO Extended Day Ahead Market (EDAM)

• Fundamental principle: Layer day-ahead market options on top of the existing energy imbalance options.

• Magnitude: Energy imbalance is approximately 5% to 15% of energy transactions in the West. Day-ahead is 85% to 95% of energy transactions.

• New initiatives do not directly affect our current market activities:
  • UGP, RM and CRSP participation in the WEIS
  • Sierra Nevada’s participation in the EIM
  • DSW’s EIM implementation
  • SPP RTO membership expansion being evaluated by UGP, RM, and CRSP
Day-ahead market initiatives

• CAISO leveraging:
  • Large EIM footprint
  • EIM success and longevity

• SPP leveraging:
  • Growing presence in West (RC, WEIS, unscheduled flow management)
  • Stakeholder satisfaction with development of Western Resource Adequacy program (WRAP)
  • SPP’s success in its East RTO (e.g., governance, resource sufficiency, resource adequacy, reliability)

• WAPA participating in both stakeholder processes.
  • What our neighbors do affects us.
  • A seat at the table helps us protect our interests, regardless of whether we ultimately choose to participate in the markets or not.
Day-ahead market initiatives: WAPA engagement

- **All**: Participating in CAISO and SPP public processes.
- **DSW**: EIM entity and EIM participant.
- **UGP, RM & CRSP**: Highly affected by market seams, market transmission use & implications for day-ahead market liquidity.
- **SN**: CAISO EIM participant.
SPP Markets+ timeline

Step 1: Seek interested parties
Information gathering

Step 2: Distribute gathered feedback
Develop timeline and next steps
Complete feasibility and cost-benefit analyses

Step 3: Conduct inclusive stakeholder process with committed parties

Step 4: Obtain Board approval
Seek FERC approval

Step 5: Launch

We are here
CAISO EDAM timeline

Extended day ahead market development plan

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<td>Nov. 12, 2021 Formational Workshop</td>
<td>Briefing to ISO Board of Governors &amp; EIM Governing Body</td>
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<td>EDAM policy design</td>
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<td>EDAM governance reforms</td>
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<td>Other roadmap initiatives including Day-ahead market enhancements (DAME), wheel-through priorities, and price formation</td>
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Key milestones
Western Resource Adequacy Program (WRAP): Fundamental Principles

• Resource adequacy is the degree to which a utility has enough generating resources to meet consumer demand, and sufficient transmission to deliver it.

• Significant issues with resource adequacy in the West. Summer 2020 important example.

• Too many utilities count on “the market” to fill a gap between generation they own and control and what they actually need when demand is high.

• WRAP is designed to help utilities coordinate resource adequacy.
WRAP Status

• In Phase 3A program implementation.
• 26 participants with estimated peak of 75 GW.
• NWPP program administrator; SPP program operator.
Concluding points

• There is an extensive amount of work across the West on markets. WAPA is closely monitoring and participating in the various initiatives as appropriate.

• We are not driving the industry change and do not have the ability to affect it necessarily.

• We do have the opportunity and need to be at the table to proactively shape solutions and market participation in a way that best serves our organization and our customers.

• Decisions will be made on a region-specific basis in collaboration with our customers.
Kevin Howard
Executive VP and COO
Howard@wapa.gov
720-962-7080

www.wapa.gov
@westernareapowr
western-area-power-administration

WesternAreaPower1
westernareapower
wapa.gov