

SALT RIVER PROJECT AGRICULTURAL IMPROVEMENT AND POWER DISTRICT BOARD MEETING NOTICE AND AGENDA

JOINT MEETING OF THE BOARD OF DIRECTORS AND COUNCIL WORK STUDY SESSION

Tuesday, October 31, 2023, 9:30 AM

PERA Training and Conference Center
1 E. Continental Drive, Tempe, AZ 85288

Roll Call
Safety Minute

1. Call to OrderPRESIDENT DAVID ROUSSEAU
2. Western Markets Overview.....JOSH ROBERTSON, DELIA PATTERSON, PAM SYRJALA, CHRIS HOFMANN, and JAY GUERRERO

Informational presentation to provide a status overview of western market developments and demonstrate how those developments relate to SRP's market principles.

3. AdjournPRESIDENT DAVID ROUSSEAU

The Board may vote during the meeting to go into Executive Session, pursuant to A.R.S. §38-431.03 (A)(3), for the purpose of discussion or consultation for legal advice with legal counsel to the Committee on any of the matters listed on the agenda.

The Board may go into Closed Session, pursuant to A.R.S. §30-805(B), for records and proceedings relating to competitive activity, including trade secrets or privileged or confidential commercial or financial information.

Visitors: The public has the option to attend in-person or observe via Zoom and may receive teleconference information by contacting the Corporate Secretary's Office at (602) 236-4398. If attending in-person, all property in your possession, including purses, briefcases, packages, or containers, will be subject to inspection.



NOTICE WILL BE SENT REGARDING THE NEXT JOINT MEETING OF THE BOARD OF DIRECTORS AND COUNCIL WORK STUDY SESSION

10/24/2023

Western Markets

Board and Council Work Study Session

October 31, 2023

John Coggins

Halloween Safety

Parents and Trick or Treaters

- All children accompanied by a responsible adult
- Costumes should not be restrictive
- Well lighted communities
- Flashlights & portable lighting
- All traffic rules followed

Who Pass Out Treats

- Homes well lit

Extra Points

- Drivers on the look out for those ghosts and goblins
- Older children in groups in familiar neighborhoods
- Suspicious activity reported to police

[Police Halloween Safety Tips \(phoenix.gov\)](https://www.phoenix.gov)



*"...**the power sector is changing** in ways that make regional coordination and markets more beneficial to customers than ever before, but the fundamentals are different and **require new ways of thinking** about how utilities interact with their neighbors."*

David Hurlbut,
Senior Analyst at the National Renewable Energy Laboratory

Meeting Objective

- Provide background on organized markets
- Share SRP staff perspective from recent western markets development efforts
- Introduce anticipated benefits and risks of day-ahead market participation
- Prepare for future market decisions

Agenda

Time	Duration	Topic	Presenter
9:30 - 9:35	5 min	Welcome	John Coggins
9:35 - 9:50	15 min	Current Status of Western Markets	Josh Robertson
9:50 - 10:05	15 min	History of Market Developments	Delia Patterson
10:05 - 11:05	60 min	SRP's Market Experience	Jay Guerrero Pam Syrjala Chris Hofmann
11:05 – 11:30	25 min	Viewing Day-ahead Markets through SRP's Principles	Josh Robertson
11:30 – 11:45	15 min	Q&A	All

Current Status of Western Markets

Board and Council Work Study Session

October 31, 2023

Josh Robertson

Energy Markets in the West & SRP Involvement

- CAISO Western Energy Imbalance Market (WEIM) ***SRP Participant***
- Southwest Power Pool (SPP) Western Energy Imbalance Service (WEIS)
- Western Resource Adequacy Program (WRAP) ***SRP Participant***
- Day-Ahead Markets Development
 - CAISO Extended Day-Ahead Market ***SRP Involved***
 - SPP Markets+ ***SRP Phase 1 Funding Member***

Evolution of SRP's View on Markets

- Markets functioning well for many years
- SRP's WEIM experience
- Industry transition & operational shift
 - Retiring of legacy fossil fuel plants
 - Increase in intermittent resources
 - Battery capacity
- Need for new resource integration

SRP Priorities for New Market or RTO Participation

Customer Benefits

- Net benefits
- Load and resource diversity
- Maintain or enhance reliability
- Path to RTO

Governance

- Independence / transparency
- Public Power representation
- Local resource decision making
- Utility input on grid operations

Transmission Cost Allocation

- New project cost allocated based on needs and measurable benefits
- Transmission costs recovered via “license plate” charge

