# Extended Day-Ahead Market ISO Balancing Authority Area Participation Rules

Issue Paper and
Track A1 Straw Proposal

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# EDAM ISO BAA Participation Rules
# Issue Paper and Track A1 Straw Proposal

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# 1. Executive Summary

On February 1st, 2023 the ISO Board of Governors and the Western Energy Imbalance Market (WEIM) Governing Body approved the proposed market design on an Extended Day Ahead Market (EDAM) following extensive stakeholder collaboration throughout 2022 that informed policy development.[1] This initiative – *ISO BAA EDAM Participation Rules* – seeks to define unique aspects of how the ISO balancing authority area (BAA) will participate in EDAM. The initiative scope includes how to set the ISO BAA's net EDAM export transfer constraint, how the ISO BAA will position itself to meet the day-ahead resource sufficiency evaluation, how certain revenues and surcharges will be allocated within the BAA and other key topics to support participation in the EDAM. Table 1 below provides a summary of the key elements comprising this stakeholder initiative and includes the proposals and ideas that are discussed in detail in the following chapters.

As shown in table 1, this initiative will be separated into two tracks, with track A focusing on near-term provisions supporting the launch of EDAM, and track B considering longer term enhancements that will likely be implemented after EDAM launch. Within track A, ISO staff have created two distinct sub-tracks. Track A1 consists of items that are mandatory for day 1 of EDAM, and ISO staff plan to bring such items to the ISO Board of Governors in July 2023. Track A2 is not expected to require tariff changes or a Board of Governors decision, and ISO staff plan to finalize the policy development and document implementation actions (e.g., business practice manuals, operating procedures, etc.) in 2023.

In addition to the five scope items outlined in table 1, this policy paper includes two additional chapters: as requested by stakeholders, chapter 9 discusses import resource adequacy (RA) supply and the associated mechanics of submitting day-ahead offers and contributing to the day ahead resource sufficiency evaluation (RSE); chapter 10 presents ISO staff's recommendation for the governance classification of this policy initiative.

This issue paper/straw proposal has been informed by stakeholder feedback during the April 5th, 2023 workshop as well as written stakeholder comments submitted on April 19th, 2023. Stakeholder comments submitted on April 19th raised a number of important questions and requests to further evaluate potential measures to increase separation between the ISO's roles and functions, primarily between its role as ISO BAA operator and its role as market operator of the WEIM/EDAM. The ISO appreciates these stakeholder comments and the importance of this topic. The ISO commits to following up on these requests in a subsequent forum.

[1] *Extended Day Ahead Market (EDAM)* initiative page, https://stakeholdercenter.caiso.com/StakeholderInitiatives/Extended-day-ahead-market

***Table 1:*** *EDAM ISO BAA Participation Rules – Summary of Key Elements*

| **EDAM ISO BAA Participation Rules**<br>Track A1: mandatory for EDAM day 1. Board decision required<br>Track A2: mandatory for EDAM day 1. Board decision not required<br>Track B: not mandatory for EDAM day 1. Board decision required | **Track A1**<br>July 2023 Board Decision | **Track A2**<br>Finish policy in 2023 | **Track B**<br>March 2024 Board Decision |
|---|---|---|---|
| *Chapter 4*<br>Criteria to set the ISO BAA's net EDAM export transfer constraint<br>• Reliability margin: based on 8am operations meeting and bounded by max of (1) replacement reserves based on forecasted most severe single contingency; (2) protection for a non-credible contingency based on weather conditions (fires); (3) gas OFO/curtailments<br>• Confidence factor: updated annually based on historical deliverability of economic imports into the ISO BAA | ✓ | | |
| *Chapter 5*<br>Transfer resource settlement and transfer revenue distribution<br>• Transfer resource settlement: pro-rata allocation of the ISO BAA net transfer settlement amount to metered demand<br>• Transfer revenue settlement, including allocation of ISO BAA portion of energy transfer revenue, imbalance reserve transfer revenue and/or reliability capacity transfer revenue | ✓ | | |
| *Chapter 6*<br>Process for recovering historical wheeling access charge revenues<br>• Calculation of Transmission Revenue Recoverable Amount<br>• Distribution of Collected WAC Recoverable Amounts | ✓ | | |
| *Chapter 7*<br>Avoiding RSE failures<br>• Existing processes that help the ISO BAA avoid shortfalls<br>• Accuracy of advisory RSE results and publishing information on expected RA offers<br>• Market notifications requesting additional offers<br>• Using RA reliability demand response resources<br>• Consideration of ISO BAA procurement of cure capacity | | ✓ (utilizing existing ISO tariff authority) | ✓ (utilizing new ISO tariff authority) |
| *Chapter 8*<br>Process to allocate RSE failure surcharges and revenues<br>• Interim solution<br>  ○ Surcharges: pro-rata to metered demand<br>  ○ Revenues: pro-rata to metered demand<br>• Long-term ideas:<br>  ○ To LSEs based on LSE-specific RSE targets net of LSE Supply<br>  ○ To RA capacity that fails to comply with day-ahead must offer obligations | ✓ (interim solution) | | ✓ (long-term solution) |

Table 2 below shows the initiative schedule through July 2023, when ISO staff plan to present track A1 to the ISO Board of Governors. ISO staff look forward to engaging with stakeholders on this important effort through an inclusive, open and transparent stakeholder process to ensure robust consideration of process improvements to support ISO BAA participation in EDAM.

***Table 2:*** *EDAM ISO BAA Participation Rules – Initiative Schedule through July 2023*

| Date | Milestone |
|---|---|
| April 5, 2023 | Stakeholder workshop to launch the initiative |
| April 19, 2023 | Due date for stakeholder comments on workshop |
| May 5, 2023 | Publish issue paper and track A1 straw proposal |
| May 10, 2023 | Stakeholder meeting to discuss issue paper and track A1 straw proposal |
| May 17, 2023 | Due date for stakeholder comments on issue paper and track A1 straw proposal |
| June 7, 2023 | Publish track A1 draft final proposal + draft tariff language |
| June 14, 2023 | Stakeholder call to discuss track A1 draft final proposal + draft tariff language |
| June 21, 2023 | Due date for stakeholder comments on track A1 draft final proposal + draft tariff language |
| June 28, 2023 | Publish track A1 final proposal and revised tariff language |
| July 19, 2023 | ISO Board of Governors decision on track A1 |
| July 2023 | Publish straw proposal for track A2 and track B |
| July 2023 | Stakeholder call to discuss straw proposal for track A2 and track B |
| Q4 2023 | Finish policy development for track A2 |
| March 2024 | ISO Board of Governors decision on track B |

# 2. Initiative Background

On February 1st, 2023 the ISO Board of Governors and the Western Energy Imbalance Market (WEIM) Governing Body approved the proposed market design for the Extended Day Ahead Market (EDAM) following extensive stakeholder meetings, comments, and discussions. This market design was the result of a multi-year stakeholder engagement effort that shaped the final policy decisions.[2] The EDAM builds upon the proven ability of the WEIM to increase regional coordination, support state policy goals, enhance reliability, and meet demand cost-effectively. Specifically, the EDAM will position supply efficiently in the day-ahead timeframe to meet next-day expected grid conditions across the wider footprint leveraging transmission availability and connectivity across the footprint.

The EDAM design describes the overarching market rules, functions, and requirements of a day-ahead market in the West, but recognizes that each balancing authority area in the EDAM area (EDAM BAA)

[2] *Extended Day Ahead Market (EDAM)* initiative page, https://stakeholdercenter.caiso.com/StakeholderInitiatives/Extended-day-ahead-market

will have further requirements to define in developing changes to their tariffs to support participation in EDAM.[3] The topics each EDAM BAA may need to further define may vary based on the composition of the BAA, but may include the following: (1) provisions and coordination in meeting the resource sufficiency evaluation (RSE); (2) allocation of settlements within the BAA; (3) other elements that will support compliance with the overarching EDAM requirements and/or are unique to the EDAM BAA.

This initiative – *EDAM ISO BAA Participation Rules* – seeks to define unique aspects of the ISO BAA's participation in EDAM. The initiative scope includes how to set the ISO BAA's net EDAM export transfer constraint, how the ISO BAA will position itself to meet the day-ahead RSE, how certain revenues and surcharges will be allocated within the BAA and other key topics to support participation in the EDAM. This initiative will be separated into two tracks with Track A focusing on near term provisions supporting the launch of EDAM, and Track B which will consider longer term enhancements that will likely be implemented after EDAM launch.

This issue paper/straw proposal has been informed by stakeholder feedback during the April 5th, 2023 workshop as well as written stakeholder comments submitted on April 19th, 2023. ISO staff look forward to engaging with stakeholders on this important effort through an inclusive, open and transparent stakeholder process to ensure robust consideration of process improvements to support ISO BAA participation in EDAM.

