



Extended Day-Ahead Market ISO Balancing Authority Area Participation Rules

Stakeholder Workshop
April 5, 2023

Reminders

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- 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.

Note: #2 only works if you dialed into the meeting.

- Please remember to state your name and affiliation before making your comment.
- You may also send your question via chat to either Isabella Nicosia or to all panelists.

Today's Agenda

Time	Topic	Presenter
9:00 – 9:10	Welcome and today's agenda	Isabella Nicosia [CAISO]
9:10 – 9:25	Initiative background	Milos Bosanac [CAISO]
9:25 – 9:40	Initiative scope, tracks and schedule	CB Hall [CAISO]
9:40 – 10:10	PG&E's perspective on the CAISO BAA Participation in EDAM	Todd Ryan [PG&E]
10:10 – 10:15	<i>Break</i>	
10:15 – 11:05	Scope item #1: process to cure advisory RSE shortfalls	CB Hall [CAISO]
11:05 – 11:10	<i>Break</i>	
11:10 – 12:00	Scope item #2: process to allocate RSE failure surcharges and revenues	CB Hall [CAISO]
12:00 – 12:30	<i>Lunch Break</i>	
12:30 – 1:25	Scope item #3: criteria to set the ISO BAA's net EDAM export transfer constraint	CB Hall [CAISO]
1:25 – 1:30	<i>Break</i>	
1:30 – 2:25	Scope item #4: transfer resource settlement and transfer revenue distribution	James Lynn [CAISO]
2:25 – 2:30	<i>Break</i>	
2:30 – 3:20	Scope item #5: historical wheeling access charge recovery process	James Lynn [CAISO]
3:20 – 3:50	Stakeholder open forum: questions, comments?	
3:50 – 4:00	Wrap-up and next steps	Isabella Nicosia [CAISO]

CAISO Policy Initiative Stakeholder Process

PROPOSAL DEVELOPMENT

Issue paper and working groups

↳ Straw proposal

Draft final proposal

Draft business requirement specification

Draft tariff and business practice manual revisions

Final proposal

DECISION

ISO Board

EIM Governing Body

Tariff filing

FERC

IMPLEMENTATION

Business practice manual

Training

Market simulation

Go Live



Stakeholder input

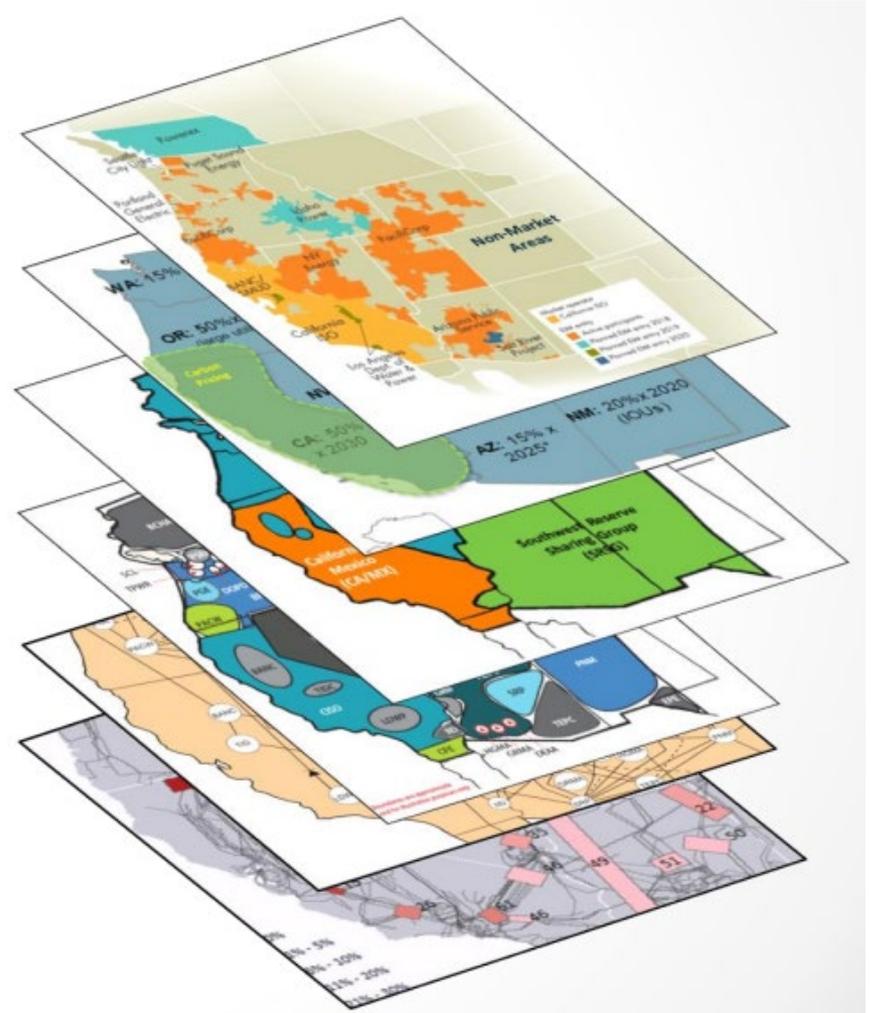
This represents the typical process, and often stages of the process run in parallel.