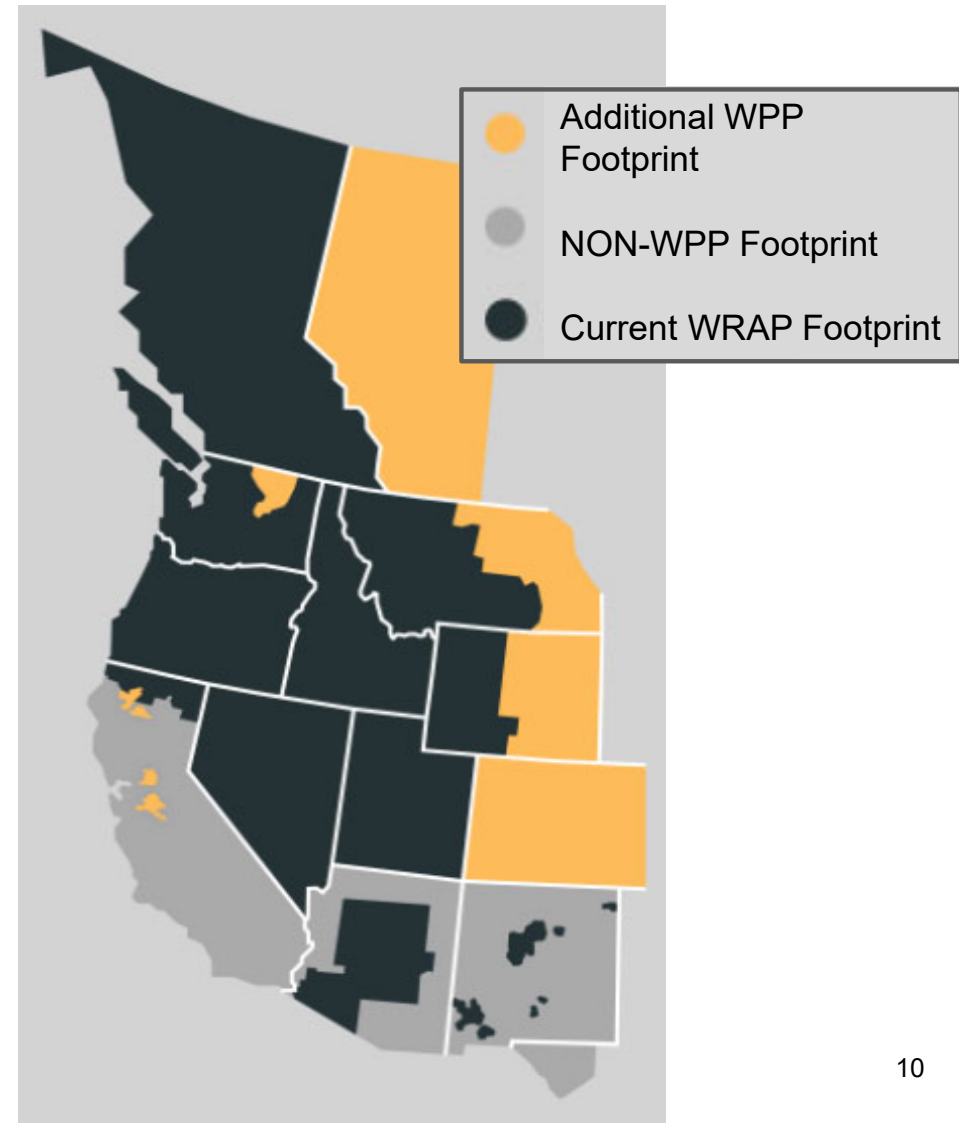
Generation Resource Sufficiency

- Maintain vertically integrated utility structure
- Self scheduling of generation
- Resource adequacy construct

