Market Training: DAME, EDAM, and EDAM CAISO Balancing Authority Participation Rules

August 18, 2025

Today's Trainer:
Radha Madrigal, Lead Customer Education Trainer

Rev. 8/17/25

Housekeeping

REMAIN MUTED

Keep yourself muted to minimize background noise

ASKING QUESTIONS

Unmute to ask verbal questions or write in the chat pod

RAISING HAND

Raise your hand using WebEx interactivity tools

Stay Informed: EDAM Meetings to Watch This Week

	AUGUST 18	AUGUST 19	AUGUST 20	AUGUST 21
Calendar Event	DAME, EDAM, and EDAM CAISO Balancing Authority Rules Markets Training	Settlements Business Practice Manual Walkthrough - EDAM Access Charge	DAME, EDAM, and EDAM CAISO Balancing Authority Rules Settlements Training	Extended Day-Ahead Market Implementation Workshop
Time	9:00am – 12:00pm	10:00am – 11:00am	9:00am – 12:00pm	1:00pm – 5:00pm
Topic	Market-related changes	Review EDAM Access Charge Process (Attachment F)	Settlements-related impacts	• Intertie Bidding • Congestion Revenue Rights

…and the **DAME Configurable Parameters Implementation Working Group** on **8/26** from 9:00am – 10:00am!

Defining Roles & Responsibilities

Role	Definition
EDAM Entity	A Balancing Authority (BA) that participates in the EDAM market (this includes the CAISO BA). EDAM entities provide inputs such as market limits, outages and transmission constraints specifically for their Balancing Authority Area (BAA). EDAM entities can also be an SC representing loads and resources within their BA should they hold such responsibilities.
Market Operator/ Real Time Market Operator	The Market Operator is a separate role within the CAISO that is staffed by personnel dedicated to the equal and independent operation of both regional markets – EDAM and WEIM.
Scheduling Coordinator (SC)	The SC is a certified entity that participates in the market by submitting bids and outages and managing the coordinated operations of its facilities.

The output from the day-ahead timeframe (EDAM) is reviewed and implemented in real-time (WEIM) with any necessary real time adjustments

Who is the primary audience for this training session?

- Scheduling Coordinators within the ISO Balancing Authority Area (BAA)
- Extended Day-Ahead Market (EDAM) Scheduling Coordinators
- Stakeholders engaged in Western energy markets who want to stay informed

What you will learn

By completing this training, you will gain essential knowledge to prepare for participation in market simulation activities for DAME/EDAM/EDAM ISO BAA Participation Rules.

You will be able to:

- Explain the relationship between DAME, EDAM, and EDAM ISO BAA Participation Rules
  - Recognize the nuances of CAISO BAA participation in EDAM
- Summarize updates to Day-Ahead energy pricing
- Describe the new Extended Day-Ahead Market processes
  - Distinguish which processes procure each new market product
- Introduce the concept of Transfer System Resources
- Interpret Day-Ahead bidding examples
- Outline changes in software applications supporting EDAM
- Review market simulation scenarios

These are the primary software applications that will be discussed throughout the session.

MASTER FILE

SCHEDULING INFRASTRUCTURE & BUSINESS RULES (SIBR)

CUSTOMER MARKET RESULTS INTERFACE (CMRI)

OPEN ACCESS SAME-TIME INFORMATION SYSTEM (OASIS)

MARKET RESULTS INTERFACE – SETTLEMENTS (MRI-S)

Initiative Review

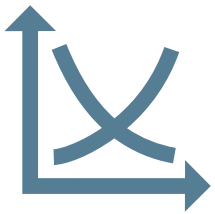
Objectives:

Explain the relationship between the DAME, EDAM, and EDAM ISO BAA Participation Rules initiatives

Recognize the nuances of CAISO BAA participation in EDAM

Initiative Review | Market Pricing | EDAM Processes | Transfer System Resources | Bidding Examples | Application Changes | Market Simulation

How are the **DAME**, **EDAM**, and **EDAM ISO BAA Participation Rules** initiatives related?