# 3. Initiative Scope and Schedule

In order to prepare the ISO BAA for participation in EDAM, ISO staff propose that this stakeholder initiative address the five scope items displayed in table 3 below. As shown in table 3, ISO staff have separated the initiative into two primary tracks. The purposes of track A is to address items that are required for the ISO BAA to participate in EDAM on day 1. Track A1 will require tariff changes, and ISO staff plan to present A1 to the ISO Board of Governors in July 2023. Track A2 is not expected to require tariff changes or a Board decision, and ISO staff plan to finalize the policy development and document implementation actions (*e.g.*, business practice manuals, operating procedures, etc.) in 2023. The purpose of track B is to develop additional tools or enhancements that are not required on day 1 of EDAM, but that will include details and refinements to align with the long-term needs of the ISO BAA. ISO staff plan to present track B to the ISO Board of Governors in March 2024.

[3] ISO staff clarify that in the draft EDAM tariff publication, the defined term "EDAM Entity" captures those balancing authorities that execute the EDAM Addendum to EIM Entity Agreement with the CAISO to enable operation of the Day-Ahead Market in addition to the Real-Time Market in the EDAM Entity Balancing Authority Area. While the CAISO will not execute an EDAM Addendum to EIM Entity Agreement, for purposes of this paper and to avoid unnecessary confusion, the term "EDAM entity" used in this paper should not be read to exclude the CAISO.

***Table 3:*** *EDAM ISO BAA Participation Rules – Initiative Scope*

| Scope Items | Track A1 | Track A2 | Track B | Chapter |
|---|---|---|---|---|
| Criteria to set the ISO BAA's net EDAM export transfer constraint | ✓ | | | 4 |
| Transfer resource settlement and transfer revenue distribution | ✓ | | | 5 |
| Process for recovering historical wheeling access charge revenues | ✓ | | | 6 |
| Avoiding RSE failures | | ✓ (utilizing existing ISO tariff authority) | ✓ (utilizing new ISO tariff authority) | 7 |
| Process to allocate RSE failure surcharges and revenues | ✓ (interim solution) | | ✓ (long-term solution) | 8 |

In addition to the five primary scope items shown above in table 3, this policy paper includes two additional discussion chapters: as requested by stakeholders, chapter 9 discusses import resource adequacy (RA) supply and the associated mechanics of submitting day-ahead offers and contributing to the day ahead RSE; chapter 10 presents ISO staff's recommendation for the governance classification of this policy initiative. Table 4 below shows the initiative schedule through July 2023, when ISO staff plan to present track A1 to the ISO Board of Governors.

***Table 4:*** *EDAM ISO BAA Participation Rules – Initiative Schedule through July 2023*

| Date | Milestone |
|---|---|
| April 5, 2023 | Stakeholder workshop to launch the initiative |
| April 19, 2023 | Due date for stakeholder comments on workshop |
| May 5, 2023 | Publish issue paper and track A1 straw proposal |
| May 10, 2023 | Stakeholder meeting to discuss issue paper and track A1 straw proposal |
| May 17, 2023 | Due date for stakeholder comments on issue paper and track A1 straw proposal |
| June 7, 2023 | Publish track A1 draft final proposal + draft tariff language |
| June 14, 2023 | Stakeholder call to discuss track A1 draft final proposal + draft tariff language |
| June 21, 2023 | Due date for stakeholder comments on track A1 draft final proposal + draft tariff language |
| June 28, 2023 | Publish track A1 final proposal and revised tariff language |
| July 19, 2023 | ISO Board of Governors decision on track A1 |
| July 2023 | Publish straw proposal for track A2 and track B |
| July 2023 | Stakeholder call to discuss straw proposal for track A2 and track B |
| Q4 2023 | Finish policy development for track A2 |
| March 2024 | ISO Board of Governors decision on track B |

# 4. Criteria to Set the ISO BAA's Net EDAM Export Transfer Constraint

## Background and objectives

The net EDAM export transfer constraint is an additional reliability tool for EDAM BAAs to manage supply in excess of the RSE requirements to respond to reliability concerns between day-ahead and real-time for which no current market product exists. More specifically, the constraint is an hourly mechanism, set in advance of the day-ahead market, that manages the amount of internal BAA supply that is exported to support EDAM transfers. This is an optional constraint, available for use by all EDAM BAAs, including the ISO BAA.

In the ISO BAA, RA supply is largely obligated to submit day-ahead offers through a must offer obligation. Total day-ahead supply offers may exceed the ISO BAA's EDAM RSE requirements. The net EDAM export transfer constraint will help mitigate the risk that this excess supply will be committed economically to support EDAM transfers and will protect the RA supply that is available to help respond to potential ISO BAA reliability events. Specifically, the export transfer constraint will protect the ISO BAA when there are changes in conditions between day-ahead and real-time for which existing market products do not exist. The export transfer constraint is intended to provide incremental reliability benefits to the BAA in specific limited conditions.

As established by the EDAM design, the net EDAM export transfer constraint will be based on the difference between bid in supply and the RSE requirements (Forecast Requirement, Imbalance Reserve Requirement, and Ancillary Service Requirement) as described directly below.[4]

$$\boldsymbol{Net\ Export} \leq (\boldsymbol{RSE\ Eligible\ Supply} + \boldsymbol{Non\ RSE\ Eligible\ Supply\ x\ CF}) - \boldsymbol{RSE\ Obligation} - \boldsymbol{EDAM\ Reliability\ Margin}$$

Where:

- *RSE Eligible Supply* = supply that is eligible to satisfy the EDAM RSE.
- *Non RSE Eligible Supply* = supply that is ineligible to count toward the EDAM RSE. For the ISO BAA, intertie bids from supply not under contract are ineligible RSE supply.[5]
- *Confidence Factor (CF)* = 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.

[4] The mathematical formulation of the Net EDAM Export Transfer Constraint can be found in Appendix 4 of the EDAM Final Proposal: http://www.caiso.com/InitiativeDocuments/FinalProposal-ExtendedDay-AheadMarket.pdf

[5] The ISO will provide functionality that will allow parties to distinguish whether the supply is RSE eligible or non-RSE eligible supply, such as whether the supply is under contract.

- *RSE Obligation* = the EDAM RSE requirements, including the Forecast Requirement, Imbalance Reserves Requirement, and the Ancillary Service Requirement.[6] The RSE requirements for the ISO BAA will include obligations associated with high priority exports (PT exports to non-EDAM BAAs) since they are considered in the RSE. [7]
- *EDAM Reliability Margin* = represents an additional amount of capacity established by the EDAM BAA to reduce the limit on the BAA net export transfer, if necessary, in limited conditions.

The net EDAM export transfer constraint will limit the amount of exports from the ISO BAA and cannot be negative, zero, or set at a level below the shown bucket 1 transfers out of the EDAM BAA. If an EDAM entity relies on exports to meet the RSE from the EDAM BAA imposing the net export transfer constraint, the EDAM BAA sourcing the supply cannot reduce the net export transfer below the export committed to the receiving EDAM BAA's RSE.

## Stakeholder comments

Stakeholders remain supportive of the concept of using the net EDAM export constraint in the ISO BAA. Some stakeholders, including load serving entities within the ISO BAA, request that the constraint be set conservatively as a means to protect ISO BAA reliability. Other stakeholders raise concerns regarding the constraint becoming a non-transparent tool that restricts EDAM transfers and market activity. In addition to these two contrasting viewpoints, ISO staff also received requests for additional detail on how the constraint would be calculated, and what relevant data would serve as an input to that calculation.

## Track A1 straw proposal

<u>EDAM Reliability Margin</u>

- Hourly parameter set by ISO BAA operator each day based on data reviewed and analyses produced from daily operations meeting

- For each hour, the parameter will be bounded, with the operators setting the parameter no higher than that indicated by the maximum of the following three variables:

    (1) *Replacement reserves based on forecasted Most Severe Single Contingency (MSSC)*. This would be an appropriate upper bound to the parameter because the day-ahead market does not have an explicit product to reserve unloaded flexible capacity to ensure the ISO BAA is able to replace its contingency reserves within NERC required timelines

[6] The EDAM RSE requirements are included in Section 33.31.1.2.1 of the draft EDAM tariff.

[7] ISO does not propose to include operator load conformance in this input as operator load conformance is not an input into the RSE requirements.

(2) *Protection for a non-credible contingency based on weather conditions (fires)*. This would be an appropriate upper bound to the parameter because weather conditions may require the potential consideration of non-credible contingencies associated with common right-of-way circuits.