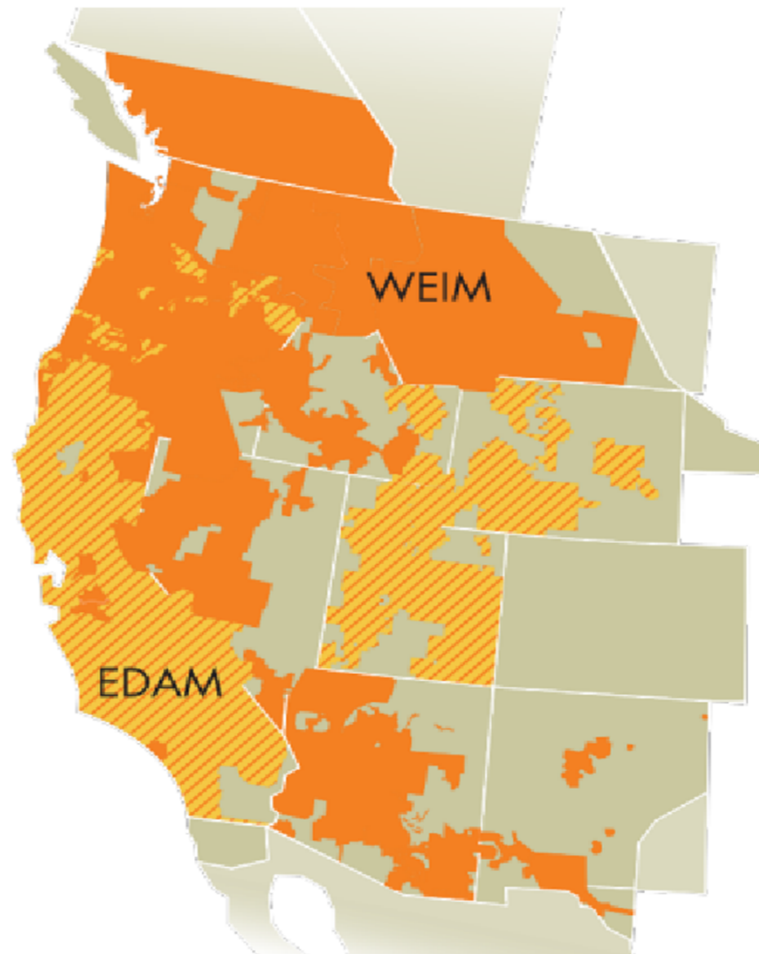
WRAP Footprint & Benefits

Benefits

- Consistent Planning Standards
- No double-counting
- Regional engagement
- Large footprint
- Platform for regional assistance