Day-Ahead Market Enhancements

Enhances Day-Ahead Market with new market products

- Imbalance Reserves
- Reliability Capacity

Extended Day-Ahead Market

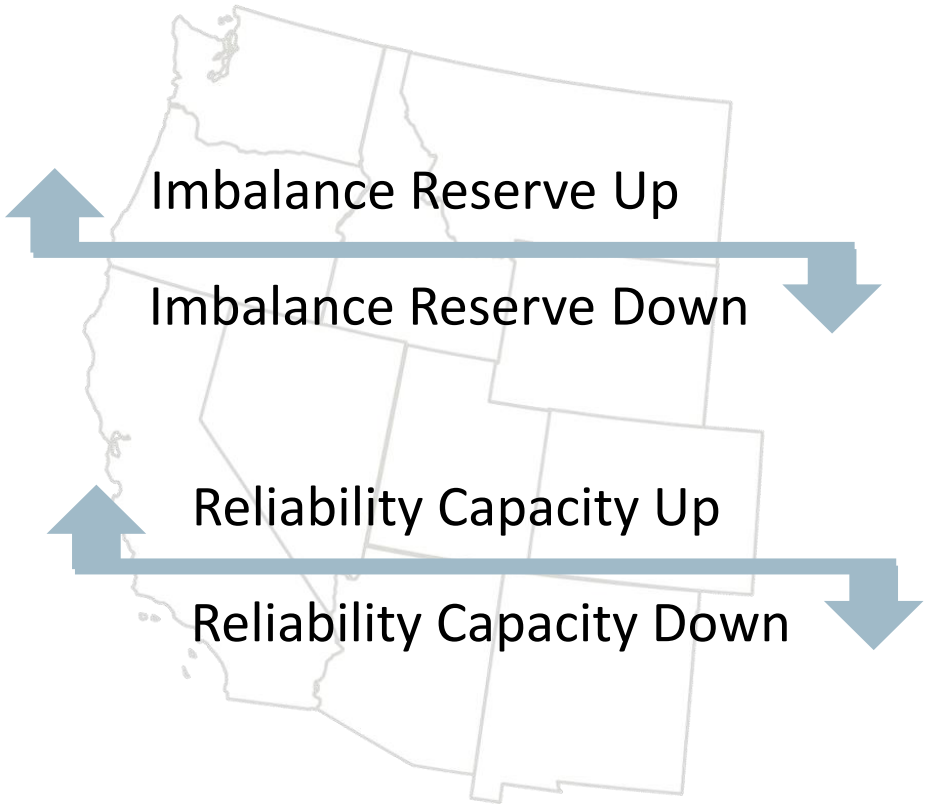
Extends Day-Ahead capabilities to a wider market footprint

EDAM ISO BAA Participation Rules

Addresses unique aspects of how the CAISO BAA will participate in EDAM

Let’s review each initiative!

Day-ahead market enhancements (DAME)



- ISO day-ahead market will undergo a series of enhancements as part of the DAME initiative.
- DAME establishes two new market products:
  - Imbalance Reserves
  - Reliability Capacity
- DAME enhancements automatically included in EDAM participation.
- ISO is working with stakeholders to configure key market parameters through ongoing working group sessions.

What's the difference between **Imbalance Reserves** and **Reliability Capacity**?

Element	Imbalance Reserves	Reliability Capacity
Basis	Historical data	Specific to a unique trade date
Forecast Comparison	**Day-ahead hourly** vs. **real-time 15-minute** forecasts	Day-ahead **demand forecast** vs. **physical supply** that cleared
Purpose	Manage uncertainty in load, wind, and solar forecasts	Ensure sufficient supply is purchased in day-ahead market
Requirement Type (at BAA level)	Up ***and*** down reserve requirement per hour	Up ***or*** down capacity requirement per hour
Market Awards to SCs	May receive hourly awards for **one or both** reserve types	May receive hourly award for **only one** capacity type

Implementation of an extended day-ahead market (EDAM)

