



California ISO

Seams workshop series – Overview of Western Market Seams

Paul Dockery

Market Strategy & Governance Manager

July 31, 2026

Housekeeping



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The meeting is structured to stimulate dialogue and engage different perspectives.



Please engage in a respectful and professional manner. Introduce yourself and your organization when speaking. Follow the facilitator's guidance for speaking or asking questions.



Please keep comments brief and avoid repeating points already made to ensure everyone has an opportunity to participate in a robust discussion.



You can access Closed Captioning and the Transparency Viewer using the controls located at the bottom of the Webex screen.

Instructions for Raising Your Hand to Ask a Question



Please remember to state your name and affiliation before making your comment.



If you are connected to audio through your computer or used the 'call me' option, select the raise hand icon located on the bottom of your screen. Start speaking a couple of seconds after you're unmuted.



If you are connected on the phone line only and not the Webex dial *3 to be added to the queue.



You may also send questions via chat to all panelists.

If you need technical assistance during the meeting, please send a chat to the event producer, Intellor Events.

Agenda

Time	Topic	Presenter(s)
9:00 – 9:10 a.m.	Welcome and Opening Remarks	CAISO Staff
9:10 – 9:30 a.m.	Seams Stages and Overview	Paul Dockery, CAISO
9:30 – 11:00 a.m.	Expert Panel Discussion	Moderator: Kavya Niranjana, Renewable NW Panelists: Richard Doying, Grid Strategies Bob Hellrich-Dawson, FERC John Tsoukalis, Brattle Group
11:00 – 11:10 a.m.	Break	
11:10 – 11:55 a.m.	Regulator Panel Discussion	Moderator: Anna McKenna Panelists: Gabriel Aguilera, Commissioner, New Mexico Public Regulation Commission John Hammond, Commissioner, Idaho Public Utilities Commission Ann Rendahl, Commissioner, Washington Utilities and Transportation Commission
11:55 a.m. – 12:00 p.m.	Preview of Next Workshop and Closing Remarks	CAISO Staff

SEAMS: DEFINITIONS AND PRINCIPLES

Clarifying terms

- **Seams** refer to the interfaces between adjacent wholesale electric systems — such as balancing authorities, reliability coordinators, transmission service providers, and electricity markets — where neighboring entities perform essentially the same function on either side of a jurisdictional boundary within a shared network.
- **Seams issues** arise at these interfaces, impacting the ability of neighboring entities to carry out their responsibilities efficiently and effectively.
- **Market seams** refer to the interfaces between centrally cleared, structured electricity markets — such as the interface between CAISO's Western Energy Imbalance Market (WEIM) and SPP's western RTO expansion.
- **Market seams issues** arise when separate markets — with different configuration, designs, and protocols — optimize interdependent portions of a shared transmission network with limited or imperfect representation of neighboring systems. The resulting issues can include barriers to trade, inefficient congestion management, and suboptimal dispatch.

More info: [Seams | Western Energy Markets](#)

The ISO's principles for seams engagement

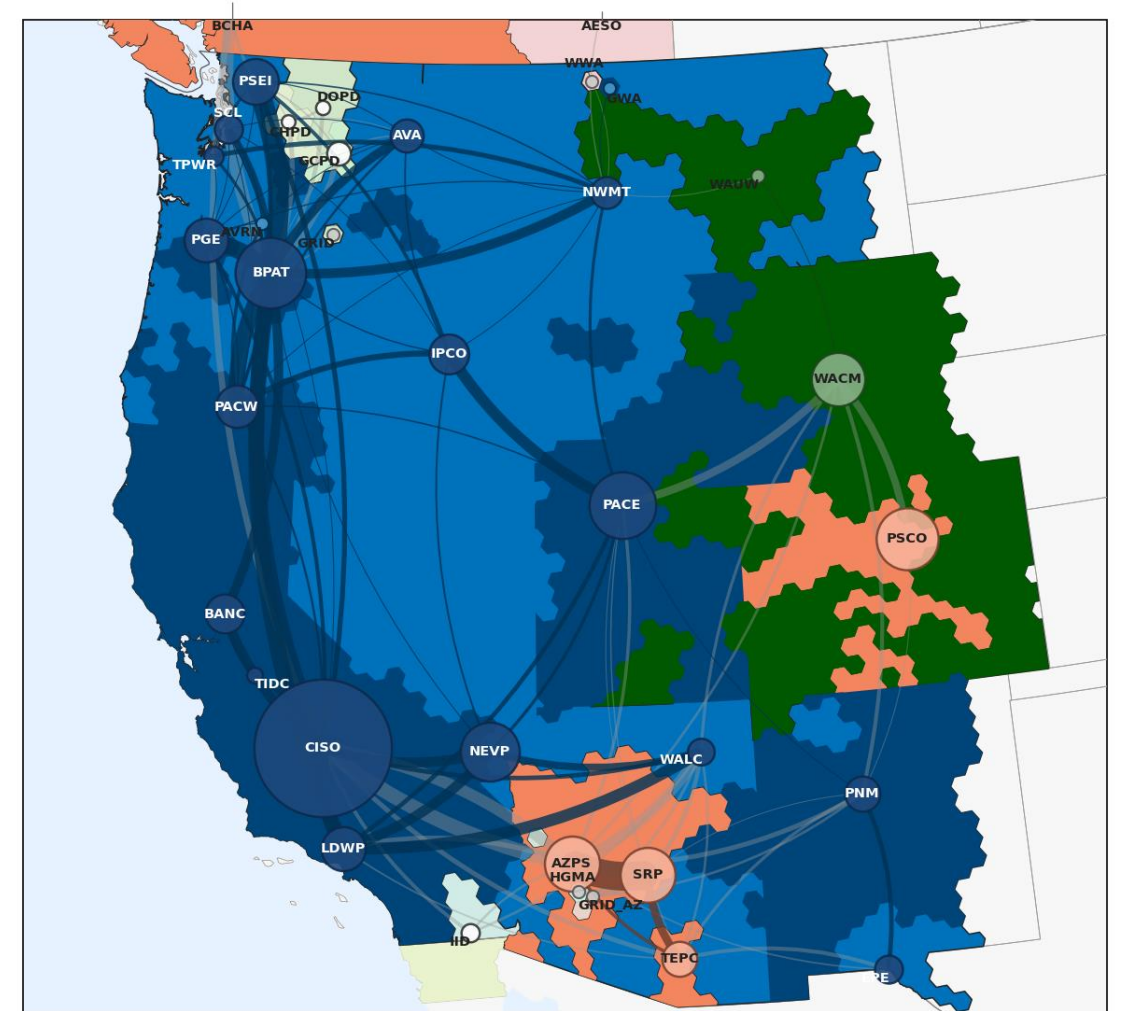
Focus on reliability, respect, and mutual benefits