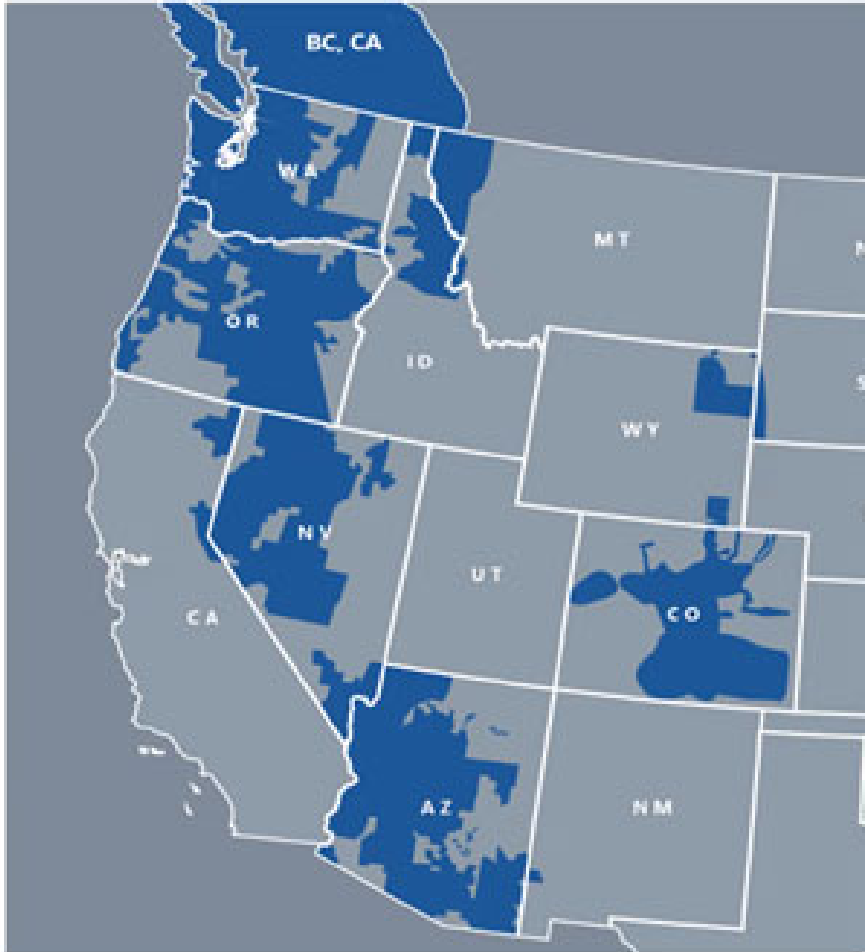


Expanded Market Footprints – CAISO



CAISO
WEIM & EDAM
Participants

Expanded Market Footprint – SPP



History of Market Developments

Board and Council Work Study Session

October 31, 2023

Delia D. Patterson

Key Objectives

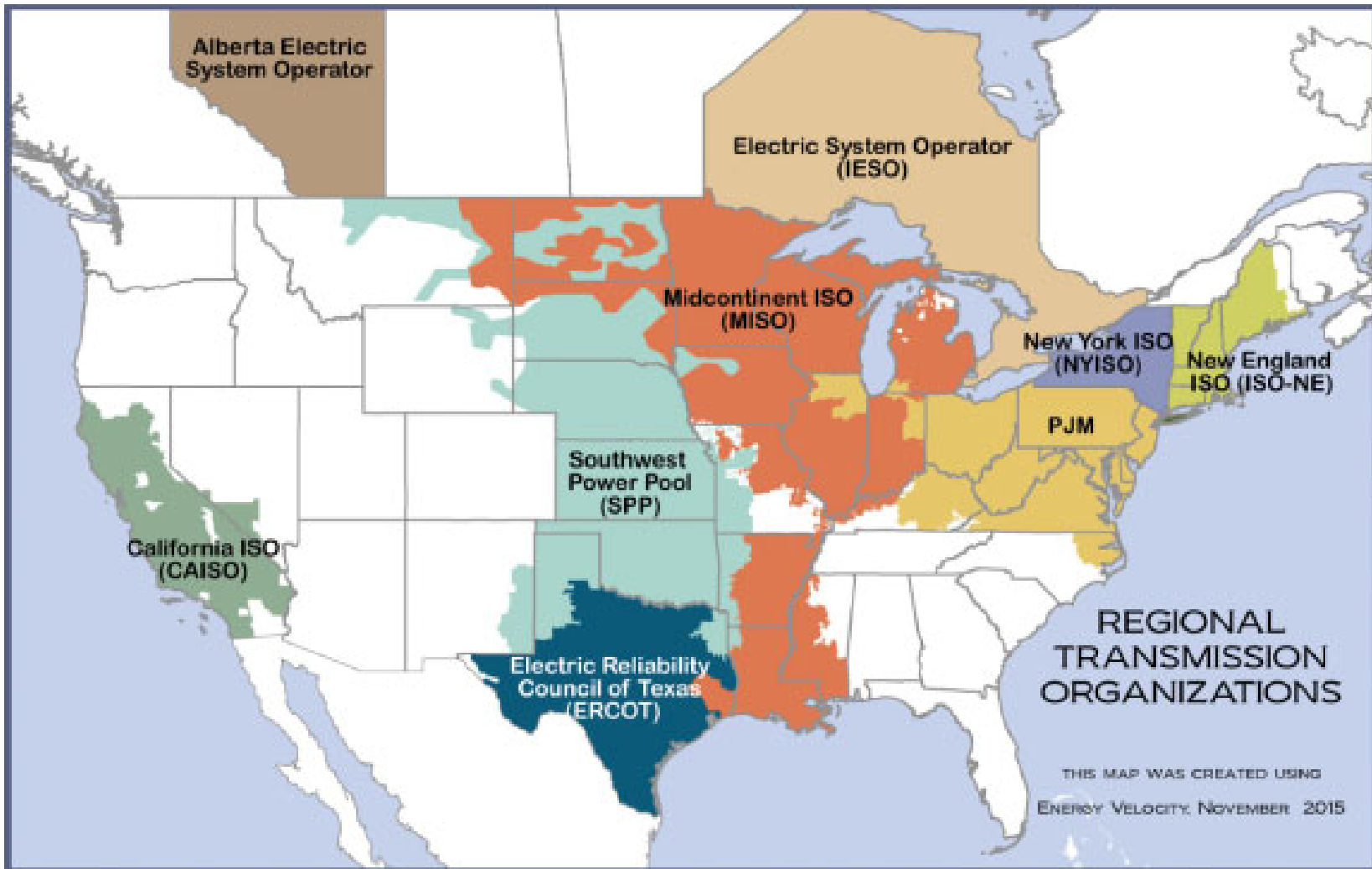
- Historical Context Leading to Independent System Operator (ISO)/Regional Transmission Operator (RTO) Formation
- ISO/RTO Responsibilities and Governance
- Market Offerings

Historical Context

- Vertically integrated utility model, which still exists today, dominated in mid-20th century
- Push for more diverse and competitive sources of electricity generation took hold in the 1970s

Key Federal Policies

- **Public Utility Regulatory Policies Act of 1978**
 - Long-term contracts for small, independent generation and renewables
- **Energy Policy Act of 1992**
 - Key policies to enable wholesale electricity markets
- **Key FERC Orders**
 - Order 888, 889 – Open access transmission, information sharing, and standards of conduct
 - Order 2000 – encouraged formation of Regional Transmission Organizations



ISO/RTO Governance Models

RTO/ISO	Governing Entity	Composition	Board Member Selection
Independent System Operator – New England (ISO-NE)	Board of Directors	9 independent directors + President/CEO (non-voting)	Nominating Committee Voted by Board
Pennsylvania-New Jersey-Maryland Interconnection (PJM)	Board of Managers	9 voting managers + President (non-voting)	Identified by Nominating Committee Voted by Members Committee
Midcontinent Independent System Operator (MISO)	Board of Directors	9 independent directors + President/CEO (non-voting)	Identified by Nominating Committee Selected by Board Voted by members
Southwest Power Pool (SPP)	Board of Directors	9 independent members + President (non-voting on most matters)	Nominated by Governance Committee Voted by members
California Independent System Operator (CAISO)	Board of Governors	5 members	Nominated by California Governor Confirmed by State Senate

Stakeholder Participation Models

Model	Example(s)	Description/Features
Advisory only	ISO-NE MISO SPP	<ul style="list-style-type: none"> Stakeholders serve in advisory role to board of directors
Shared Governance	NYISO PJM	<ul style="list-style-type: none"> Market rule changes must receive stakeholder approval before submittal to board of directors Stakeholders and board must agree before FERC filing
Advisory-lite	CAISO	<ul style="list-style-type: none"> Stakeholder process guided by staff Less formal stakeholder notice and comment process

Differences in Real-Time Markets, Day-Ahead Markets, and RTOs

	WEIS/WEIM	Markets+/EDAM	RTO/ISO Membership
Real-Time Market	√	√	√
Day-Ahead Unit Commitment		√	√
Reserve Sharing			√
Regional Planning			√
Consolidated Balancing Authority			√
Reliability Coordination			√
Resource Adequacy			√
Transmission Service Provider			√