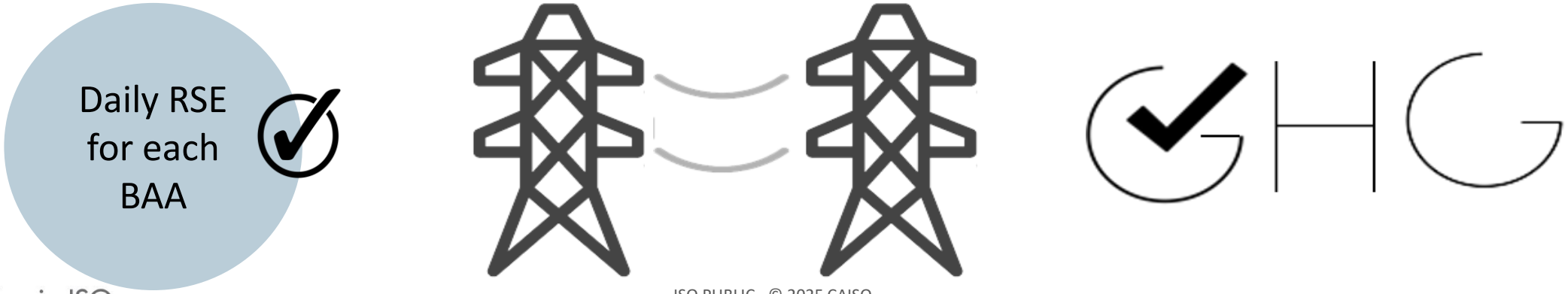
- Day-ahead capabilities extended to WEIM participants who voluntarily opt in, providing additional benefits
- ISO market will manage energy schedules and optimize efficient transfers of energy between balancing authority areas (BAAs)
- Expands access to full complement of wholesale energy market services and builds upon WEIM to optimize commitment of generation a day in advance

Elements of the EDAM program

- Daily resource sufficiency evaluation (RSE) across full 24-hour time horizon
  - RSE is universal adaptor that connects entities with varying resource adequacy programs to efficiently commit/dispatch resources

- Transmission capability on internal system and interties with other EDAM BAs made available to optimize transfers between participating areas

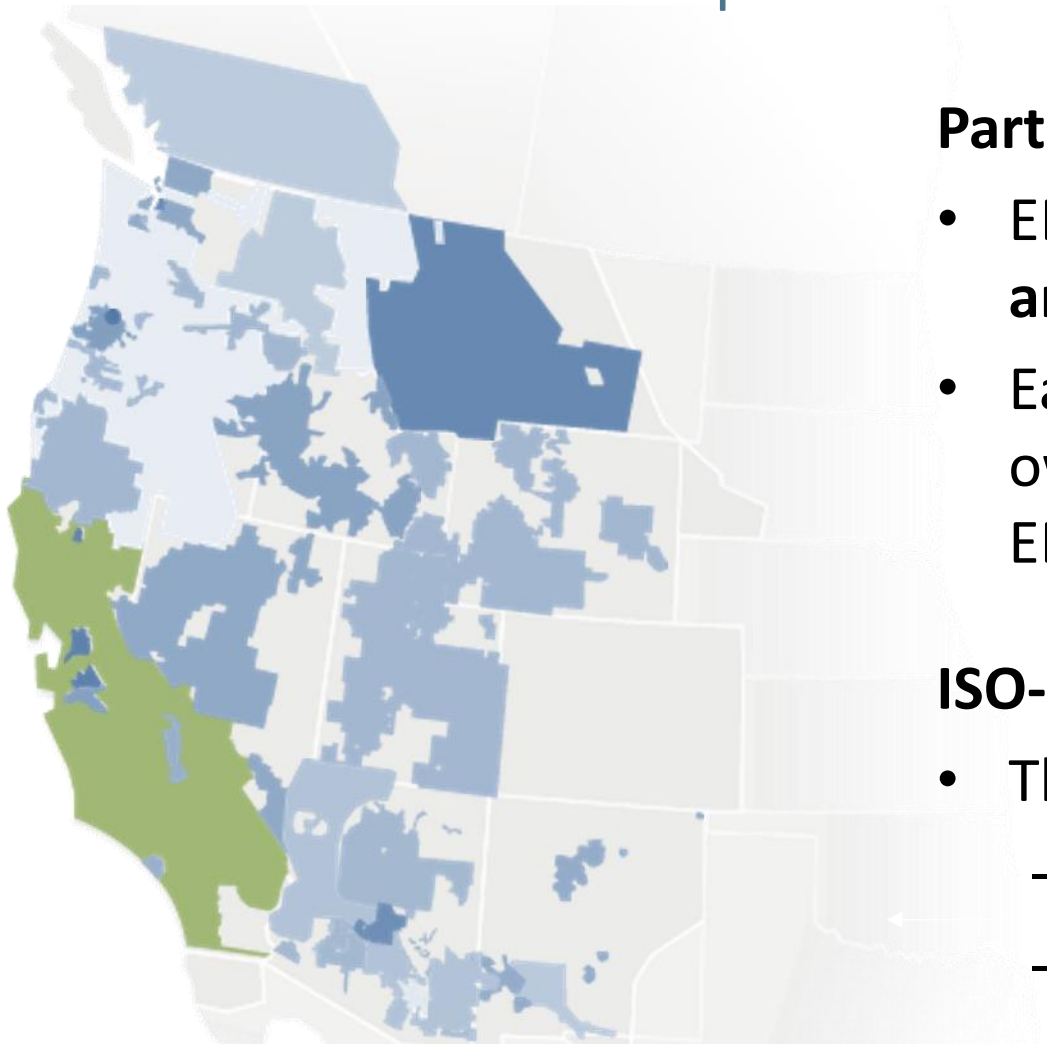
- Bidding and attribution to multiple state greenhouse gas regulation areas as well as accommodation for non-priced GHG programs