-  Maintain system reliability
-  Just, reasonable, and non-discriminatory access consistent with approved market design and transmission tariffs
-  Seams arrangements should benefit both markets
-  Seams discussions are not a forum for market design advocacy
-  Avoid impediments to efficient trading
-  Respect the autonomy of our partners
-  Provide appropriate compensation for market use of transmission and minimize cost shifts
-  Coordinate market monitoring and design against gaming at the seams

More info: [Seams | Western Energy Markets](#)

2027 stage of western market seams

- EDAM participation (through 2027)
 - PacifiCorp (2026)
 - Portland General Electric (planned 2026)
 - Balancing Authority of Northern California (planned 2027)
 - Los Angeles Department of Water and Power (planned 2027)
 - Public Service Company of New Mexico (planned 2027)
 - Turlock Irrigation District (planned 2027)
- SPP Markets+ wave 1 parties (planned 2027)
 - Arizona Public Service
 - Powerex
 - Public Service Company of Colorado
 - Salt River Project
 - Tucson Electric



Western market footprints based on current market participation and announced market leanings using a [stylized geospatial dataset for balancing authority areas that is publicly available from WECC](#). Note: Balancing authority areas are not updated to reflect April 1, 2026 reconfiguration.

WORKSHOP SERIES & JOINT REPORT

Seams workshop series & Joint report

- [July 31st, Seattle, WA](#): Seams stages, expert panel, and panel of state regulators
- [August 18th, Salt Lake City, UT](#): Reliability: Transmission constraints and congestion management
- September [Date and location TBD]: Imports and Exports: Transactions across market boundaries
- [September 30th](#): Joint Report on Western Seams Coordination due to FERC
- October [Date and location TBD]: [Hold for participant recommended topic], tabletop exercise, roadmap, and next steps

Questions to be addressed in the joint report

	Category	Question
Q1	Status	What efforts have CAISO and SPP undertaken to date on seams and market coordination? Which other entities (e.g., market participants, adjoining BAAs that have not enrolled in a day-ahead market, etc.) have CAISO and SPP engaged in discussions on these issues?
Q2	Issue identification	Identify specific seams and market coordination issues created by the ongoing development of organized wholesale markets in the West, including (but not limited to): (a) Explain how CAISO and SPP will resolve potential operational and communication challenges regarding transmission commitment, reservation, and use, given their differing market rules (b) Explain how congestion management will work between (1) the three markets (EDAM, Markets+, and SPP's expanded RTO) and (2) the market operators and the bilateral markets (c) Explain how CAISO and SPP will manage loop flow issues between the markets
Q3	Plan	Submit a plan and schedule for addressing each of the issues in question (2) based upon the relative prioritization of those issues for both importance and timing.
Q4	Gap	Identify any areas in which the market operators are not yet aligned on a path forward.

Seams workshop series – future workshops in the context of Joint Report

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		(b) Explain how congestion management will work between (1) the three markets (EDAM, Markets+, and SPP's expanded RTO) and (2) the market operators and the bilateral markets
		(c) Explain how CAISO and SPP will manage loop flow issues between the markets

Workshop #2: Reliability: Transmission constraints and congestion management

- 1) Transmission operations panel: How the transmission system is studied for the day ahead, the activation of constraints in the market, and an exercise explaining the mechanics when a constraint and contingency are in different market footprints.
- 2) Congestion management education presentations: Market protocol subject matter experts from SPP and CAISO explain existing day-one management mechanisms.
- 3) Day-one congestion management examples: Market protocol subject matter experts from SPP and CAISO discuss examples of congestion management and settlement.

Seams workshop series – future workshops in the context of Joint Report

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		(a) Explain how CAISO and SPP will resolve potential operational and communication challenges regarding transmission commitment, reservation, and use, given their differing market rules
		(c) Explain how CAISO and SPP will manage loop flow issues between the markets

Workshop #3: Imports and Exports: Transactions across market boundaries

- 1) Cross-border trade panel: A panel of trading experts share their experience, interests, and concerns regarding transactions that cross market boundaries
- 2) Explanation of day-one market rules for import, exports, and wheels: Market protocol subject matter experts from SPP and CAISO provide technical review of market protocol for imports/exports and interface pricing that will govern transactions at market start.
- 3) Day-one cross-border transaction examples: Market protocol subject matter experts from SPP and CAISO discuss examples of cross-border transactions including market clearing and settlement.

Seams workshop series – future workshops in the context of Joint Report

	Category	Question
Q3	Plan	Submit a plan and schedule for addressing each of the issues in question (2) based upon the relative prioritization of those issues for both importance and timing.

Workshop #4: [Hold for participant recommended topic], tabletop exercise, roadmaps, and next steps

- 1) [Hold for participant recommended topics]
- 2) Examples: Additional examples of congestion management and cross-border transactions.
- 3) Seams plan and schedule