SRP's Market Experience

Board and Council Work Study Session

October 31, 2023

Jay Guerrero, Pam Syrjala, & Chris Hofmann

Trading Objective

Provide reliable electricity at the lowest cost for SRP customers by:

- Optimizing forecasted load and available resources to reliably serve native load
- Buying energy when the wholesale market cost is less than the cost of SRP committed resources
- Selling excess generation in the wholesale market when economical

SRP Market Evolution

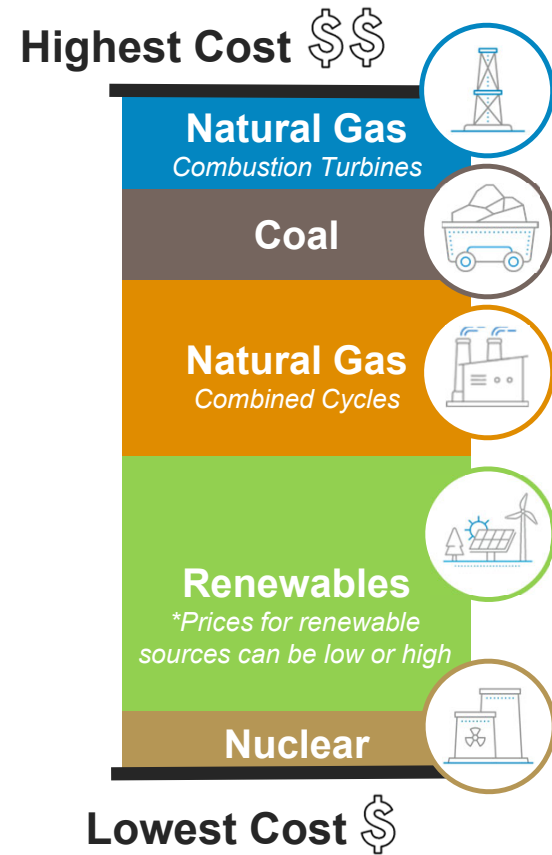


Short Term Trading Overview



Unit Commitment Plan

- Reflects an economic dispatch optimized by SRP
- Identifies which units SRP plans to commit for the next day
- Plan is handed over to Real Time Trading and SRP Balancing Authority Operators



Bilateral Trading

Direct contact and negotiation

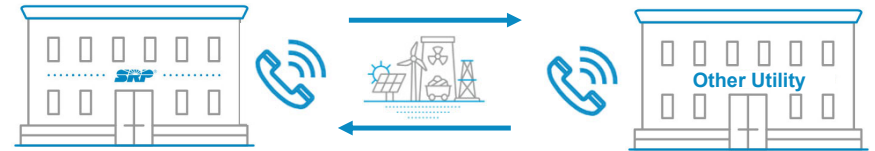
- Via phone or electronic trading platform (ICE)

Trade standard products

- Pre-defined hourly blocks (e.g. 16 hours, 8 hours)