We are here

Initiative Background

What is the Extended Day Ahead Market (EDAM)?

- An extension of the day ahead market across the West allowing for optimized commitment of generation in the day ahead timeframe.
- Builds upon the WEIM, providing incremental economic, reliability, and environmental benefits.
- Balancing areas participating in EDAM continue to retain their resource planning, transmission planning and reliability operation functions.



EDAM Milestones

- February 2023 – Design approval by ISO Board of Governors and WEIM Governing Body
- Q1/Q2 2023 – Tariff development and FERC filing
 - Draft tariff posted on March 30th
 - Stakeholder meeting scheduled for April 10th
- Q1 2023 through Q4 2024 - EDAM implementation activities
- 2025 – targeted onboarding in coordination with interested entities

ISO BAA EDAM Participation Rules

- The EDAM design identifies the overarching market rules for an extended day ahead market applicable across EDAM participants, including the ISO.
- The EDAM design leaves it to participating entities to further define and coordinate with their stakeholders more granular BAA-unique elements associated with participation in EDAM.
- For the ISO, these elements include:
 - Defining further processes for curing resource insufficiency to avoid surcharges
 - Settlement allocation of various elements within the ISO BAA
 - Application of the net EDAM export transfer constraint

Initiative Scope, Tracks and Schedule

Proposed initiative scope

Scope Items	Track A EDAM Day 1	Track B After EDAM Day 1
Process to cure advisory resource sufficiency evaluation (RSE) shortfalls	<p style="text-align: center;">✓</p> <p style="text-align: center;">(existing mechanisms)</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">(new mechanisms)</p>
Process to allocate RSE failure surcharges and revenues	<p style="text-align: center;">✓</p> <p style="text-align: center;">(interim solution)</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">(long-term solution)</p>
Criteria to set the ISO BAA's net EDAM export transfer constraint	<p style="text-align: center;">✓</p>	
Transfer resource settlement and transfer revenue distribution	<p style="text-align: center;">✓</p>	
Historical wheeling access charge recovery process	<p style="text-align: center;">✓</p>	

The need for two tracks

Track A Items

- Supports day 1 EDAM go-live
- Supports cost neutrality from settlement perspective
- Establishes starting ruleset, implementable by go-live
- Allows for more complex consideration in Track B

Track B Items

- Consideration of more complex design, introduction of new tools and processes
- Allows for more robust evaluation and consideration
- Depending on complexity, could support Day 1 EDAM go-live
- Not mandatory for day 1 of EDAM go-live, but still very important
- BOG decision targeted for Q1 2024

Proposed schedule through July 2023

Date*	Milestone
4/5	Stakeholder workshop
4/19	Due date for stakeholder comments on workshop
5/3	ISO publishes issue paper with Track A straw proposal
5/10	Stakeholder meeting to discuss issue paper and Track A straw proposal
5/17	Due date for stakeholder comments on issue paper and Track A straw proposal
6/7	ISO publishes Track A draft final proposal + draft tariff language
6/14	Stakeholder meeting to discuss Track A draft final proposal + draft tariff language
6/21	Due date for stakeholder comments on Track A draft final proposal + draft tariff language
6/28	ISO publishes Track A final proposal and revised tariff language
7/19	ISO Board of Governors decision on Track A
July	ISO publishes Track B straw proposal
July	Stakeholder meeting to discuss Track B straw proposal
2024	Planning for Q1 Board of Governors decision on Track B