EXPERT PANEL DISCUSSION



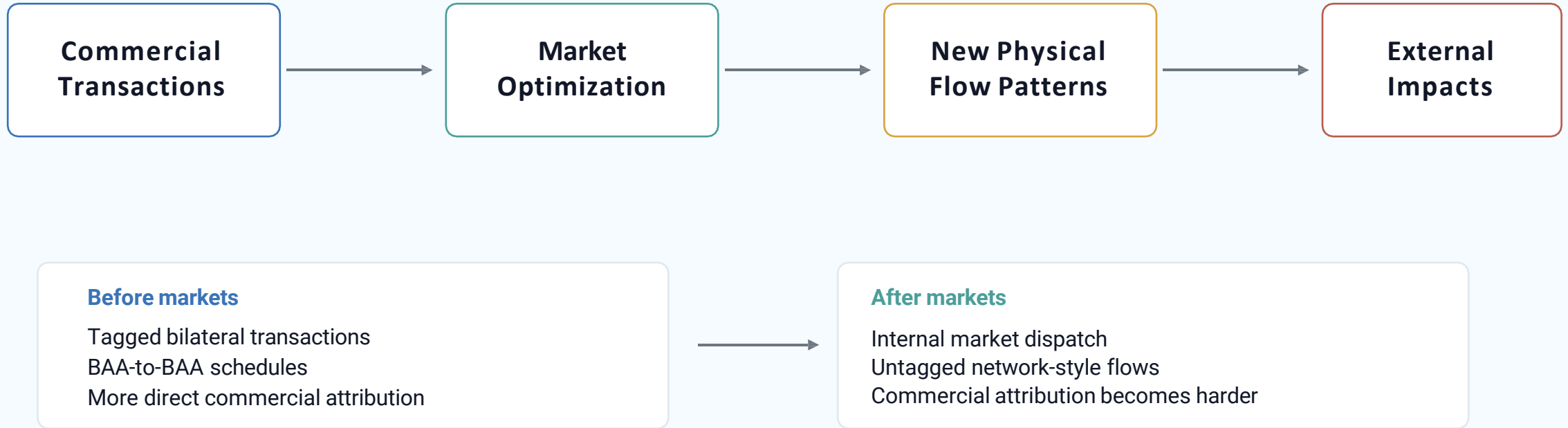
Market Seams: Managing Loop Flow in Western Wholesale Energy Markets

Richard Doying

Vice President, Grid Strategies

July 31, 2026

Markets Change the Nature of Power Flows



The West is moving from a transaction-based to a flow-based operating paradigm.

So What? The Consequences Are Economic and Institutional

Reliability can be maintained. The harder questions are:

How do we manage congestion efficiently?

How do we protect existing usage?

How do we allocate redispatch costs fairly?

Operational

- External congestion on neighboring systems
- More complex cross-market congestion management

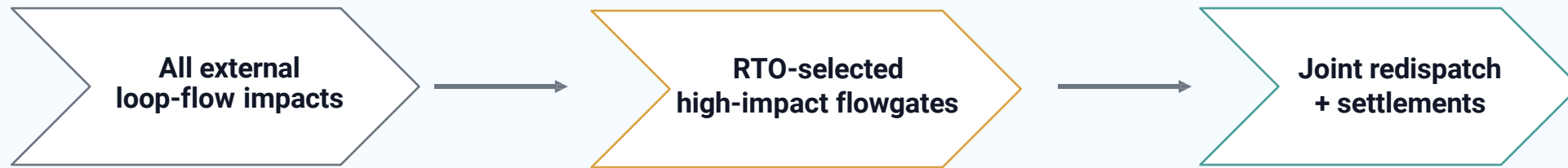
Economic

- Redispatch costs and settlement effects
- Cost shifting and market participant incentives

Congestion can be managed reliably. The question is how to manage it efficiently and equitably.

How Other Markets Responded

Market-to-Market coordination focuses on selected high-impact constraints – not every flowgate affected by loop flow.



Efficiency

Reduce regional congestion-management cost on jointly managed flowgates.

Equity

Protect existing transmission usage and allocate redispatch costs fairly.

Mechanisms reduce a subset of the problem. They do not eliminate the effects of fragmented market configuration.

Lessons from Existing Markets

What has worked

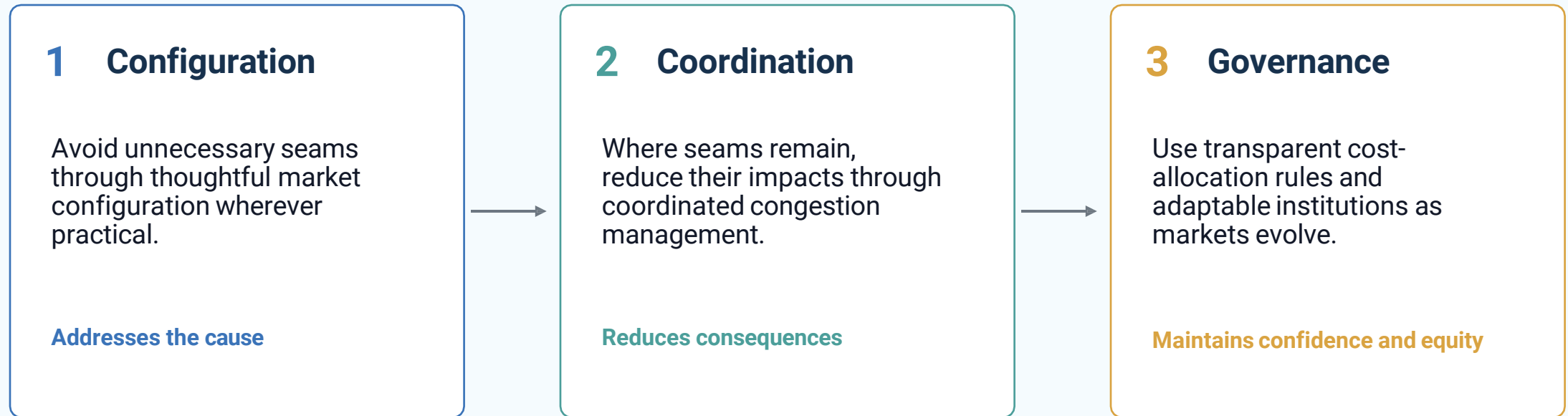
- Reliable coordinated operations
- Lower costs on jointly managed constraints
- Improved situational awareness and data exchange
- A repeatable framework for redispatch and settlements

What remains difficult

- Choosing and updating jointly managed flowgates
- Adapting historical entitlements as the grid changes
- Settlement complexity and cost-allocation disputes
- Administrative burden: testing, activation, data, recalculation

Markets evolve faster than agreements. Coordination must be treated as a living institutional arrangement.

Opportunity for the West



The West has the advantage of hindsight: reduce avoidable seams, and where seams remain, manage congestion impacts efficiently and equitably.

Contact

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FERC as a Tailor – Sewing Seams

Bob Hellrich-Dawson, PhD
CAISO Seams Workshop

July 31, 2026
Seattle, WA





First, a Disclaimer

- I speak only for myself. I do not speak for the Commission, any Commissioners, other staff, or the United States Government.
- No *ex parte* communications with me, please.
- Also, I'm an economist not an engineer or lawyer.