(3) *Gas OFO/curtailments*. This would be an appropriate upper bound to the parameter because operational flow order (OFO)/gas curtailments can lead to a reduction in generation capacity that significantly exceeds the MSSC that is protected

The conservative criteria proposed in this paper is in response to stakeholder comments to design measures to ensure sufficient residual supply is available based on identifiable reliability risks that can occur between the day-ahead and real-time markets. ISO staff have proposed to apply the net EDAM export transfer constraint to address risks between the day-ahead and real-time markets because ISO staff believe that the risks between day-ahead and real-time represent the largest potential risks that can occur and are not already fully addressed by other mechanisms (*e.g.*, imbalance reserves or contingency reserves). The result of applying the conservative criteria proposed by the ISO staff is to limit exports through EDAM transfers and enhance the ISO BAA's access to its internal supply to support reliability, including internal supply from RA resources. The ISO staff request stakeholder feedback on the proposed conservative approach to enhance the ISO BAA's access to internal supply resources through application of the export transfer constraint. Specific comments on the proposed criteria, and alternative suggestions consistent with the board-approved policy, are requested.

ISO staff are not proposing to include resources in the state's Strategic Reliability Reserve (strategic reserve) program in the calculation of available supply within its net EDAM export transfer constraint. The SRR program is intended as a transitional tool to address the reliability risks from extreme events. An extreme event is defined as an "event occurring at a time and place in which weather, climate, or environmental conditions, including temperature, precipitation, drought, fire, or flooding, present a level of risk that would constitute or exceed a one-in-ten event, as referred to by the North American Electric Reliability Corporation, including when forecast in advance by a load-serving entity or local publicly owned electric utility."[8] ISO staff believe it would be inappropriate to use this emergency reliability tool to enable additional transfers outside the ISO BAA. The resource adequacy program is intended to ensure sufficient supply offers are available to clear the day-ahead and real-time markets, and the proposed treatment of the SRR resources ensures that it continues to function in that manner.

Confidence Factor

In order to meet demand in the clearing process, the day-ahead market will consider all imports, including those with economic bids. These cleared imports may carry over to the real-time with either self-schedules or economic bids, which in turn will be considered to meet demand in the real-time market. Eventually, the imports are expected to be delivered by tagging to the cleared schedules. The volume and frequency of these undeliverable imports may vary based on multiple factors, including

[8] Assembly Bill (AB) 205, 2022.

overall supply and transmission conditions in the region, time of year and time of day. DMM will continue to monitor and, as necessary, refer or pursue actions for any improper tagging practices.

The Confidence Factor is intended to address this issue. To account for the potential non-deliverability associated with economic imports, the ISO staff propose to calculate the CF variable based on the volume of non-deliverable economic imports from the same period of previous year. The ISO staff believe a historical measure is appropriate. ISO staff propose that that CF be based on a look-back of the same period of the prior year, but the ISO could also use data from a recent period, or a combination of both. Using the selected historical data set for economic imports, ISO staff will calculate for each hour the ratio of total tagged imports to total market schedules, capped at 100%. The confidence factor will then be determined using a percentile of the calculated data set. The specific details such as the period of reference (month versus season, or previous year versus recent period, etc.) and the percentile value will be determined once ISO staff analyze historical data, and will be defined in the business practice manual. Since the most critical period is for summer conditions, ISO staff expect to update the confidence factor on an annual basis prior to June 1 of each year.

# 5. Transfer Resource Settlement and Transfer Revenue Distribution

## Background and objectives

As the market co-optimizes energy bids and imbalance reserves bids to meet demand bid plus imbalance reserve requirement across the EDAM footprint, the market will commit resources in other balancing authority areas to meet the needs of another balancing authority area. These commitments will materialize as import and export energy transfer schedules and/or imbalance reserve transfer schedules between the two BAAs. Similarly, in the residual unit commitment (RUC) process, resources will be committed to provide reliability capacity in one BAA to meet the reliability capacity requirement of another BAA as an import and export reliability capacity transfer schedule between the two BAAs.

Transfer Resource Settlement:

As optimal schedules between two BAAs, import and export transfer schedules will settle at the relevant energy, imbalance reserve, or reliability capacity marginal price. This settlement creates a financial responsibility for each of the BAAs associated with the transfers. For non-ISO EDAM BAAs, the financial commitment is assigned to the EDAM entity for further distribution per the BAA OATT or other applicable tariff. However, for transfers associated with the ISO BAA, the purpose of this portion of the initiative is to determine financial responsibility for the transfer settlement assigned to the ISO BAA.

In the real time market (RTM), including WEIM, the market will optimize the RTM supply bids to meet the expanded WEIM footprint's demand forecast plus flexible ramp requirements. The Day Ahead Market transfers are deemed delivered. The RTM optimization can increase a transfer resource's schedules or counter flows against the day ahead transfer schedules. The ISO proposes to settle the RTM transfer schedules as deviation from IFM and imbalance energy at the relevant FMM LMP. Under the current WEIM design, only Base Transfer imbalances are settled at RTM LMP.

Transfer Revenue Settlement:

The settlement of these transfer resources between two EDAM BAAs, including ISO BAA, can result in the collection of congestion revenue and transfer revenue when the EDAM BAA marginal prices separate.

If the marginal price separation is caused by binding internal constraints, the congestion revenue is distributed to the EDAM BAA where the constraints are modelled. If the congestion revenue is modelled to a non-ISO EDAM BAA, the congestion revenue will be allocated to the EDAM entity and sub-allocated per the terms of the BAA OATT or other applicable tariff. For the ISO BAA, this congestion revenue is distributed through the CRR process.

Under EDAM, where the marginal price separation materializes because of a binding transfer constraint, a new type of shared revenue, transfer revenue, will be generated. Under the EDAM framework, transfer revenue is shared between EDAM BAAs. This is appropriate because both EDAM BAAs must release transmission to the market at that specific transfer location to facilitate the transfer of energy and/or capacity between two EDAM BAAs. Accordingly, the transfer revenue is shared between the EDAM BAAs. Transmission customers that release transmission to the market to facilitate the transfer are also provided a share of the revenue. For example, if the transmission customer releases pathway 2 transmission to the market, then the transfer revenue generated from the use of pathway 2 transmission is distributed directly to the transmission customer. Transfer revenue is distributed to each EDAM BAA associated with the transfer on a 50:50 ratio. EDAM BAA transfer revenue is assigned to the appropriate scheduling coordinator for further distribution per applicable tariff. The purpose of this initiative is to determine how the ISO BAA should distribute its portion of the transfer revenue.

## Stakeholder comments

Transfer Resource Settlement:

Stakeholder comments support ISO staff's recommendation for a consistent method for allocating the transfer resource costs and payments within the ISO BAA. Stakeholder comments indicate support for the suggested allocation methodology presented during the April 5th workshop.

Transfer Revenue Settlement:

Generally, stakeholders support the ISO staff's April 5th workshop suggestion to distribute the portion of the transfer revenue generated on transmission with transmission ownership rights (TOR) or existing transmission contracts (ETC) to the scheduling coordinator of those rights. Utah Associated Municipal Power Systems provided an example supporting this design element.

For transfer revenue generated on transmission not associated with TOR/ETC, there is a separation of opinions. Many of the comments support ISO staff's suggestion of allocating the transfer revenue to measured demand. Southern California Edison suggested that the transfer revenue should be used to offset some of the foregone Wheeling Access Revenue described in chapter 6 of this paper.

## Track A1 straw proposal

Transfer Resource Settlement:

As described above, the IFM will co-optimize supply bids for energy, including virtual supply bids, and imbalance reserve bids against demands bids, including virtual demand, and imbalance reserve requirements. Based upon the co-optimization results, the IFM can award resources in one BAA for energy schedules to meet demand and/or imbalance reserve schedules to meet imbalance reserve requirements of another BAA. The market will reflect the energy transfer and/or imbalance reserve transfers as an export transfer schedule from the source BAA as well as an import transfer schedule into the sink BAA. These transfer resource schedules will settle with the appropriate EDAM BAA Entity scheduling coordinator or ISO BAA scheduling coordinator at the relevant transfer energy or imbalance reserve price.

In addition to IFM, the market will run the residual unit commitment (RUC) process. In the RUC process, the market optimizes the supply of reliability capacity bids to meet BAA demand forecast needs and awards resources reliability capacity schedules. Similar to IFM, the RUC process may award resources in a source BAA for reliability capacity to resolve a demand forecast need of the sink BAA. These awards are reflected as export and import reliability capacity transfer schedules and will settle with the respective EDAM BAA Entity scheduling coordinator or ISO BAA scheduling coordinator at the relevant reliability capacity price.