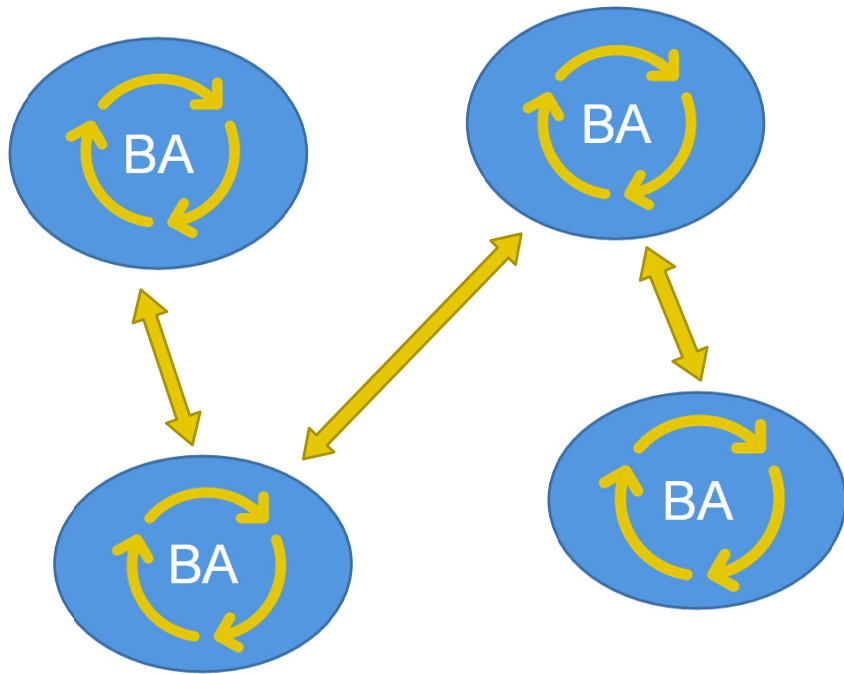
Transmission delivery point is defined

Common practice for Day Ahead plan with limited activity in Real Time

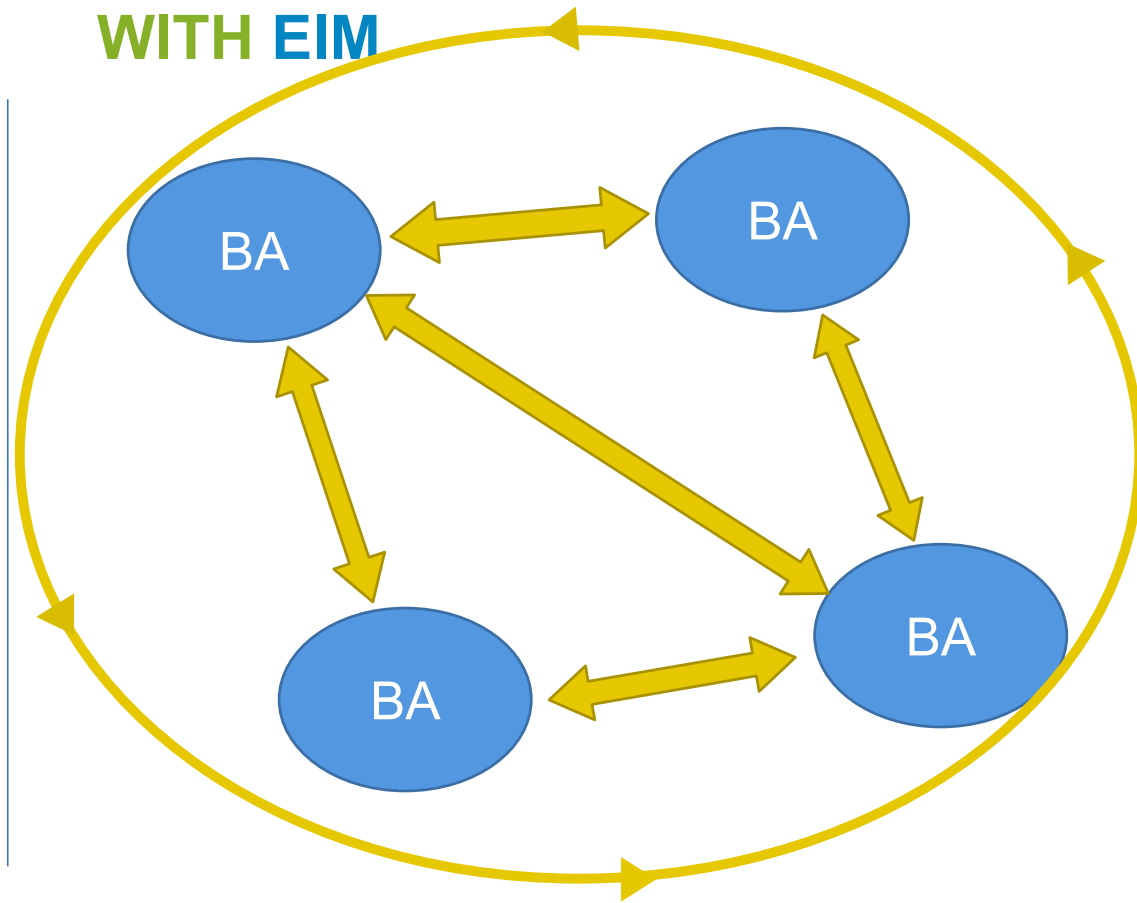


WEIM Operations

WITHOUT EIM



WITH EIM



WEIM Concepts

- Provides a bigger footprint
- Participants must have sufficient resources to serve their load
- Participants select which resources participate in WEIM
- CAISO optimizes participating resources to meet load and imbalance requirements at the lowest total production cost to the WEIM market footprint
- Saves money by allowing entities to buy and sell power at the lowest cost available



WEIM Trading

No contact or negotiation

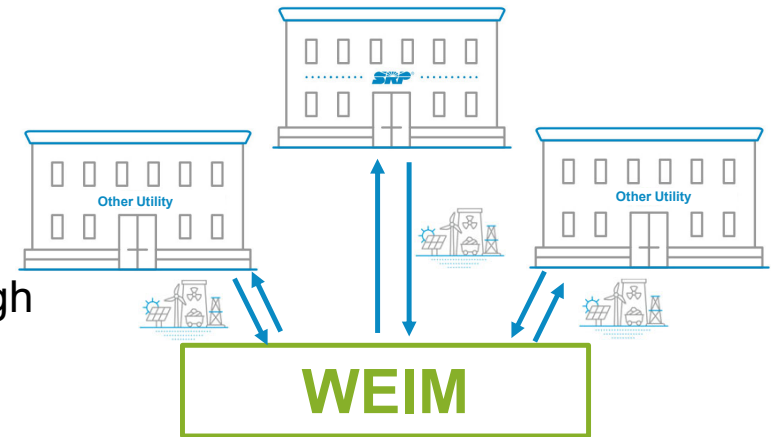
- Energy exchange between entities is automated through CAISO (Market Operator)