What Shall we Discuss?

- Why did FERC issue a white paper on market seams?
- What seams are we talking about?
- The long and winding road of Eastern seams agreements
- It's not rainbows and unicorns – the East is not the West
- FERC's principles will not surprise you: reliability, good information, loop flow, congestion management, economic interchange
- What is the path forward?



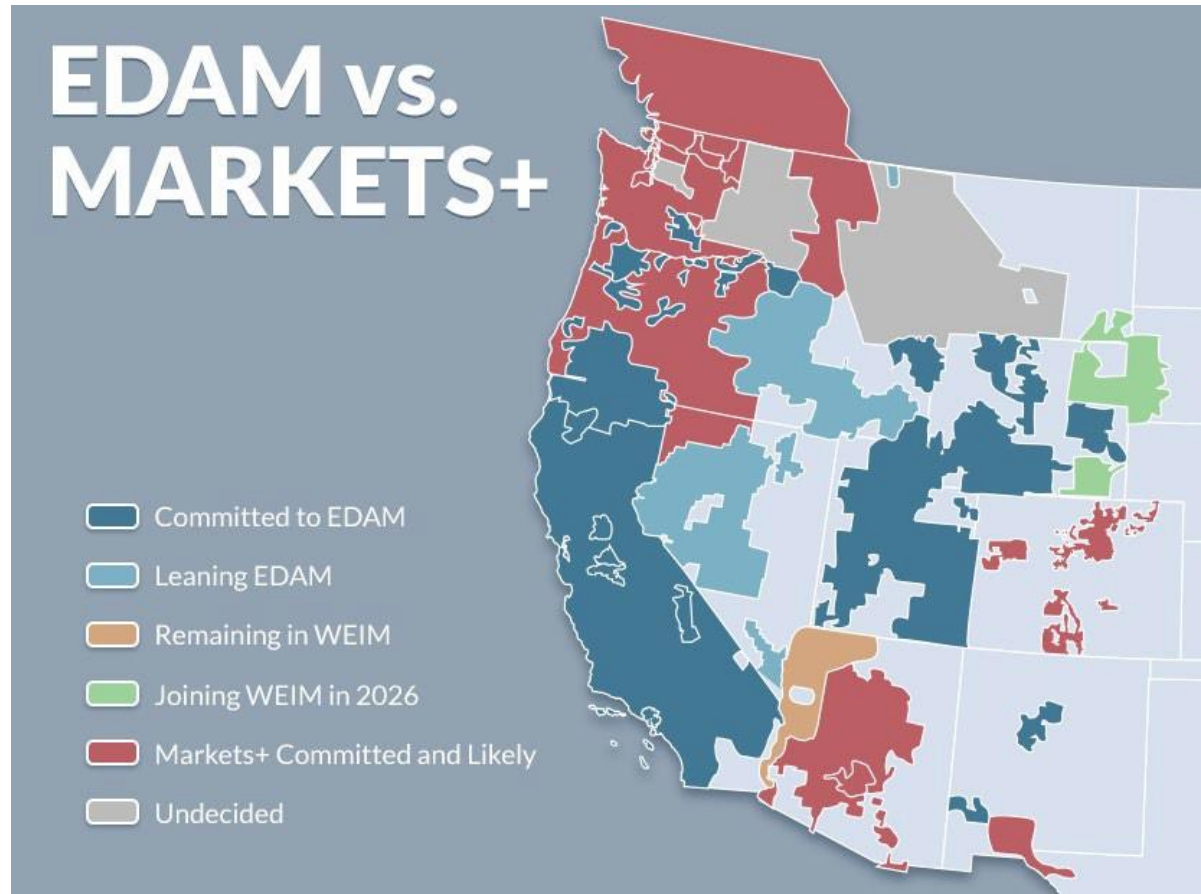
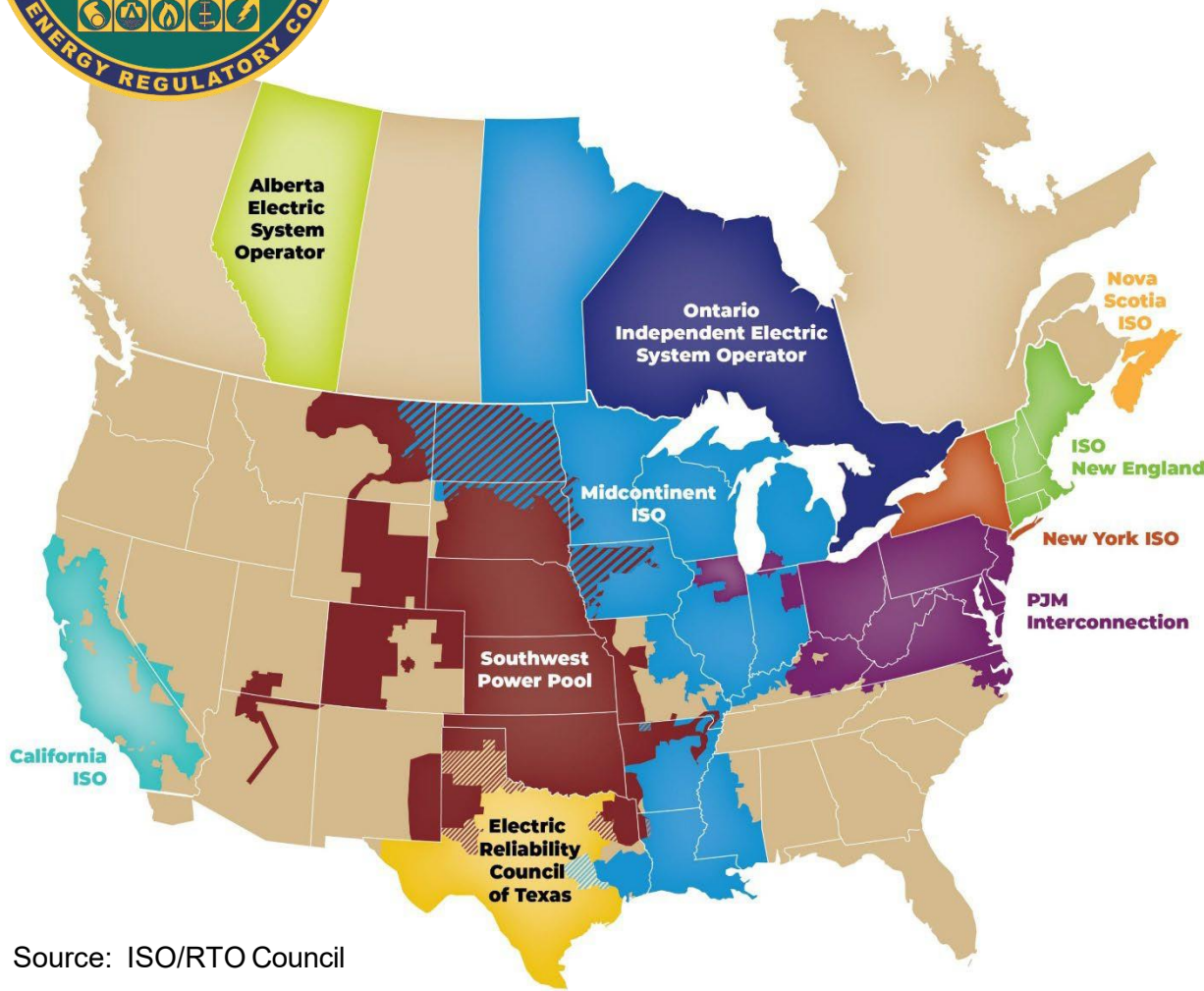