In the non-ISO EDAM BAAs, consistent with their OATT or other appropriate tariff, the EDAM entity scheduling coordinators sub-allocate any transfer resource settlement. In the ISO BAA, the proposed allocation of the ISO BAA net transfer settlement amount is to scheduling coordinators in proration to their metered demand as compared to ISO BAA metered demand.

Transfer Revenue Settlement:

Transfer revenue is generated when the net transfer constraint of a BAA binds and the relevant prices between the source and sink BAAs diverge (i.e. congestion exists). As described above, IFM will co-optimize energy bid and imbalance reserve bids. If the IFM energy transfer schedules for energy cause the transfer constraint to bind, the subsequent energy transfer settlement will generate transfer revenue between the two BAAs. If the imbalance reserve transfer schedules cause the transfer constraint to bind, the settlement of the transfer resource imbalance reserve schedules will generate imbalance reserve transfer revenue. Similarly, if the reliability capacity transfers bind the transfer constraint in RUC process, the settlement of reliability capacity transfer schedules will generate transfer revenue between the impacted BAAs. In the EDAM design, EDAM BAAs, including the ISO BAA, will receive a share of the transfer revenue generated.

For transfer revenue generated on Pathway 2 transmission, the transmission customer who released the transmission to the market will be allocated the transfer revenue directly. For non-Pathway 2 transmission, transfer revenue generated is allocated to EDAM BAAs on a 50:50 basis. When the ISO BAA receives an allocation of transfer revenue through EDAM then ISO staff proposes that transfer

revenue be sub-allocated to scheduling coordinators with transmission rights (ETCs/TORs) at an interface, if applicable, in proportion to their scheduled or released ETCs/TORs and the total available ISO scheduling limit of that transfer location.[9] The proposal also includes a sub-allocation of the ISO BAA portion of imbalance reserve transfer revenue and/or reliability capacity transfer revenue to scheduling coordinators with transmission rights, if applicable, in proportion to their released transmission rights and the total available ISO scheduling limit of that transfer location. Any remaining portion of transfer revenue, regardless of energy, imbalance reserves, and/or reliability capacity, will be allocated to measured demand in the ISO BAA.[10]

The following example is intended to provide clarification of the distribution of ISO BAA Transfer Revenue when ETC/TOR are used to facilitate the flow of energy from a Non-EDAM BAA to an EDAM BAA and Wheeling-through ISO BAA. The transmission customer has 400 MWs of long-term TORs to schedule energy across the ISO BAA from an external intertie to an internal intertie that facilitates a transfer with an EDAM BAA. The transmission customer self-schedules 325 MWs of these rights from the external intertie to an internal intertie. In addition, the transmission customer release 75 MWs of pathway 2 transmission at the internal intertie. The IFM solves and awards and addition 175 MWs of energy flow from ISO BAA to EDAM BAA across the internal intertie with 75 MWs associated with pathway2 transmission. The net transfer constraint is binding and creates a $6 Marginal Energy Cost difference between the ISO BAA and the EDAM BAA. The settlement of the transfer will result in $3,000 (500 MW @ $6) of total Transfer Revenue. $450 (75 MW * $6) of the Transfer Revenue is directly associated with Pathway 2 and settled with the transmission customer directly. The other $2,550 of transfer revenue is split between the ISO BAA and the EDAM BAA at $1,275, respectively. The ISO is proposing to distribute the $1,275 between the TOR/ETC scheduling coordinator in relationship of their scheduled ETC/TOR transmission rights and total non-pathway 2 transmission (425 MWs) , with the balance being distributed to measured demand. In this example, the ETC/TOR scheduling coordinator portion of CISO BAA transfer revenue is $975, which is the product of $1,275 ISO transfer revenue and ratio of ETC/TOR scheduled right (375 MWs), and total non-pathway 2 transfer capacity, (425 MWs). The remaining $300 of transfer revenue is distributed to measured demand. The EDAM entity will allocate their portion of transfer revenue $1,275 per the BAA OATT or other appropriate tariff.

The ISO believes the proposed transfer revenue allocation is just and reasonable because it provides:

- Scheduling coordinators who have transmission rights with the ISO BAA the ability to hedge for energy schedules across the transfer location and within the ISO BAA.
- Scheduling Coordinators with unused transfer rights to offer this transmission to the market to facilitate additional transfer capability to the extent its' not already provided to the market.
- Mitigation for measured demand when transfer constraint binds.

[9] The ETC must contain the right for the ETC Rights holder to release excess transmission to be eligible for this opportunity and cost allocation.

[10] Generically, Measured Demand calculations represent the sum of metered CAISO Demand (or net MSS Demand) quantities plus Real-Time Interchange export schedule quantities, excluding that portion of Demand of Non-Generator Resources dispatched as Regulation through Regulation Energy Management.

# 6. Process for Recovering Historical Wheeling Access Charge Revenues

## Background and objectives

The EDAM design recognized that EDAM entity transmission providers may face a potential risk of reduced transmission revenues based upon decreased sales of short-term transmission when transmission is made available to the EDAM instead of sold under the OATT. In addition, the EDAM design recognized that the ISO participating transmission owners (PTO) may potentially experience a reduction in wheeling access charge (WAC) revenues on transmission associated with transfer locations that support EDAM and WEIM transfers. Providing a mechanism for transmission providers, including PTOs in the ISO BAA, to recover potentially foregone revenues is an important element of the overall EDAM design. This section describes the proposed standardized process for determining the recoverable foregone historical WAC revenues, including:

- Revenues associated with reduction in WAC revenues at existing transfer locations;
- Unrealized WAC revenues attributed to non-firm use of approved[11] new transmission builds that increase transfer capability between EDAM BAAs; and
- Revenues for wheeling-through transfer volumes for EDAM BAAs that exceed the total imports/export transfers from the EDAM BAA.

In addition, this section will discuss the distribution and true-up process associated with the collected transmission revenue recovery amounts.

## Stakeholder comments

Generally, the stakeholder comments were supportive of the development of a standardized ISO process and the overall direction. However, stakeholders believe there are a few open questions and topics for which they seek clarifications, specifically:

CalCCA suggests this section should provide answers to the following questions:

- Does the ISO anticipate that historical usage will reflect what usage would have been at that time under an EDAM?
- As the transmission system changes, flows on the transmission system will also change. How will new transmission affect flows relative to historical flows? How will the CAISO determine whether the WAC charge would increase or decrease based upon these changes?
- Would the CAISO use the last three years' historical usage prior to EDAM implementation going forward or rolling three years' historical usage?

[11] For new transmission upgrades to be incorporated into the EDAM recoverable transmission revenues, the upgrades must have been approved through an applicable regulatory process.

PG&E believes that the derivation of the historical ISO WAC revenues should consider two components:

1. Revenue from exports and wheels that are charged the Wheeling Access Charge, and
2. WAC revenues derived from the establishment of wheeling through scheduling priority under the recently completed initiative, but not yet filed with FERC, titled *Transmission Service and Market Scheduling Priorities*.

SCE suggests that the ISO is in the best position to calculate the foregone WAC revenue. In addition, SCE suggests that transfer revenues generated by EDAM and allocated to the ISO should be considered before determining a make-whole payment for historical WAC revenues foregone as a result of the new EDAM market. SCE also recommended that any payment attributed to new transmission should be based upon actual increase in transfer capability.

## Track A1 straw proposal

This section discusses the proposal to calculate and distribute the Transmission Revenue Recovery amount.

Calculation of Transmission Revenue Recovery Amount:

In this section, ISO staff outlines a proposed process for deriving the expected foregone WAC revenues with the introduction of EDAM as well as predictable estimation of foregone WAC for new transmission and increased wheeling through transfer transactions. Because the collection of Transmission Revenue Recovery amounts directly impact the Transmission Revenue Balancing Account Adjustment (TRBAA) values of the PTOs in the ISO BAA, the ISO is proposing to work jointly with the ISO PTOs to determine each component of the Transmission Revenue Recovery Amount:

- Historical WAC Recoverable Revenues process
    - During the EDAM BAA onboarding process, the ISO will identify the intertie locations which are going to be wholly or partially converted to transfer locations. The impacted PTOs will be notified.
        - Collect the historical three year wheel-out and wheel-through export quantities at each of these location to establish the “PTO WAC Quantity” for the historical wheeling access charge recoverable process
        - Having established the historical WAC revenues collected over the last 3 years (average), at each location, the ISO will forecast the anticipated reduction in the WAC quantity of each PTO based upon the wheel-out and wheel-through export quantities and the relationship between converted transmission capacity and the total transmission capacity.
        - ISO will work in tandem and coordinate to seek agreement of the PTO WAC Quantity from relevant PTO.
    - The ISO will calculate the “PTO WAC Recoverable Amount” for each PTO as the product of the PTO WAC Quantity and the current WAC rate.