Trades are performed on hourly basis

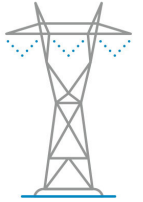
- 15-minute product
- 5-minute product

No transmission delivery point needed

Exclusive to Real-Time operations



WEIM Transmission Access



- Transmission is provided in the WEIM consistent with non-discriminatory Open Access
- There is no explicit charge for transmission usage in the WEIM (reciprocity concept)
- Transmission is provided in two ways
 - Unused transmission provided directly by the Transmission Service Providers (TSP) at no charge
 - Reserved transmission is donated by Merchants

WEIM Experience

- Stakeholder engagement, internal collaboration, and coordination with WEIM participants is significant
 - Increased staffing to manage changes to tariff, new initiatives, and multiple rule changes
- Additional monitoring to understand changes in unit operations
 - Large amounts of data on market transactions and unit performance
 - Integration of solar power and other operating instructions result in changes to unit operations
 - Requires more analytical skillsets

Day-Ahead Market Offerings - Short of Full ISO/RTO

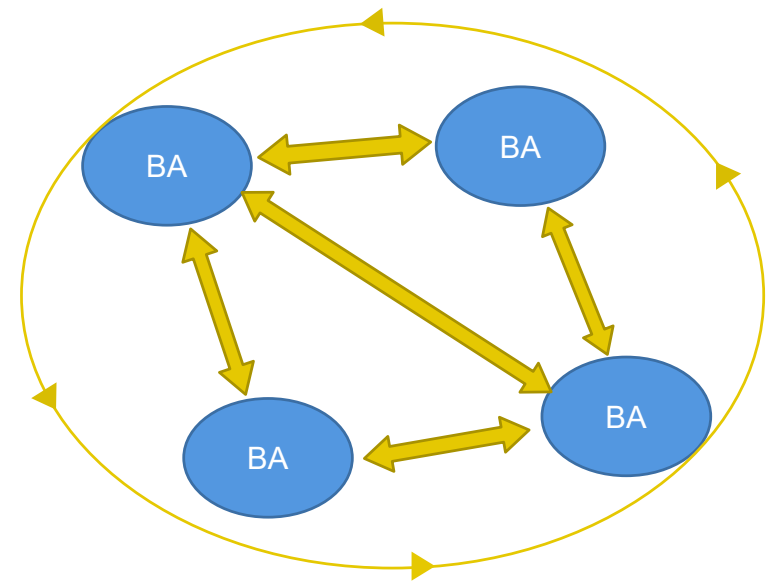
- Two options:
 - California ISO Extended Day-Ahead Market or
 - Southwest Power Pool Markets+
- One step beyond energy imbalance market participation (real-time market)
 - Additional, incremental benefit through more efficient day-ahead hourly trading and unit commitment
 - Reduced production costs and optimized commitment of the least-cost resources to meet demand
 - Reliability benefits due to more diverse pool of resources to meet the next day's conditions
 - Additional improvement of integration of renewables

Short Term Trading Overview



Day Ahead Market Concepts

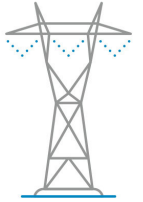
- All participants must demonstrate they have sufficient resources to meet their loads
- Market Operator centralizes unit commitment and energy dispatch across the entire footprint
- Bilateral trading can still occur
- Self-scheduling is allowed
- All resources will participate in the new market
- Includes a Real Time market
- SRP remains its own Balancing Authority
- Dispatch includes transmission optimization



SRP's System Reliability in Day Ahead Market

- SRP will continue to be responsible for:
 - Identify and ensure reliability requirements are met and served by its resources
 - Reliability products are not part of the proposed market solutions at this time
 - Responsible for outage coordination, scheduling, planning and execution
 - Retain override of dispatch signals to ensure reliability is met if needed
 - Real time operations and maintenance of the bulk electric system
 - NERC Reliability Standards Compliance

Day Ahead Transmission Access



- The approach to Day Ahead transmission is all-in unless specifically carved out.
- The Day Ahead Market will optimize both generation and transmission for the market footprint.
- Any unused transmission will be released back to the transmission owners for secondary sales.
- The Market Operator will collect a charge for all transmission used in the market and re-distribute the revenue to each Transmission Service Provider.