Why the White Paper?

- We have a goal (actually a legal mandate)
 - “Just and Reasonable” rates = efficient market design
- Public comments in EDAM and M+ filings (and more)
- The day-ahead markets have non-contiguous sections
- Look at that crazy map!
- This isn't new: we learned something from the East



Even the East Looks Better





The East? Never Heard of It

- Long-standing efforts to coordinate across borders
- Extensive Commission history requiring seams coordination of some sort
- Order No. 888, ISO Principle #10: *thou shalt coordinate with other transmission operators to maintain reliability and ensure cross-border transmission service.*
- Order No. 2000, *RTOs shall ensure the integration of reliability practices...and market interface practices among regions.*



Variety is the Spice of Life

RTO/ISO/BA	Commission Order?	Agreement Components				
		Transmission Loading Relief	M2M	Congestion Management Process	Coordinated Transaction Scheduling	Emergency Energy
PJM-NYISO	No	Yes	Yes	Yes	Yes	Yes
PJM-MISO	Sort of (from Alliance Cos)	Yes	Yes	Yes	Yes	Yes
MISO-SPP	Yes (106 FERC ¶ 61,110)	Yes	Yes	Yes	No	Yes
NYISO-ISONE	No	No	No	No	Yes	Yes
PJM-Duke Energy Progress	No	Yes	No	No	No	Yes
SPP-AECI	No	Yes	No	No	No	Yes





What *is* the West Doing?

- NAESB enhancements to the Enhanced Curtailment Calculator (ECC)
 - Watches for congestion due to loop flow and orders curtailments
 - Expand to all IROLs and SOLs and more than the current 5 “qualifying paths”
- Various activities: SPP Symposium, Markets+ Seams Working Group, this workshops, CAISO-SPP bilateral meetings
- CAISO/SPP JOA by Markets+ go-live
- Commission-directed joint report (AD26-10)





What *Could* the West Do?

- 1) Model the transmission accurately so we even know what we have to use
- 2) Coordinate markets and operations to reach two important goals
 - Maintain reliability (do I need to say this?)
 - Manage congestion -- reduce and/or better allocate costs
- 3) Integrate markets to reduce costs (take advantage of economic trades)



Modeling the Grid

- We need an accurate view of available transmission (before we even get to the day-ahead market)
- Look at that map again, consider overlapping transmission rights
- Contract-path vs. flow-gate methodology to calculate Available Transfer Capability (ATC; *i.e.*, available transmission)
- Inconsistent use of methods across the West



Into the DA and RT Markets

- EDAM and M+ participants make transmission available – sometimes the firm rights holder isn't a "participant"
- That transmission is scheduled in the DAM
 - By the transmission rights holder or by the market optimization
 - By two different market optimizations?
- What about intra-day scheduling?
 - A firm rights holder doesn't schedule in the DAM but chooses to schedule after the DAM closes?
- What agreements will there be for ensuring the same transmission isn't scheduled twice? TO OATTs? MO OATTs? JOA?





Coordinated Interchange

- What does this even mean?
 - Market Operators and Balancing Authorities working together – sharing data, talking, agreeing to actions
- What can we get out of it?
 - Enhanced (or maintained) reliability
 - More efficient reliability



Coordinated Interchange

- Share data — what does your network model look like, what nomograms do you use, how do you define a contingency
- Agree on definitions and actions — *e.g.*, when there is an emergency how can we work together to solve it
- New NAESB ECC standards might mitigate much of the problem – or maybe it's just part of the solution
- Then there is congestion management because **loop flow will exist** – *cf* The Brady Bunch



Coordinated Interchange

- Loop flow will happen
- Can increase costs on neighbor system (congestion), SOL violations, etc.
- Mgmt Agreement can help
 - Agreement on allowed loop flows (MW limit, impact limit,...)
 - Actions when limit exceeded
 - Please do not fix those “entitlements” for all of eternity





The Complexity of “Who?”

- Structure of EDAM and M+ introduce complexity
- RTO-to-RTO is relatively “simple” but in EDAM and M+ functional control rests with the TOs/BAs
- Therefore, the responsibility for maintaining reliability is more widespread
- Who needs to be at the table to agree to? 30+ BAs plus market operators? Just the market operators and BAs must agree to terms when joining?





Can We Actively Save More \$\$?

- You have cheap power; can I buy it?
- Options for how this could work
 - Seller-driven: sellers/buyers bid and offer to import and export, or spread bids, then the market operators have some rules for when those are economic – Coordinated Transaction Scheduling
 - Market operators trade info on system costs
- Has it been successful in the East?



Eastern Lessons on Trade

- It's a mixed bag – on some borders, flows have often been uneconomic, going in the wrong direction
- Can you improve on this by removing one of the layers?
- What if it is only the market operators coordinating based on bid-in costs
- SPP has been testing Inter-Market Optimization (IMO)
 - (see https://www.spp.org/media/2401/spp-imo-analysis-paper_20251027.pdf)



At the End of the Day...