- The "ISO WAC Recoverable Amount" is the sum of the PTO WAC Recoverable amount limited by the ISO BAA Revenue Recovery Bound

$$Revenue\ Recovery\ \ Bound = \frac{ISO\ EDAM\ Transfer\ Use\ (MWh)}{ISO\ Total\ Exports\ (MWh)} \times ISO\ Recoverable\ Transmisison\ Revenues$$

- New Transmission Project Recoverable WAC Revenues Process
  - During the integration process of new transmission, the ISO in conjunction with PTO(s) will identify the portion of transmission capacity that increases transfer capability in relationship to total transmission capacity.
    - First, the ISO will identify a similarly situated intertie that is already in EDAM to calculate the "WAC Ratio" of the similarly situated intertie as the ratio of intertie historical WAC Quantity and the converted transfer capacity.
    - Then, the ISO will calculate "PTO WAC Quantity" for the new transmission wheeling access charge recoverable process as the product of the WAC Ratio to the new transmission transfer capability. The ISO will work in tandem and coordinate to seek agreement from impacted PTO(s) in the calculated "PTO WAC Quantity".
  - The New Transmission WAC Recoverable Amount will be equal to the product of PTO WAC Quantity and current WAC rate

- Excess Wheel-Through Recoverable Amount Process
  - Monthly, the ISO will calculate the ISO EDAM Wheel Through Transfer quantity as the minimum of total import transfer quantity and total export transfer quantity
    - Total import transfer quantity is the summation of transfers coming into the ISO BAA
    - Total export transfer quantity is the summation of transfers going out of the ISO BAA
  - Then, the ISO will calculate the Excess Wheel Through quantity as the minimum of zero of the ISO Wheel Through Transfer quantity less the ISO Net Export transfer
    - The ISO Net Export transfer is equal to minimum of zero and the total export transfer quantity less the total import transfer quantity
  - Following, the ISO will calculate the Excess Wheel through amount as the product of Excess Wheel Through quantity and current WAC rate
  - The Excess Wheel Through amount is distributed amongst the PTOs in the ISO BAA based upon their Transmission Revenue Requirement.

The ISO BAA total WAC Recoverable Amount is the sum of ISO WAC Recoverable Amount plus New Transmission Recoverable Amount and the Excess Wheel-Through Recoverable Amount. The ISO will calculate a ISO BAA TRR rate for each EDAM BAA. The ISO BAA rate will be applied to that BAAs Gross Load.

Distribution of Collected WAC Recoverable Amounts

The ISO proposes to distribute the actual WAC Recoverable Amount to PTOs in proportion to the PTO WAC Recoverable Amount and the ISO BAA total WAC Recoverable Amount. Each PTO should calculate the PTO true-up value by comparing estimated PTO Recoverable WAC Amount with actual PTO Recoverable WAC amount. The ISO is proposing that each PTO apply the true-up amounts to the TRBA adjustment.

# 7. Avoiding RSE Failures

## Background on RSE and Advisory RSEs

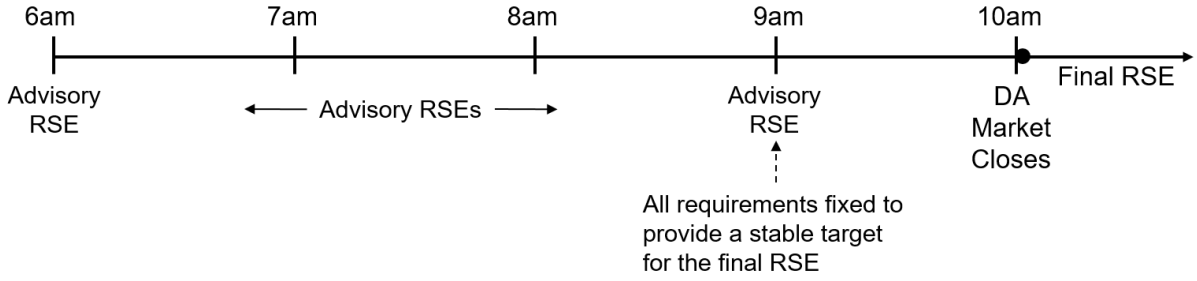
An important aspect of the EDAM design is the EDAM Resource Sufficiency Evaluation (RSE). The purpose of the RSE is to incentivize all EDAM BAAs (which includes the ISO BAA) to come to the market with sufficient forward-procured supply to meet their expected next day obligations. Accordingly, the RSE will test whether each EDAM BAA has sufficient supply in the day-ahead market to meet its next day obligations, prior to engaging in transfers with other participating EDAM Area BAAs. The RSE will be conducted at approximately 10am, right before the day-ahead market is run, and will examine each EDAM BAA's bid-in supply against its demand forecast, uncertainty requirements and ancillary services requirements for each hour of the next day. The RSE will use the ISO market optimization and all existing resources models, but will not consider transmission constraints. To the extent an EDAM BAA fails the RSE, it will be subject to financial surcharges which are intended to incent day-ahead sufficiency through forward procurement of supply.

The EDAM design also includes *advisory* RSEs that are non-binding and conducted before 10am to provide helpful information to EDAM BAAs to assess progress in meeting the RSE, help facilitate coordination, and help manage exposure to financial surcharges for failing the RSE. As illustrated below in figure 1, pre-set advisory RSE results, based on updated forecasts and other inputs will be published at approximately 6am and 9am. EDAM BAAs can utilize the information to coordinate within their BAAs to cure shortfalls by submitting additional supply offers into the day-ahead market before 10am, when the final binding RSE is performed. The 6am advisory RSE run will utilize forecasts available at that time to establish RSE obligations, and the 9am RSE will utilize the most up to date load forecasts and uncertainty forecasts, finalizing the obligations that will be tested against in the 10am binding RSE. This 9am advisory RSE thus provides BAAs with a final target against which they can cure, if necessary. Additional advisory RSE results will also be published at regular intervals between 6am and 10am based on the RSE targets set at 6am and 9am.

The EDAM design is intended to ensure that each BAA is resource sufficient prior to 10 am. Each EDAM BAA may need to develop, enhance or coordinate processes within the BAA to ensure it will pass the RSE, including consideration of actions to cure advisory RSE shortfalls and limit exposure to the RSE

failure surcharges and associated consequences.[12] The RSE failure surcharges were designed to prevent a BAA from relying on the IFM as a means to establish resource sufficiency on a regular basis.

***Figure 1:*** *Daily Timeline for EDAM Advisory RSEs*




## Initial questions for ISO BAA

Below are some initial questions for the ISO BAA to consider as it develops ideas and proposals:

- **Minimizing advisory RSE shortfalls**: how the can the ISO BAA leverage existing tools and processes to minimize advisory RSE shortfalls? By minimizing the magnitude of advisory RSE shortfalls, the ISO BAA will be in a better position to avoid final RSE failures

- **Quantifying advisory RSE shortfalls**: what information does the ISO BAA need, in conjunction with advisory RSE results, to quantify its true short position?

- **Curing advisory RSE shortfalls**: what steps should the ISO BAA take to cure an advisory shortfall to ensure that it does not fail the final RSE? How should such cure actions be sequenced? What types of resources might be most helpful?

## Track A2: using existing ISO tariff authority to avoid RSE failures

In track A2, the ISO proposes to use its existing tariff authority to avoid RSE failures. More specifically, the ISO proposes to explore four elements: (1) using existing tools and processes to minimize the magnitude of advisory RSE shortfalls; (2) publishing information on expected RA offers that can be used in conjunction with advisory RSE results; (3) automatic market notifications to scheduling coordinators requesting additional offers; (4) using RA reliability demand response resources (RDRRs) to pass the final binding RSE.

1. Using existing tools and processes to minimize the magnitude of advisory RSE shortfalls

To minimize the magnitude of advisory RSE shortfalls and ultimately help avoid failing the final binding RSE at 10 am, the ISO will rely on existing tools and processes that may vary depending on grid

[12] BAAs may cure their own advisory RSE shortfalls by submitting additional day-ahead supply offers into the ISO's Scheduling Infrastructure Business Rules (SIBR) system before 10am, when day-ahead bids and offers are due.

conditions. In more stressed system conditions, the ISO may have access to additional tools and processes that allow for additional availability of supply or can otherwise create awareness of conditions encouraging additional supply bids in the market. Table 5 below identifies existing tools and processes available to support the ISO's ability meet the RSE.