What are some of the ways EDAM and DAME will provide benefit to participants?

- Enhances, supports, and complements bilateral trading activity that takes place today
- Increases reliability due to greater situational awareness
- Lowers greenhouse gas emissions
- Allows participants to share surplus renewable energy across a broad footprint
- Participating BAs retain resource planning, transmission planning, and reliability functions

EDAM ISO BAA Participation Rules



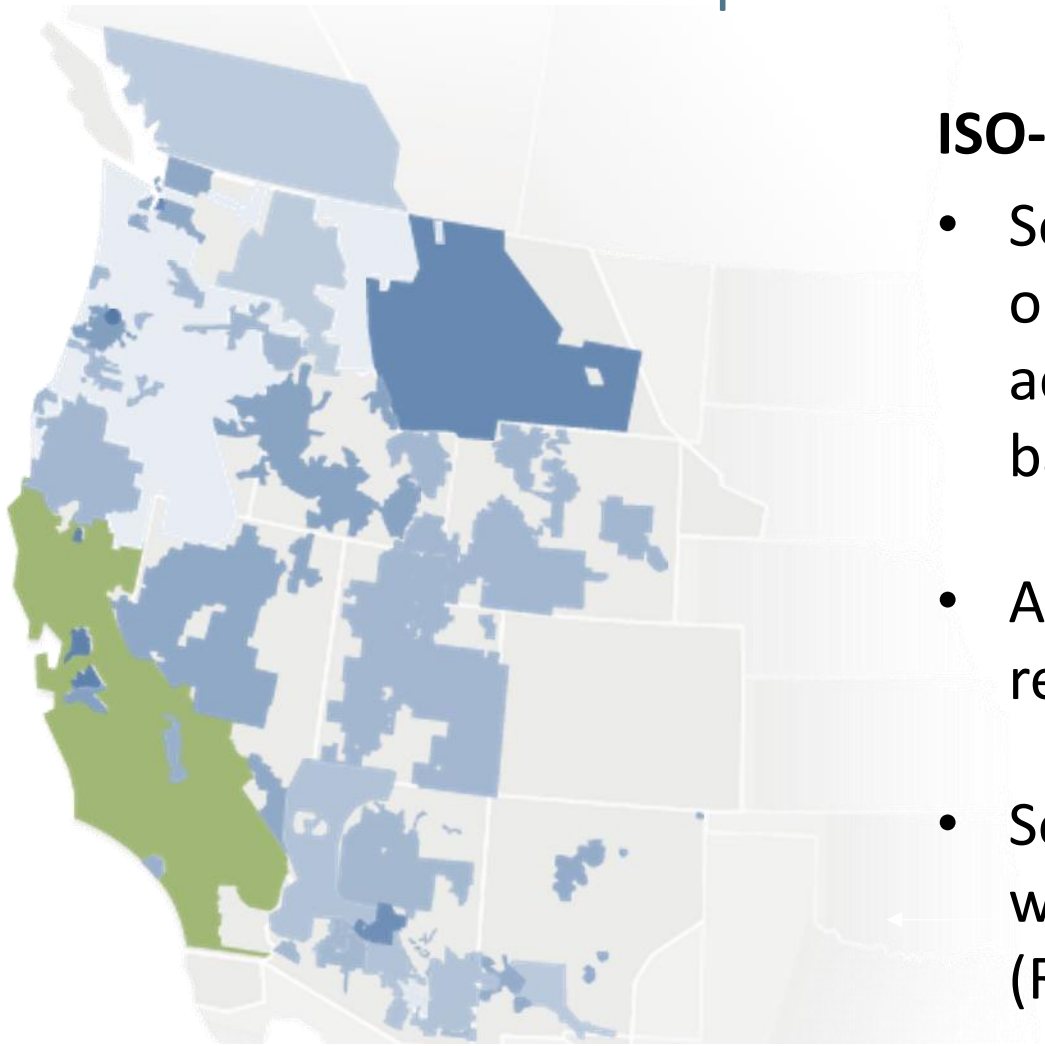
Participation Framework in EDAM

- EDAM design outlines **core market rules, functions, and requirements** for BAA participation.
- Each Balancing Authority (BA) defines its own **operational rules** for participating within the EDAM framework.

ISO-Specific Rules and Responsibilities

- The ISO's participation includes rules related to:
  - Financial settlements.
  - Use of **net export transfer constraints**.

EDAM ISO BAA Participation Rules: Settlements



ISO-Specific Rules and Responsibilities

- Settlement of transfers that result from the EDAM optimization, as well as transfer revenue that accrues from congestion between participating balancing authority areas.
- Allocation of historical transmission revenue recovered amounts.
- Settlement for revenues and surcharges associated with the EDAM resource sufficiency evaluation (RSE).

Learn more in the **settlements-focused** training!

EDAM ISO BAA Participation Rules: Net Export Transfer Constraints

What They Are

- Hourly limits on energy exports set by each Balancing Authority Area (BAA) within EDAM.
- Designed to ensure reliable energy supply and prevent over-commitment of resources.

Why They Matter

- Help preserve capacity for real-time operational needs.