Day Ahead Market Evolution

- Energy markets in the West are rapidly evolving
- Risks of reduced liquidity in bilateral market
- Forecasted cost benefits with market participation
- New markets will require staffing and new skillsets
- Ongoing and significant market engagement will be required

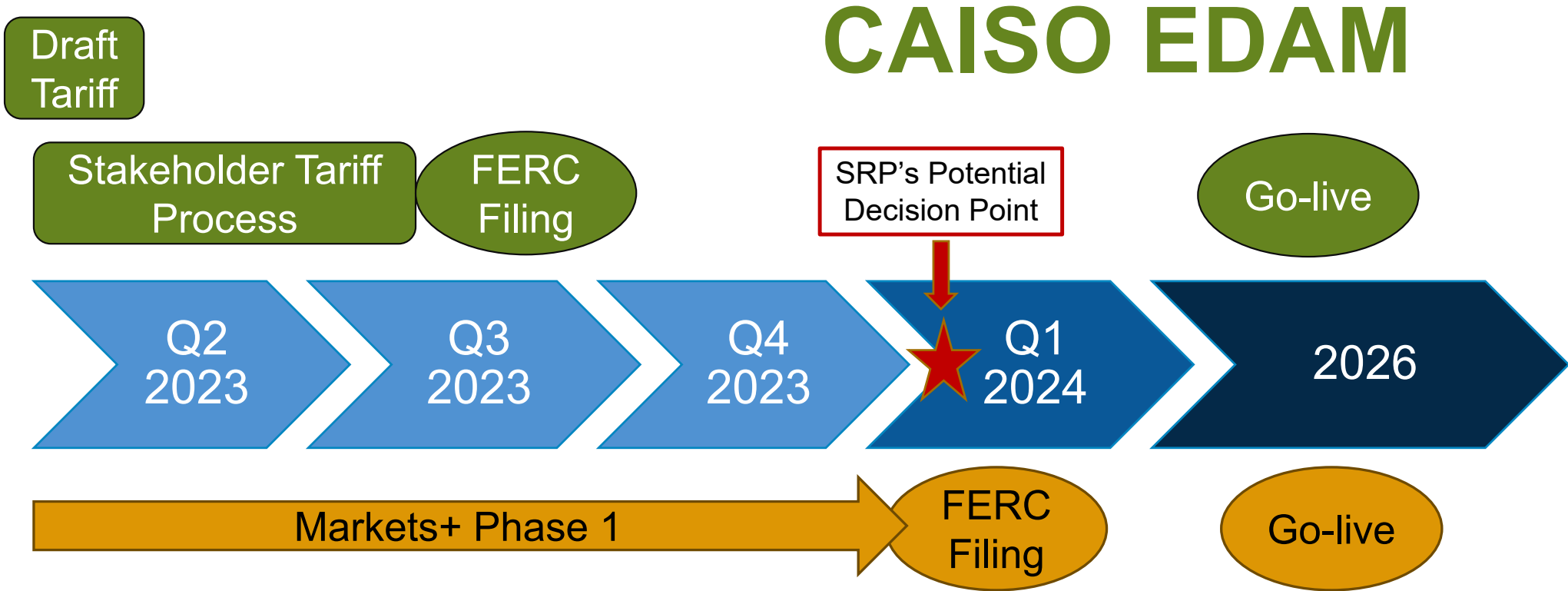
Viewing Day-ahead Markets through SRP's Principles

Board and Council Work Study Session

October 31, 2023

Josh Robertson

CAISO EDAM and SPP Markets+ Timelines



CAISO EDAM

SRP's Potential Decision Point

SPP Markets+

Potential Benefits & Risks of Day-Ahead Market Participation

Benefits

- Renewable Integration
- Economic Optimization

Risks

- Governance
- Cost Allocation
- Evolution of Market Rules

Risk of not participating: potential decreased liquidity in bilateral market

Viewing Day-ahead Markets through SRP's Principles

Customer Benefits

- Net benefits
- Load and resource diversity
- Maintain or enhance reliability
- Path to RTO

Governance

- Independence / transparency
- Public Power representation
- Local resource decision making
- Utility input on grid operations







Transmission Cost Allocation

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Generation Resource Sufficiency







- Maintain vertically integrated utility structure
- Self scheduling of generation
- Resource adequacy construct

Viewing Day-ahead Markets through SRP's Principles

	EDAM		Markets+	
CUSTOMER	WMEG results		WMEG results	
	Resource diversity		Resource diversity	
	Path to RTO		Path to RTO	

WMEG - Western Markets Exploratory Group



Viewing Day-ahead Markets through SRP's Principles

	EDAM	Markets+
GOVERNANCE	Independent 	Independent 
	Transparent 	Transparent 
	Role for Public Power 	Role for Public Power 

CAISO Wheel-Through Example

- SRP purchases firm generation and transmission to assist in meeting our energy needs
- This purchased energy may be generated in the Pacific Northwest and “wheeled” through other balancing areas including CA for delivery into SRP’s footprint
- Over the last three years CAISO has established a new wheeling process
 - Whenever CAISO is short on energy, their tariff allows them cut the transactions to serve their customers.
 - Transactions are curtailed by order of importance until the energy shortage is cleared
 - SRP actively avoids wheeling-through the CA footprints when there are forecasted energy shortfalls

Viewing Day-ahead Markets through SRP's Principles

	EDAM	Markets+
GENERATION RESOURCE SUFFICIENCY	Resource Sufficiency Test 	Single Resource Adequacy 

Western Markets Summary

- Markets are rapidly evolving in the West
- SRP remains actively engaged in market developments
- Markets provide value to our customers
- Future decision points
- Sustained and significant engagement required

thank you!