- Important to prioritize the issues to be solved
- Probably needs to be solved sooner rather than later (*I only speak for myself!*)
- Get all the necessary parties to the table
- Avoid the bad, repeat the good (the wheel already exists)
- Really think about what benefits you will get from a potential solution, especially when that solution is very complex (costly to market participants) or hard to implement





Thank you

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Intertie Optimization: Lessons from the East

PRESENTED BY

John Tsoukalis

PRESENTED AT



California ISO

MARKET SEAM WORKSHOP

July 31, 2026



Seams Inefficiencies: What Exactly are we Talking About?

Several seams-related inefficiencies exist between markets:

1. **Interregional transmission planning** is generally ineffective (mostly pursued by merchant developers)
2. **Generator interconnection** delays and cost uncertainty created by affected system impact studies
 - Effective coordination can reduce costs (e.g., SPP-MISO JTIQ)
3. **Loop flow management** through market-to-market coordinated flowgates (with shares of firm flow entitlements) under JOAs is necessary (but still plagued by design inefficiencies)
4. **Inefficient trading** across market seams
 - **Intertie bidding** to improve energy trading (particularly in day-ahead)
 - **Intertie optimization** for real-time optimization (after bilateral trading is closed)
5. **Resource adequacy** value of regional connections are often not considered in RA evaluations and barriers to capacity trades (often created by markets' restrictive capacity import requirements and incompatible resource accreditations) can increase costs

These Inefficiencies Have Always Existed in the WECC...

... and there is a long tradition of regional cooperation to address them

1. Interregional transmission planning

- WestTEC
- Public/private/merchant partnerships
- Jointly owned projects

2. Generator interconnection

3. Loop flow management

4. Inefficient trading

- CAISO Intertie Bidding
- WEIM and WEIS
- Liquid trading hubs (e.g., Mid-C, Malin, PV, 4C)

5. Resource adequacy

- WRAP
- EDAM RA Program

The emerging day-ahead markets will not necessarily increase inefficiencies, some features may improve efficiency (e.g., Markets+ mandated economic bidding on interties)

My Focus Today: Economic Trading at the Seams



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Lessons from the East

Poor Intertie Utilization has a Long History & Continues Today



Potomac Economics has documented inefficient utilization of interregional transmission interties since 2003.

- David Patton, Coordinated Interchange Recommendations, March 13, 2003 (Presentation to New England RTO Working Group).

In 2010, Potomac Economics estimated that optimizing interties between MISO, PJM, NYISO, ISO-NE, and Canadian system operators would conservatively yield between \$160-300 million in annual cost savings.

- See [Analysis of the Broader Regional Markets Initiatives](#), pp. 10-13

In 2011, NYISO and ISO-NE proposed to address these seams-related inefficiencies through intertie optimization

- See [Interregional Interchange Scheduling \(IRIS\) Analysis and Options](#)

NYISO/ISO-NE Recommended Intertie Optimization but CTS was Implemented Instead

NYISO and ISO-NE offered designs for two possible solutions:

- Intertie Optimization: similar to the least-cost economic dispatch system used internally for each ISO's energy market, it relies on the bid-based supply offers from generators and demand resources to determine real-time LMPs and transmission flows within and between the two ISOs' networks.
- Coordinated Transaction Scheduling (CTS): facilitates bilateral trading in real time through a simplified bid format (called an interface bid) and coordinated acceptance of interface bids by the ISOs (using an improved clearing rule).

The ISOs recommended the Intertie Optimization because:

- Intertie optimization is the more efficient solution
- The CTS system was not expected to produce as complete a price convergence between regions

Only CTS was implemented between NYISO and ISO-NE (and later PJM and MISO):

- Concerns were raised that intertie optimization may unnecessarily displace bilateral trading
- It was hoped that CTS might be almost as efficient as intertie optimization

CTS has not been Successful in Reducing Seams Inefficiencies

PJM's IMM found that >50% seams trades were uneconomic with MISO and NYISO

Even in hours with high price differences a large share were uneconomic

Distribution of Hourly Flows that are Consistent and Inconsistent with Price Differences between PJM and MISO/NYISO (2022)

Price Difference Range (Greater Than or Equal To)	Percent of Inconsistent		Percent of Consistent		Price Difference Range (Greater Than or Equal To)	Percent of Inconsistent		Percent of Consistent	
	Hours	Hours	Hours	Hours		Hours	Hours	Hours	Hours
\$0.00	4,176	100.0%	4,584	100.0%	\$0.00	3,463	100.0%	5,297	100.0%
\$1.00	3,773	90.3%	4,190	91.4%	\$1.00	3,193	92.2%	5,021	94.8%
\$5.00	2,517	60.3%	2,737	59.7%	\$5.00	2,327	67.2%	3,834	72.4%
\$10.00	1,570	37.6%	1,612	35.2%	\$10.00	1,667	48.1%	2,511	47.4%
\$15.00	989	23.7%	1,056	23.0%	\$15.00	1,206	34.8%	1,664	31.4%
\$20.00	673	16.1%	700	15.3%	\$20.00	912	26.3%	1,173	22.1%
\$25.00	490	11.7%	531	11.6%	\$25.00	709	20.5%	881	16.6%
\$50.00	150	3.6%	243	5.3%	\$50.00	360	10.4%	360	6.8%
\$75.00	65	1.6%	137	3.0%	\$75.00	220	6.4%	209	3.9%
\$100.00	38	0.9%	94	2.1%	\$100.00	143	4.1%	133	2.5%
\$200.00	26	0.6%	34	0.7%	\$200.00	49	1.4%	54	1.0%
\$300.00	19	0.5%	15	0.3%	\$300.00	22	0.6%	28	0.5%
\$400.00	17	0.4%	8	0.2%	\$400.00	14	0.4%	24	0.5%
\$500.00	15	0.4%	6	0.1%	\$500.00	9	0.3%	20	0.4%

Source: [2022 State of the Market Report for PJM \(monitoringanalytics.com\)](#)

MISO IMM Analysis of CTS with 5-Minute Clearing vs. Current CTS (2021)

	Percent of Intervals Adjusted	Production Cost Savings	Profits	Percent Unprofitable
PJM				
Current CTS	9.7%	\$7,203,734	\$199,456	39.4%
5-Minute CTS	77.5%	\$23,207,329	\$11,765,360	13.8%
SPP				
5-Minute CTS*	89.6%	\$44,089,866	\$25,984,814	22.1%

* Results omit Feb. 13-19 when SPP experienced very high prices from the Arctic Event.