**All dates are tentative until confirmed through a notice in the ISO's Daily Briefing.*

PG&E's perspective on the CAISO BAA Participation in EDAM

Please refer to PG&E's slides posted on the ISO website

Item 1 - Process to Cure Advisory RSE Shortfalls

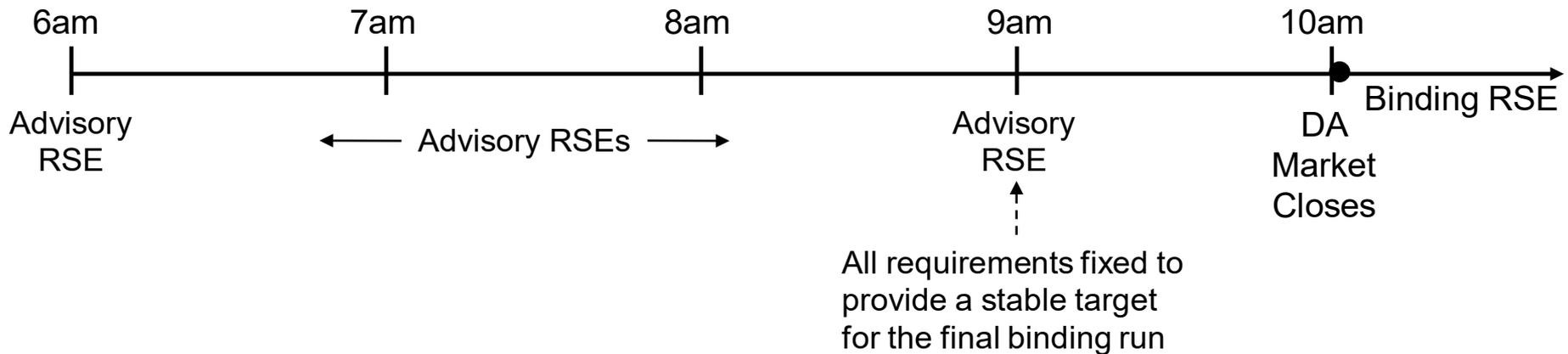
Curing Advisory RSE Shortfalls: Background

EDAM Resource Sufficiency Evaluation (RSE)

- Tests whether each BAA participating in EDAM has sufficient resources in the day-ahead time frame to meet its own BAA obligations, prior to engaging in transfers with other participating BAAs
- Advisory RSE results provided between 6am and 10am day ahead, providing entities the ability to cure shortfalls ahead of the binding test.
- Binding RSE conducted at 10am prior to the day-ahead market (IFM)
- Examines bid-in supply against demand forecast, uncertainty requirements and ancillary services requirements for each hour of the next day
- Uses ISO market optimization and all existing resources models, but does not consider transmission constraints
- Imposes financial consequences for BAAs that fail the RSE.

Curing Advisory RSE Shortfalls: Background

EDAM Advisory RSEs



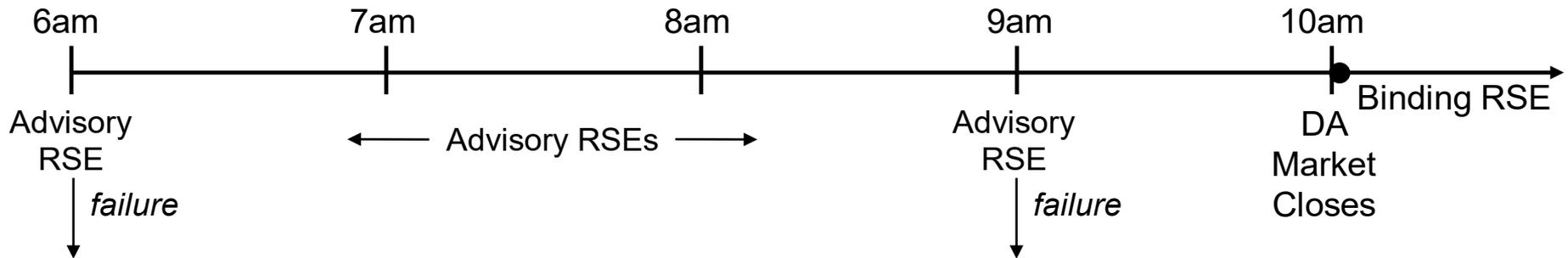
- Advisory RSEs are intended to provide helpful information to BAAs, allowing them to take action, if necessary, to pass the binding RSE at 10am
- Pre-set advisory runs at 6am and 9am with updated inputs
- Additional Advisory RSE results available between 6am and 10am