***Table 5:*** *Existing ISO BAA tools and processes to prevent RSE failures*

| | |
|---|---|
| **Supply Bids** | • RA and internal resources – this includes different resource types in the market, including non-generator resources (NGR), Participating Demand Response (PDR), Reliability Demand Response (RDRR), and other market-responsive resources.<br>• Imports – this encompasses RA imports and other imports under contract to ISO LSEs, but not shown on RA plans |
| **Demand Response** | • Out of market load reduction programs, such as utility programs, ELRP, and DSGS, that are administrated by the individual LSEs, can contribute toward the day ahead RSE under same processes that ISO accounts for them today in the DA market.<br>• The load reduction forecasts provided in day ahead will reduce the load forecast, reducing the RSE obligation for the ISO. |
| **Restricted Maintenance and/or Emergency Supply** | • In limited instances, to the extent conditions are triggered, the ISO may be able to re-arrange outages, relax environmental restrictions on plants, exceptionally dispatch specific generating units, etc.<br>• In addition, strategic reserve supply can contribute to the RSE to the extent the conditions that trigger the use of market-participating strategic reserve supply materialize before the final binding RSE. |

The ISO relies primarily on resource adequacy (RA) supply to ensure it has sufficient capacity available to meet its expected next day obligations. Most RA supply has a must offer obligation into the day ahead and real-time markets to ensure sufficient bids are available to the market to efficiently optimize and meet the BAA obligations. To the extent RA supply is not bid in by a Scheduling Coordinator, the market will insert a bid at approximately 10am, consistent with the must offer obligation and to the extent the resource is subject to bid-insertion rules. Additionally, other contracted import supply that is bid into the market, which may not have been shown on RA plans, also contributes toward meeting the RSE. This may be supply, for example, that is contracted after the monthly RA showing deadline to support and respond to more stressed grid conditions or is otherwise contracted for other purposes. These supply bids offered into the market by 10am will contribute toward the RSE.

The EDAM design also recognizes that diverse demand response programs can contribute to the RSE.[13] LSEs within the BAA administer diverse demand response programs consistent with their local regulatory authority requirements and are represented today as load reductions rather than price-responsive supply bids in the market. For the ISO BAA, potential load reduction from programs such as the ELRP and out of market demand response programs administered by the investor owned utilities are

[13] EDAM Final Proposal, page 69 (December 2022).

manually reported to the ISO. When out of market demand response is scheduled to be used the following day, in the DA market, the impact of the programs are considered in the RUC process which procures reliability capacity. The EDAM tariff will allow for reduction of the RSE target to reflect demand response programs an EDAM entity intends to enable or deploy.

During stressed system conditions, the ISO BAA may have access to additional tools to help maintain system reliability. For example, the ISO BAA may be authorized to re-arrange outages, relax environmental restrictions on plants, exceptionally dispatch specific generating units, etc. In addition, the ISO BAA may have access to emergency resources including strategic reserve resources. To the extent the conditions that trigger the use of market-participating strategic reserve supply materialize prior to 10 am, additional supply may be bid into the DA market that can be accounted for and contribute toward the ISO RSE.

2. Publishing information on expected RA offers that can be used in conjunction with advisory RSE results

As noted earlier, an important aspect of the EDAM RSE design is the availability of advisory RSE results between 6am and 10am that can inform each EDAM BAA, including the ISO BAA, of progress towards passing the RSE. The ISO BAA will have visibility into how the submitted supply bids track toward meeting the RSE target at different periods from 6am until 9am, at which point forecasts are fixed and the RSE obligation target is fixed.

Unfortunately, the advisory RSE results may be misleading for the ISO BAA due to the fact that RA day-ahead offers are not due until 10am. The 6am advisory RSE, for example, may not reflect a significant quantity of RA supply that has until 10am to meet its must offer obligation; the same could be true for the 9am advisory RSE. For this reason, ISO staff have been discussing two potential day-ahead changes that would work in tandem: (1) moving the RA bidding deadline to earlier in the morning; (2) moving the RA bid-insertion timeline earlier in the morning. ISO staff anticipate that this path would require revision or addition to pre-market processes and existing deadlines, and could be a challenging path forward. Without reflecting the RA bids in the RSE advisory runs, however, the ISO risks inaccurate advisory results.

One way to address the challenge of potentially misleading advisory RSE results due to the 10am must offer deadline for RA resources is to publish information on expected RA offers to complement the ISO BAA's advisory RSE results. Hypothetically, assume the 9am advisory RSE results show that the ISO BAA is short 125 MW in hour-ending 18. In addition, assume the ISO BAA is aware that there is 250 MW of RA capacity that has not yet submitted offers into SIBR at the time of the 9am advisory RSE, despite having a day-ahead must offer obligations. Furthermore, assume that of this 250 MW of RA capacity without a day-ahead SIBR offer, 100 MW is on outage. In this hypothetical, it may be accurate to say that as of 9am, the ISO BAA has confidence that an additional 150 MW of RA offers will be submitted in SIBR before 10am, and the ISO BAA is therefore projected to be resource sufficient by a margin of 25 MW for hour-ending 18. ISO staff look forward to working with stakeholders on this topic and making

sure that the advisory RSE results can be paired with information that ensures the results are as helpful as possible to the BAA.

3. Automatic market notifications to scheduling coordinators requesting additional offers

As supported by a number of stakeholders, ISO staff will explore developing a market notification that would be sent automatically to scheduling coordinators requesting additional offers into the market, if required to cure a shortfall. More specifically, ISO staff will explore developing a market notice that would be triggered by an advisory RSE shortfall, net of expected RA offers. As discussed above, the advisory RSE results, by themselves, may be misleading. For this reason, ISO staff will explore how to take into account expected RA offers at the time the advisory RSE is run. Ideally, this automatic notification would be sent at 6am, giving ISO BAA scheduling coordinators as much time as possible to submit additional offers into SIBR.

The notification would not be a broad stakeholder market notice, but rather a MNS message on OASIS that is visible to scheduling coordinators. It is important to note that this notification would not be a declaration of emergency conditions but rather a call for additional available bids for RSE countable supply. It is also important to note that the advisory RSE results between 6am and 10am, as well as the binding results at 10am, will be made publicly available on OASIS for EDAM entities and other market participants to see how each EDAM entity is tracking toward meeting its RSE obligation. The information made available on OASIS will be at an EDAM entity level showing the total supply bids compared to the RSE obligation.

Stakeholders have also suggested that ISO staff explore developing LSE-specific RSE targets that might be used in conjunction with the market notification. The goal of developing such targets would be to give each LSE within the ISO BAA a rough approximation of its share of the ISO BAA-wide hourly RSE obligations. If the ISO BAA is projected to fail the RSE and needs additional supply offers in SIBR, LSE-specific targets may be a helpful tool for guiding each LSE and thus coordinating the response across the BAA. ISO staff appreciate this suggestion and will explore this idea as part of track B, since it is related to the topic of allocating RSE failure surcharges based on cost-causation principles.

4. Use of RA reliability demand response resources

Reliability demand response resources (RDRRs) that voluntarily submit day-ahead offers into SIBR will be considered as RSE-eligible supply and will contribute towards the ISO BAA passing the final RSE at 10am. RDRRs that do not submit day-ahead offers into SIBR, however, will not automatically contribute towards the ISO BAA passing the final RSE at 10am. Instead, the ISO BAA will need to take action to use these specific RDRRs, if warranted, to cure a projected RSE failure.

As part of track A2, ISO staff and stakeholders will explore when and how to use RDRRs that have not submitted day-ahead offers into SIBR. One idea might be to use such RDRRs if the ISO BAA is projected to fail the RSE, based on the results of the 9am advisory RSE, net of expected RA supply offers. For

example, if the 9am advisory RSE results show that the ISO BAA is short 275 MW in hour-ending 18, and there is 150 MW of hour-ending 18 RA capacity that is available and expected to submit SIBR offers in the next hour, then it may be accurate to say that the ISO BAA is projected to be short by 125 MW. In order to cure this projected 125 MW shortfall, it may then be appropriate for the ISO BAA to call upon those RDRR resources that are available and have not yet submitted a day-ahead offer. ISO staff look forward to working with stakeholders on this topic.

## Track B – initial scoping

ISO staff define "cure capacity" as capacity required for the ISO BAA to fully or partially cure a projected EDAM RSE failure. In track B, ISO staff will work collaboratively with stakeholders to consider whether the ISO should amend its tariff to create a mechanism to procure such cure capacity to avoid failing the final RSE and being exposed to RSE failure surcharges. At the front end of this effort, ISO staff and stakeholders may want to review the ISO's existing capacity procurement mechanism (CPM) and explore whether aspects of this existing tool may be sufficient. For example, with its existing authority, the ISO can use its CPM to procure capacity to address specific circumstances defined by the six CPM designation types listed below in table six. However, many of these CPM designation types are used to cure RA deficiencies in the year-ahead or month-ahead timeframes. Significant events CPMs are intended to address events that result in changes from what was assumed in the RA program or changes in system conditions or grid operations that threaten reliability criteria.[14] Exceptional dispatch CPMs, which require a reliability need, engineering assessment and manual operator dispatch, are also unlikely to be appropriate for curing a projected RSE failure. On the other hand, the ISO's existing Competitive Solicitation Process (CSP) may be an appropriate tool that can be utilized, with some modifications, to create a platform for SCs to offer supply into this new type of procurement mechanism to avoid RSE failure surcharges.