Source: MISO [2021 State of the Market Report](#)

MISO's IMM estimated that 40% of CTS transactions with PJM were uneconomic

5-min CTS cleared based on prices in the neighboring RTO reduces costs by ~\$70 million/yr on the PJM and SPP seams

MISO announced earlier this month that they are retiring CTS

Coordinated Transaction Scheduling vs. Intertie Optimization

Coordinated Transaction Scheduling (CTS)

- 75+min prescheduled 15-min transactions, based on forecasts, which often results in uneconomic trades
- Based on CTS bids by traders, who need to reserve transmission (at a cost)
- Transmission charges reduce CTS efficiency
- If transmission charges are eliminated, traders capture value of transactions (free rides)
- Experience:
 - Low transaction volume due to costs and risk of inefficient trades;
 - Has not been able to improve inefficient use of interregional transmission

Intertie Optimization

- Optimized in real time every 5 min, greatly reducing the frequency of uneconomic trades
- Optimized by RTOs using transmission that remains available after bilateral markets have closed
- Hurdle-free optimization increases market efficiency
- Value of transactions shared by RTOs (i.e., their transmission owners and, ultimately, customers)
- Experience:
 - High transaction volume with substantial benefits to participating BAAs (e.g., Western EIM)
 - Can greatly reduce inefficient use of interregional transmission (e.g., European “market coupling”)

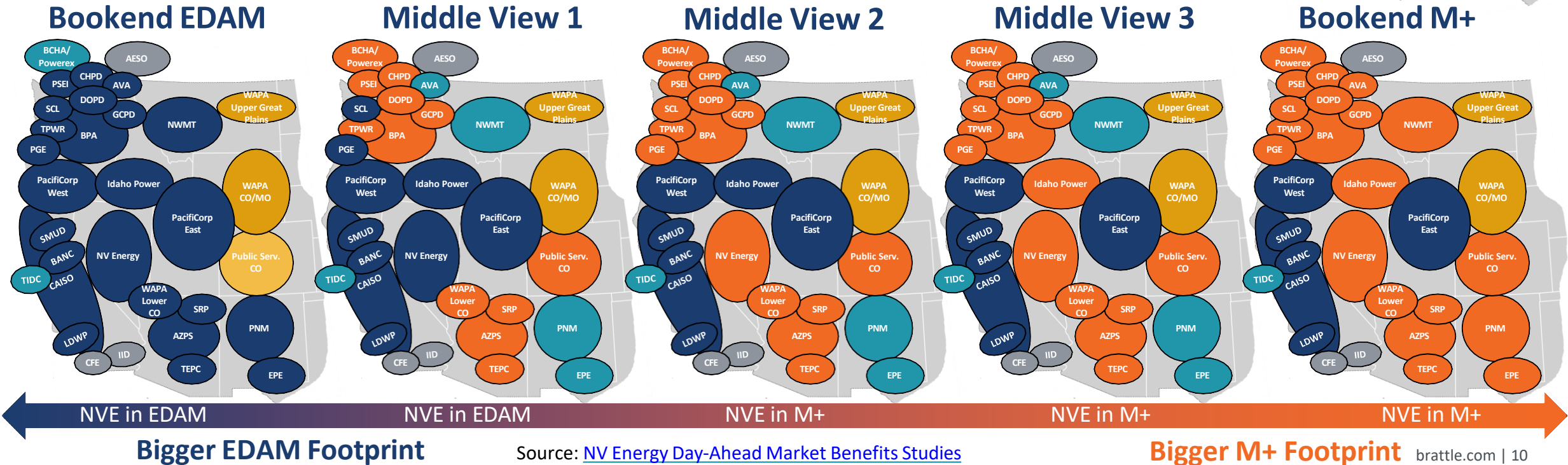
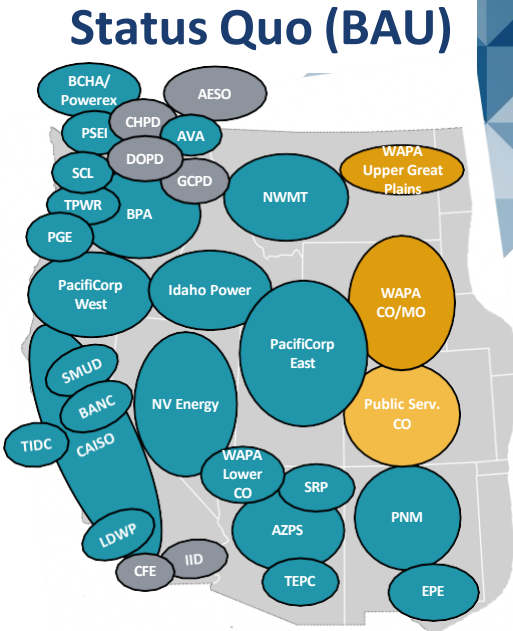
Potential Value of Inertie Optimization in the WECC

Brattle EDAM/Markets+ Benefits Analyses (for NVE)

Scenarios to capture range of potential footprints:

- Status Quo (BAU) vs. WEIM+EDAM vs. Markets+
- M+ assumed to have day-ahead and real-time markets
- RTO West co-optimized with M+ where applicable

SPP RTO West
WEIS only
Markets+
EDAM & WEIM
WEIM only
Non-Market BA



Markets offer Significant WECC-Wide Benefits

The implementation of M+ and/or EDAM produces significant WECC-wide customer benefits, with **estimated benefits ranging from \$825-\$985 million per year** across the footprint scenarios

- A single market covering most of the WECC (bookend EDAM in this case) produces the highest benefits
- A two-market EDAM/M+ scenario produces modestly lower benefits
- The difference across the different footprints illustrates the potential benefit of intertie optimization

WECC-Wide Benefits (\$ Millions)