Curing Advisory RSE Shortfalls: Proposed Objectives

Proposed objectives:

- Minimize EDAM RSE failures by the ISO BAA, while minimizing additional costs borne by the BAA.
- Cure ISO BAA advisory RSE shortfalls using existing mechanisms and/or resources that have already been compensated, where possible
- If needed, consider development of new mechanisms for curing ISO BAA advisory RSE shortfalls. If additional compensation is required, then allocate such costs in a manner commensurate with cost causation, where feasible

Curing Advisory RSE Shortfalls: Initial Questions



Initial questions:

- What steps should the ISO BAA take if it fails any of these advisory RSEs? How should such steps be sequenced? Should some steps be taken only when the ISO BAA fails an advisory RSE beyond a specific threshold?
- How can the ISO BAA leverage existing tools?
- What types of resources might be most helpful?

Curing Advisory RSE Shortfalls: Ideas for Track A

Ideas to Cure Shortfalls	Notes and Questions
Issue market notification to all SCs asking for additional offers in SIBR	Explore including LSE-specific targets in the market notification (may need to be considered in Track B)
Move RA bid-insertion timeline earlier in the morning so that advisory RSEs reflect RA resources with bid-insertion	<ul style="list-style-type: none">• 8:55am bid-insertion could allow such volumes to be reflected in the 9am advisory RSE, and could also allow for use of 8:45am default energy bids (DEBs).• SCs would be free to over-write DEBs before 10am
Use demand response resources, including RDRR	Distinguish between resources with DA supply offers in SIBR vs. those without offers that might be used for DA RSE
Use tools enabled by system emergency conditions	For example: access to emergency supply, cancellation or re-arrangement of planned outages, relaxation of environmental restrictions on plants, exceptional dispatches, etc.

Curing Advisory RSE Shortfalls: Ideas for Track B

ISO BAA procurement of cure capacity

- Should the ISO BAA consider procuring “cure capacity,” if needed to avoid an RSE failure?
- Would one day of capacity be the appropriate term?
- Would specific types of resources be eligible for such cure capacity?
- When would offers be submitted? When would offers be awarded?
- Would offers be capped?
- How would the ISO allocate the costs of this cure capacity?

Item 2 - Process to Allocate RSE Failure Surcharges and Revenues

RSE Failure Consequences: Background

- The EDAM design provides a financial consequence framework for failure to pass the day-ahead RSE, which incentivizes procurement to ensure daily sufficiency
- Three types of RSE failure surcharges (and corresponding revenues)
 - On-peak upward failure surcharge
 - Off-peak upward failure surcharge
 - Downward failure surcharge
- Upward failure surcharge calculations include a failure multiplier (0, 1.25 or 2) that is dependent on the magnitude of the failure quantity, relative to the deficient BAA's upward imbalance reserve requirement

Allocating RSE Failure Surcharges and Revenues: Objectives

Short-term objective

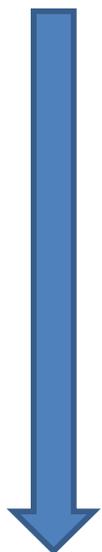
Develop reasonable allocation methodologies that can be implemented by day 1 of EDAM go-live, pending evaluation of more complex approaches in Track B

Longer-term objectives

- Develop allocation methodologies that more accurately reflect cost-causation principles
- Such allocation methodologies may take more time to design and build, and may interact with other policies (for example, Resource Adequacy)

Allocating RSE Failure Surcharges and Revenues: Ideas

Adherence to cost causation principles

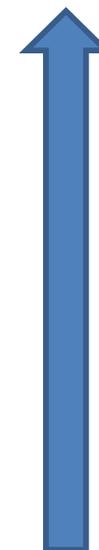


Low

High

	Surcharges	Revenues
1	pro-rata hourly allocation to SCs based on metered demand	pro-rata hourly allocation to SCs based on metered demand
2	hourly allocation to RA capacity that didn't comply with must offer obligations	hourly allocation to RA capacity that did comply with must offer obligations
3	hourly allocation to SCs based on metered demand, net of SC supply offers in day-ahead	hourly allocation to SCs based on supply offers in day-ahead, net of metered demand

policy and implementation complexity



Low

High

Note: the three example ideas above could be used in different combinations / tier structures, and in conjunction with caps for specific tiers