***Table 6:*** *CPM Designation Types*[15]

| # | CPM Designation Type |
|---|---|
| 1 | Insufficient local capacity area resources in an annual or monthly RA plan |
| 2 | A collective deficiency in local capacity area resources |
| 3 | Insufficient RA resources in an LSE's annual or monthly RA plan |
| 4 | A CPM significant event |
| 5 | A reliability or operational need for an exceptional dispatch CPM |
| 6 | A cumulative deficiency in the total flexible RA capacity included in the annual or monthly flexible RA capacity plans, or in a flexible capacity category in the monthly flexible RA capacity plans |

[14] ISO tariff, appendix A, "CPM Significant Event"
http://www.caiso.com/Documents/AppendixA-MasterDefinitionSupplement-asof-Feb11-2023.pdf
[15] ISO tariff section 43A.2
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

Given that the ISO's existing CPM authority may not be sufficient to cure all potential RSE failures, the ISO BAA and its stakeholders may want to consider developing a mechanism for the BAA to procure EDAM RSE cure capacity. One idea would be for the ISO BAA to procure cure capacity only as a last resort: after taking into account expected RA supply offers (see track A2, element #2) and use of RDRR resources (see track A2, element #4). For example, if the 9am advisory RSE results show that the ISO BAA is short 800 MW in hour-ending 20, with 50 MW of expected additional RA offers and 600 MW of available RDRR that can be used, then it may be accurate to say that the ISO BAA needs 150 MW of cure capacity to avoid failing the RSE and incurring the RSE failure surcharge.

In order to develop a process and mechanism for the ISO BAA to procure cure capacity within the timeframe necessary to avoid an RSE failure, a number of questions need to be discussed as a stakeholder community. For example, what is the appropriate term for such arrangements (*e.g.*, one day)? Would all resources be eligible for cure capacity awards? When would cure capacity offers be submitted to the ISO BAA? When would offers be awarded? Would offer prices be capped? How would the ISO BAA allocate the costs of this cure capacity? ISO staff look forward to working with stakeholders on this topic.

# 8. Process to Allocate RSE Failure Surcharges and Revenues

## Background on RSE failure consequences

As described above in chapter 7, an important aspect of the EDAM design is the EDAM resource sufficiency evaluation (RSE), which motivates participating BAAs to come to the market with sufficient forward-procured supply and discourages participating BAAs from leaning on one another. More specifically, the EDAM design imposes surcharges on BAAs that fail the RSE. There are three types of RSE failure surcharges: (1) on-peak upward failure surcharges; (2) off-peak upward failure surcharges; (3) downward failure surcharges. 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. Each of the three types of surcharges (which can be assigned to a deficient BAA) may also be a revenue for those EDAM BAAs who pass the RSE and whose net EDAM transfers (including transfers of imbalance reserves) help to cure (fully or partially) the deficient BAA in the integrated forward market. Each BAA participating in EDAM is responsible for developing its own methodologies for allocating RSE failure surcharges and revenues within its own BAA. This chapter will explore allocation of RSE failure surcharges and revenues in the ISO BAA.

## Initial questions for ISO BAA

How should the ISO BAA allocate RSE failure surcharges within the BAA if it fails the EDAM RSE? Are upward and downward failures treated the same? How should the ISO BAA allocate RSE failure revenues that it may receive? What are the most reasonable interim solutions that can be implemented for day 1 of EDAM? What are the longer-term ideas that more closely align with cost-causation principles and should be explored in track B?

## Track A1 straw proposal

In order to maintain cost-neutrality from a settlements perspective, the ISO BAA needs methodologies for allocating RSE failure surcharges and revenues. More specifically, the ISO BAA needs approved and implemented methodologies before day 1 of EDAM. To achieve this objective, ISO staff are proposing an interim solution as part of Track A1 that is both reasonable and straight-forward to implement.

RSE failure surcharges

ISO staff propose to allocate RSE failure surcharges on an hourly basis as follows: based on MW of metered demand for each scheduling coordinator as a portion of total ISO BAA metered demand, for each hour the ISO BAA was assessed RSE failure surcharges.

RSE failure revenues

ISO staff propose to allocate RSE failure revenues on an hourly basis as follows: based on MW of metered demand for each scheduling coordinator as a portion of total ISO BAA metered demand, for each hour the ISO BAA received RSE failure revenues.

Given that a significant portion of EDAM benefits will likely accrue to load, ISO staff believes it is reasonable for metered demand to take on the initial exposure to surcharges and revenues until a long-term cost-causation based solution can be designed and implemented through track B.

## Track B – potential solutions

In track B, ISO staff will work with stakeholders to explore longer-term methodologies for allocating RSE failure surcharges and revenues within the ISO BAA. The goal is to develop methodologies that are consistent with cost-causation principles and the long-term needs of the BAA, but are also practical and feasible to implement. Based on feedback from stakeholders, ISO staff suggest that two categories of ideas be explored in track B:

1. Allocation to LSEs taking into account LSE-specific RSE targets and LSE supply
   In this first category of ideas, ISO staff recommend exploring how to develop RSE failure surcharge and revenue allocation methodologies using LSE-specific RSE targets and LSE supply. For example, surcharges could be allocated to LSEs based on LSE-specific RSE targets net of LSE supply.
   - Regarding LSE-specific RSE targets, one way to derive such targets might be to use the CEC-produced month-ahead forecasts of peak demand. More specifically, each LSE's forecasted peak demand for the month as a portion of the ISO BAA's forecasted peak demand for the month could be used to establish each LSE's share of the ISO BAA's RSE obligations. Then each LSE's share could be multiplied by the ISO BAA's hourly RSE obligations to derive hourly LSE-specific RSE targets.
   - Regarding LSE supply, one way to quantify such supply might be to use day-ahead supply offers. However, in order to give the ISO the necessary visibility and data, this

idea might require each day-ahead supply offer to be designated for a specific LSE and could be very difficult to implement. Another way to quantify LSE supply would be to use month-ahead contracted capacity – both RA capacity and non-RA capacity – and provide the ISO with visibility into such quantities.

2. Allocation to RA capacity that fails to meets its day-ahead must offer obligation
   In this second category of ideas, ISO staff recommend exploring how to develop RSE failure surcharge and revenue allocation methodologies using RA capacity that fails to meets its day-ahead must offer obligation. For example, surcharges could be allocated in a two-tier manner, where the first tier allocates surcharges to RA capacity that failed to comply with its day-ahead must offer obligation, and the second tier allocates surcharges pro-rata to metered demand. The first tier could be designed in a way that limits the allocation amount and ensures that RA resources are not be assigned surcharges beyond what they caused by failing to provide day-ahead offers.

# 9. Resource Adequacy Imports in EDAM

## RA Imports within the RSE

An important principle in the design of EDAM is respecting the diversity of different resource adequacy and resource planning programs. Consistent with this principle ISO staff expect that RA supply secured and shown on ISO LSE resource adequacy plans, if offered into the market, will contribute toward the EDAM RSE. RA imports, sourcing from supply located outside of the ISO balancing area, also will contribute to the ISO's EDAM RSE. These RA imports may be from dynamically scheduled resources, pseudo tied resources, and system resources from known or unknown resources that are delivered to the ISO border/interface.

## Source Specific RA Imports

It is important to recognize that in the EDAM, the interface between two EDAM areas becomes a transfer point with limited ability to continue to bid supply at that particular interface directly as discussed further. For source-specific supply – such as dynamically scheduled or pseudo tied resources – the expectation is that these resources will continue to bid at their resource location in the EDAM. Similarly, if the resource is known by the time of the day-ahead market run (10am) and is located within the EDAM footprint, the supply should be bid directly at the generator and considered as a bucket 1 transfer, as opposed to a bid at the intertie. These bids at the resource level can be self-scheduled or economically bid based upon their RA obligation. To the extent the known resource is located outside of the EDAM footprint, in a non-EDAM balancing area, the interface between the EDAM and non-EDAM

area is not an EDAM transfer point and therefore the scheduling coordinator can self-schedule or economically bid that resource directly at the ISO interface.[16]

## Non-Source Specific RA Imports

Non-source specific RA import supply can also contribute to the EDAM RSE. As discussed during the EDAM design stakeholder process, these non-source specific arrangements are traditionally delivered firm energy contracts where title to the energy is taken at the ISO intertie.[17] These are also common arrangements today across the west, with one of the more prominent contractual mechanisms being the WSPP Schedule C contracts. Throughout the EDAM stakeholder process, WEIM entities and ISO LSEs have emphasized the historical dependability, reliability, and performance of these arrangements recognizing that entities across the west rely on these to reliably serve load.[18]

In the ISO today, non-source specific RA import arrangements are primarily bid at the ISO interties in accordance with CPUC rules which require self-scheduling or economic bidding at $0/MWh or below in meeting their must offer obligation as RA supply. A particular challenge with delivered firm energy contracts in the day-ahead market is that the source of supply and transmission path may not be known by the time that bids are submitted at 10am. If the source is known, as described above, to the extent that source is in the EDAM area the market will expect a bid at the resource. If the source is not in the EDAM area, the scheduling coordinator can bid it at the ISO intertie based upon an injection at the scheduling point of the non-EDAM area.