	BAU	Bookend EDAM	Middle View 1	Middle View 2	Middle View 3	Bookend Markets+
WECC-Wide						
Adjusted Production Cost	\$10,273	\$9,007	\$9,880	\$9,894	\$9,919	\$9,891
Wheeling Revenue	\$446	\$128	\$378	\$439	\$434	\$396
Trading Revenues:						
Bilateral	\$1,327	\$487	\$506	\$496	\$477	\$343
WEIM	\$339	\$263	\$236	\$192	\$182	\$99
WEIS/Mk+ RT Market	\$28	\$31	\$89	\$124	\$125	\$134
EDAM	-	\$950	\$946	\$734	\$676	\$670
Markets+	-	-	\$454	\$606	\$717	\$945
Total System Cost	\$8,134	\$7,149	\$7,269	\$7,303	\$7,308	\$7,304
Benefit Compared to BAU		\$985	\$865	\$831	\$826	\$830

Potential benefit of intertie optimization could be as large as ~\$150 million/year in the WECC

All market participation scenarios show benefits relative to Status Quo (BAU)



Thank You!

Comments and Questions?

(Additional Slides)

See also Brattle Reports on:

[Intertie Optimization \(incl. FAQs\)](#)

[Optimal Expansion and Use of Interregional Transfer Capability](#)

[NV Energy Day-Ahead Market Benefits Studies](#)

[Extended Day-Ahead Market Benefit Study](#)

[EDAM Simulations: PacifiCorp Results](#)

Intertie Optimization: Implementation Options

How would RTOs/ISOs determine and schedule optimal intertie transactions?

The RTOs would use their existing market optimization SCED engines to optimize intertie schedules subject to available intertie capabilities after all bilateral transactions are closed

- As the PJM IMM explains, this would: “include an optimized, but limited, joint dispatch approach that uses supply curves and treats seams between balancing authorities as constraints, similar to other constraints within an LMP market”

1. Contract-path option: treat the contract path across the interface like a single line with a generator (representing the neighboring region) dispatched through SCED.

- The neighboring region would provide generation supply curve (incremental/decremental cost of importing more or less) for RT intervals
- Simplest, will increase efficiency, but not optimally use full physical transmission



2. Flow-based option: represent interface physically with limiting flow gates

- The neighboring region provides binding flow gates and marginal generators with shift factors on these flow gates (ISO-NE's [2014 IEEE “Marginal Equivalent” proposal](#))
- Will use full physical capability (ISO-NE simulations achieve 99% of full optimization)



3. Combined SCED option: used full, multi-regional SCED (similar to Western imbalance markets)

- Assures full optimization but likely impractical for existing market-based regions

Speaker Bio



John Tsoukalis

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John has broad experience helping clients address a range of issues related to wholesale power markets. He is an expert in electric market modeling, analyzing regional market participation, transmission benefit-cost analysis, transmission rate design, market design, detection of market manipulation and damages analyses, and strategic planning.

John has worked with electric utilities, cooperatives, public power authorities, transmission developers, generation owners, power traders, and ISO/RTO staff. He has assisted clients in developing whole market rules, ancillary service product, designing market power mitigation regimes and auction clearing mechanics, leading strategic planning initiatives, and modeling the power system to assess the benefits of new transmission, the benefits of participating in wholesale power markets, and the value generation assets.

John has provided expert testimony to FERC, provincial regulators in Canada, and in U.S. Federal Court related to transmission rate cases, alternative transmission rate designs, cost allocation, and contracts for wholesale power.

Brattle Group Practices and Industries

ENERGY & UTILITIES

Competition & Market
Manipulation
Distributed Energy
Resources
Electric Transmission
Electricity Market Modeling
& Resource Planning
Electrification & Growth
Opportunities
Energy Litigation
Energy Storage
Environmental Policy, Planning
and Compliance
Finance and Ratemaking
Gas/Electric Coordination
Market Design
Natural Gas & Petroleum
Nuclear
Renewable & Alternative
Energy

LITIGATION

Accounting
Analysis of Market
Manipulation
Antitrust/Competition
Bankruptcy & Restructuring
Big Data & Document Analytics
Commercial Damages
Environmental Litigation
& Regulation
Intellectual Property
International Arbitration
International Trade
Labor & Employment
Mergers & Acquisitions
Litigation
Product Liability
Securities & Finance
Tax Controversy
& Transfer Pricing
Valuation
White Collar Investigations
& Litigation

INDUSTRIES

Electric Power
Financial Institutions
Infrastructure
Natural Gas & Petroleum
Pharmaceuticals
& Medical Devices
Telecommunications,
Internet, and Media
Transportation
Water

Our Offices



BREAK

REGULATOR PANEL DISCUSSION

NEXT STEPS

Comments and next meeting

- Comments: Please submit stakeholder comments on the July 31 workshop by visiting [Meetings | Market Seams | California ISO](#) and completing the comment template Word document. Upon completion of this template, please submit it to isostakeholderaffairs@caiso.com. Written comments are due by end of day Aug. 14, 2026.
- Next meeting: The California ISO has scheduled an Aug 18, 2026, hybrid Market Seams workshop from 9 a.m. -2:30 P.M. MST at the Western Electricity Coordinating Council's offices in Salt Lake City, Utah. [Please register for this event if you plan to attend in person.](#)
- Seams Webpage: More information is at [Seams | Western Energy Markets](#)

Agenda

Time	Topic	Presenter(s)
9:00 – 9:10 a.m.	Welcome and Opening Remarks	CAISO Staff
9:10 – 9:30 a.m.	Seams Stages and Overview	Paul Dockery, CAISO
9:30 – 11:00 a.m.	Expert Panel Discussion	Moderator: Kavya Niranjana, Renewable NW Panelists: Richard Doying, Grid Strategies Bob Hellrich-Dawson, FERC John Tsoukalis, Brattle Group
11:00 – 11:10 a.m.	Break	
11:10 – 11:55 a.m.	Regulator Panel Discussion	Moderator: Anna McKenna Panelists: Gabriel Aguilera, Commissioner, New Mexico Public Regulation Commission John Hammond, Commissioner, Idaho Public Utilities Commission Ann Rendahl, Commissioner, Washington Utilities and Transportation Commission
11:55 a.m. – 12:00 p.m.	Preview of Next Workshop and Closing Remarks	CAISO Staff