Item 3 - Criteria to Set the ISO BAA's Net EDAM Export Transfer Constraint

Net EDAM Export Transfer Constraint: Background

- The net EDAM export transfer constraint is an additional reliability tool to manage potential stressed conditions that materialize between day-ahead and real-time.
- More specifically, the constraint is an hourly mechanism, applied in the IFM and set in advance of the day-ahead market, that manages the amount of internal supply that is exported to support EDAM transfers
 - Does not preclude meeting existing export contracts
- Resource adequacy supply has a must offer obligation under the ISO tariff, subject to some limited exceptions.
 - As such, RA supply is offered into the market even if it exceeds the ISO's RSE obligation. In the EDAM, the excess RA supply may be committed economically to support transfers without remaining available to help respond to potential reliability events between day-ahead and real time.
 - Such transfers may limit the ability to respond to changes in conditions, beyond imbalance and operating reserves, between day-ahead and real-time
- The constraint enables all supply to be offered into the market for optimization, and the market will respect the constraint when making resource commitments and identifying energy transfers

Net EDAM Export Transfer Constraint: Background

Net EDAM Export Transfer Constraint = RSE Eligible Supply + (Non RSE Eligible Supply x Confidence Factor) – RSE Obligation – Additional Margin

Where the net EDAM export transfer constraint:

- Must be \geq shown bucket 1 transfers out of the BAA
- Cannot be a negative number

And where:

- **RSE eligible supply** = supply that counts toward the EDAM entity RSE.
- **Non RSE eligible supply** = supply that is ineligible to count toward the EDAM entity's RSE. For the ISO, intertie bids from supply not under contract are ineligible RSE supply.
- **Confidence Factor** = an optional factor that accounts for confidence in delivery associated with a portion of the non-RSE eligible supply. For example, in the ISO BAA the confidence factor could be used to adjust for the risk of untagged intertie day-ahead schedules.
- **RSE Obligation** = the day ahead RSE obligation for the EDAM entity based upon forecasted load, positive uncertainty requirement, and upward ancillary services requirements. It includes high priority exports (PT exports to non-EDAM BAAs) since they are considered in the RSE.
- **Additional Margin** = represents an additional amount of capacity established by the EDAM BAA to reduce the limit on the BAA net export transfer, if necessary, to account for reliability risk and the ability to replace reserves particularly during tight supply system conditions.

Net EDAM Export Transfer Constraint: Background

Net EDAM Export Transfer Constraint = RSE Eligible Supply + (Non RSE Eligible Supply x Confidence Factor) – RSE Obligation – Additional Margin

Illustrative Example

Hour	RSE Eligible Supply	Non RSE Eligible Supply	Confidence Factor	RSE Obligation	Additional Margin	Net Export Transfer Constraint
HE 12	35,000 MW	5,000 MW	95%	35,000 MW	3,000 MW	1,750 MW
HE 13	39,000 MW	5,000 MW	95%	38,500 MW	0 MW	5,250 MW

ISO BAA Net EDAM Export Transfer Constraint: Ideas

Methodologies for using the “confidence factor” to account for the non-deliverability risk associated with cleared economic intertie bids

- Based on historical cleared intertie bids that do not tag by the appropriate deadlines or do not perform?
- Should this parameter be static or dynamic?

Conditions for using “additional margin” to constrain the ISO BAA’s net EDAM export transfers, an hourly parameter set in advance of day-ahead market include consideration of various operational factors, including:

- Flex Alert and/or EEA conditions informed by outage conditions, load and resource conditions
- D+2 RUC infeasibility which indicates, on an advisory basis two days out, availability of supply challenges
- Day-ahead RA outlook, including consideration of outage conditions, in comparison to forecasted load conditions and reserve requirements

Item 4 - Transfer Resource Settlement and Transfer Revenue Distribution

Transfer Resource Settlement: Background

WEIM Transfer Resource Settlement

Transfer Resource	Settlement Treatment
Base	Binding deviation settlement from base schedule
Static and Dynamic	Energy financial accounting in real time imbalance energy offset

EDAM Transfer Resource Settlement

Transfer Resource	Settlement Treatment
IFM Energy	Binding Day Ahead settlement as well as Real time market (RTM) deviation settlement
Imbalance Reserve	Binding Day Ahead settlement
Reliability Capacity	Binding Day Ahead settlement
Base (WEIM only)	RTM binding deviation settlement from base schedule
Static and Dynamic	RTM binding settlement