However, if the source is not known at the time of bid submission, the EDAM design supports continued utilization of these arrangements and self-scheduling these at an interface at which it has a contractual obligation to deliver, whether this is an interface between the ISO and an EDAM or non-EDAM area.[19] Under that design, the RA import supply could continue to be offered – self scheduled – at the contractually specified point of delivery on the ISO system. In the day ahead market, if the source is ultimately not known at time of bid submission, the ISO would model the supply as a self-scheduled injection distributed across multiple Demand Aggregation Points (DGAP) of the sinking EDAM area. To the extent the schedule clears the day-ahead market, the EDAM design introduces the requirement to timely tag the import within 3-hours of the day ahead market results publication (effectively by 4pm), or in limited circumstances if the information cannot be obtained, then the tag is submitted by the Short Term Unit Commitment (STUC) horizon (which is approximately 4.5-hours prior to flow). The transmission profile tagging requirement was introduced with these types of arrangements in mind,

[16] Under the EDAM design, as described in the *External Resource Participation* section of the EDAM Final Proposal starting on page 89, the ISO will continue to support economic bidding at its interties with a non-EDAM balancing area. However, economic bidding at interties of other EDAM areas is limited to self-scheduling, or economic bidding from pseudo-tied, dynamically scheduled, otherwise from designated network resources meeting certain requirements as described in the proposal.
[17] EDAM Final Proposal, page. 66 (December 2022).
[18] During the EDAM stakeholder process, it was also recognized that another factor creating a high degree of confidence in these arrangements is the reputational risk on the seller of not performing under the contract.
[19] *Id.*

where the source is not known at day ahead bid submission, as a means to increase the confidence of these supply types. It is also important to recognize that since neither the source nor transmission path is known at day ahead bid submission, the transmission associated with this arrangement is not explicitly optimized by the market but there is an expectation that if the schedule clears the day-ahead market the transmission will be acquired prior to real-time to support delivery of the supply.

In the real-time market, once the source of the supply is known, the scheduling coordinator would be expected to submit a bid at the resource if the source supporting the firm delivered energy is located within the EDAM footprint. The scheduling coordinator would be expected to cancel the DA schedule at the resource in the EDAM footprint through a base transfer deviation with the ISO at the applicable interface between EDAM areas. This base transfer associated with the resource in the footprint would contribute to the ISO WEIM RSE.

The EDAM design recognized the potential modeling and congestion pricing challenges created by non-resource specific supply. However, it was recognized that it was important to continue to support these types of arrangements at the onset of EDAM as they are prevalent in the west. Additionally, ISO staff described it would monitor the magnitude and impacts of these types of arrangements in the market along with the Department of Market Monitoring (DMM), including through recurring reporting, and to the extent there are significant adverse impacts, ISO staff would engage with stakeholders to evaluate different methods to modeling and different approaches to resolving the issues experienced in the market.[20]

## Maximum Import Capability (MIC) Supporting RA Imports

Today, the ISO allocates MIC through an annual process across the ISO interties to support showings and delivery of contracted RA import supply. The MIC process provides for an orderly distribution of interface capacity allocation to support the distribution of contracted RA imports across the different interties to ensure deliverability and avoid showing of RA imports in excess of intertie transmission capability that ultimately cannot be delivered and utilized by the ISO. During the April 5th stakeholder workshop, a stakeholder requested clarity on whether in the EDAM the ISO will continue calculating and allocating MIC at its interties to support RA import deliverability, including at interfaces that become transfer points between EDAM entities.

As described above, RA imports will continue to count and contribute to the RSE as they are delivered at different ISO interfaces. RA imports shown at non-EDAM interfaces will continue to need to be supported by MIC. Similarly, RA imports that are from resources located within the EDAM footprint will also need MIC at an ISO interface to ultimately ensure that there is sufficient allocation at those interfaces to support these imports. Non-source specific imports based on delivered firm energy contracts, as described above, will also continue to be shown at EDAM interfaces specified under contract including at an interface with an EDAM area where the energy is expected to be delivered and subject to monitoring of continued impacts on the market of these types of arrangements where the

[20] EDAM Final Proposal, page 66-68 (December 2022).

source is not known in day ahead. As the EDAM footprint grows more integrated, it will be important to continue to evaluate that relationship with MIC at EDAM interfaces.

### Economy imports at ISO Interties

As mentioned above, an intertie point between EDAM areas becomes a transfer point. This includes interfaces between the ISO and another EDAM area, where that intertie now becomes a transfer point between areas. There may be partial or full interfaces between the ISO and other EDAM areas, depending on the transmission rights the EDAM entity has at an interface with Malin due to the different intertie ownership rights being a prime example of a partial interface. In these instances, part of the intertie capability is a transfer point associated with an EDAM entity, and part of it is a regular intertie with the ISO. The more prevalent scenario is where an intertie between the ISO and another EDAM area becomes fully a transfer interface as there are no other ownership rights at that interface.

The ISO will continue to support full intertie bidding – economic bids or self-schedules – at the interfaces with non-EDAM areas. Similar to today, scheduling coordinators can bid their contracted imports at that interface as described above, and they can continue to bid their economy imports (non-contracted) into the market in both the day-ahead and real time markets. These bids will be considered in their respective markets and can clear the market in the same way that they do today.

Bidding of non-contracted imports at partial or full EDAM interfaces with the ISO is more limited. A scheduling coordinator can continue to bid economically or self-schedule their economy imports at a partial EDAM transfer intertie if it will be using transmission across the non-EDAM area across that interface to deliver the supply to the ISO. At interties that fully become EDAM transfer interfaces with the ISO, the market will not support economy import bids (economic or self-scheduled) as this is now a full EDAM interface. The one exception is the RA imports delivered firm energy contracts as described above. This is true in both the day ahead and real time markets.

## 10. EIM Governing Body Role

ISO staff believe that this initiative is within the scope of the Board. Because this initiative is limited to the decisions regarding the ISO's balancing authority area and how it will operate under EDAM, the initiative does not fall within the scope of the WEIM Governing Body.

The WEIM Governing Body has joint authority together with the Board over any proposal to change or establish any ISO tariff rule(s) applicable to the EIM Entity balancing authority areas, EIM Entities, or other market participants within the EIM Entity balancing authority areas, in their capacity as participants in EIM. This scope excludes from joint authority, without limitation, any proposals to change or establish tariff rule(s) applicable only to the ISO balancing authority area or to the ISO-controlled grid. Charter for EIM Governance § 2.2.1. None of the tariff rule changes contemplated in this initiative would be "applicable to EIM Entity balancing authority areas, EIM Entities, or other market participants within EIM Entity balancing authority areas, in their capacity as participants in EIM." Rather, the proposed tariff

rules would be applicable "only to the ISO balancing authority area or to the ISO-controlled grid." Accordingly, the matters scheduled for decision fall outside the scope of joint authority.

While the "EIM Governing Body may provide advisory input over proposals to change or establish tariff rules that would apply to the real-time market but are not within the scope of joint authority," no aspects of this initiative would apply to the real time market. Accordingly, this initiative falls outside of the WEIM Governing Body's advisory role as well.

Stakeholders are encouraged to submit a response in their written comments to the proposed classification of as described above, particularly if they have concerns or questions.

# 11. Next Steps

ISO staff will host a hybrid stakeholder call on May 10, 2023 from 9:00am to 4:00pm (PST) to discuss this issue paper and track A1 straw proposal. Attendees may choose to participate in-person at the California ISO, or virtually. Please register by end of day May 8 if you plan to attend the meeting in-person. A negative COVID test, taken no more than 24 hours prior to your attendance, is required to attend in-person meetings. Written stakeholder comments on the issue paper and track A1 straw proposal are due to the ISO by May 17, 2023.