Transfer Revenue: Background

WEIM Transfer Revenue Settlement

Transfer Revenue Settlement

Embedded in the RTM marginal cost of congestion (MCC) settlement of imbalance energy for supply and demand

Binding Transfer constraint distribute through MCC Breakdown settlement

EDAM Transfer Revenue Settlement

Transfer Revenue Settlement

The marginal energy cost difference between source BAA and sink BAA

The imbalance reserve price difference between source BAA and sink BAA

The reliability capacity price difference between source BAA and sink BAA

Transfer Revenue Settlement

Bucket 2 Transmission Customer who released Pathway 2 transmission to market receive direct Transfer revenue settlement

All other transfer revenue distributed between source and sink BAA 50:50 including CAISO BAA

Transfer Resource Settlement and Transfer Revenue Distribution: Objectives and Questions

CAISO Net Transfer settlement allocation:

- Transfer which source or sink to CAISO BAA will settle with the CAISO BAA
 - Determine how to allocate the CAISO net transfer settlement
 - How should the net transfer settlement be allocated?
 - Should CAISO BAA net Transfer payment be allocated differently than CAISO BAA net transfer charge?

CAISO Transfer Revenue

- Bucket 2 Pathway 2 transmission transfer revenue distributed to transmission customer
- All other transfer revenue distributed between source and sink BAA 50:50
 - CAISO BAA:
 - Allocate to transmission ownership rights/Existing transmission contracts where applicable based upon released transmission (CAISO Internal pathway 2), or
 - Scheduling coordinators in proportion to their measured demand

Item 5 – Historical Wheeling Access Charge Recovery Process

Historical Wheeling Access Charge (WAC) Recovery: Background

Current Market

- Currently, participants submit self-schedule or economic bids day ahead market to:
 - Wheel energy through CAISO BAA
 - Export energy from a CAISO BAA internal resources
- These export schedules are subject the Wheeling Access Charge (WAC), excluding ETC/TOR
- These WAC charges are distributed to participating transmission owners (PTO) based upon entitlements rights

Extended Day Ahead Market

- Instead of receiving Export schedules, the market will determine transfer energy schedules at transfer location with other EDAM entities
 - Transfer schedules are not subject to WAC assessment
- Established WAC mechanism
 - Recovery the foregone WAC revenue
 - Recovery foregone WAC revenue new transmission which support increased transfer capability
 - Revenues for wheeling-through volumes for EDAM BAAs that exceed the total imports/exports
 - True-up Mechanism

Historical Wheeling Access Charge (WAC) Recovery: Questions

Key Questions for establishing CAISO WAC Recovery Process with EDAM BAAs

- Who determines the values?
 - Should PTO(s) provide the information to ISO?
 - To what extent should ISO be involved in helping PTO(s) determine the values?
- How are the foregone WAC revenues value determined?
- How is the true-up value accounted in CAISO BAA?

Historical Wheeling Access Charge (WAC) Recovery: Ideas

Established process for determining the WAC Component

- Foregone WAC revenue at scheduling point(s) with EDAM BAAs
 - Identify scheduling points between CAISO BAA and EDAM BAAs that are wholly or partially converted to transfer location
 - Calculate average gross export usage at these scheduling point based upon last three year historical usage
 - Partial converted scheduling points need to distribute the WAC charges
 - Apply the current WAC rate to determine foregone WAC revenues
- Foregone WAC revenue new transmission which support increased transfer capability at scheduling point(s) with EDAM BAAs
 - Forecast increased usage of transfer capability on existing scheduling points
 - Forecast transfer usage at new transfer locations
- Wheeling-through volume revenues for EDAM BAAs that exceed the total imports/exports
- WAC true-up value recovered through existing TRBAA adjustment

Stakeholder Open Forum

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Next Steps

Next steps

- Workshop comments are due by end of day **April 19, 2023**. Please submit your comments using the comment template available on the initiative webpage:
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/Extended-Day-Ahead-Market-ISO-Balancing-Authority-Area-Participation-Rules>
- Upcoming milestones*:
 - May 3, 2023: Issue paper and track A straw proposal posting
 - May 10, 2023: Stakeholder meeting
 - May 17, 2023: Comments due on issue paper and track A straw proposal

**All dates are tentative until confirmed through a notice in the ISO's Daily Briefing.*

For reference

- Visit initiative webpage for more information:
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- If you have any questions, please contact
isostakeholderaffairs@caiso.com