- Support system reliability even when day-ahead requirements appear to be met.

How They Work

- Export limits are based on available capacity, adjusted for confidence in resource availability and system constraints.
- Each BAA can choose to enforce the constraint and must submit key parameters:
  - Confidence Factor – reflects expected availability of non-guaranteed resources.
  - Reliability Margin – reserves additional capacity for real-time operations.

What should SCs keep in mind when preparing for EDAM?

What changes?

- All loads and resources in EDAM area submit offers (economic bids or self-schedule bids).
- No more base schedules submitted in EDAM areas.
- No more “non-participating” resources.
- New market products: Imbalance Reserves, Reliability Capacity.
- Settlement of day-ahead transactions.

What stays the same?

- EDAM entities continue to retain their resource planning, transmission planning and reliability functions.

Decisions to make:

- EDAM entities and EDAM SCs work together to determine who will schedule:
  - Third-party resources
  - Third-party load

Market Pricing

Objective:
Summarize updates to Day-Ahead energy pricing

Initiative Review | **Market Pricing** | EDAM Processes | Transfer System Resources | Bidding Examples | Application Changes | Market Simulation

What is Locational Marginal Pricing?

The **Locational Marginal Price (LMP)** for wholesale electricity is based on local supply and demand conditions. Locational Marginal Pricing reflects the price of energy at the time it is supplied to the grid or when it is used by load serving entities.

Depending on power flows, transmission lines may become congested. In these situations, it costs more to deliver energy to a congested location. More expensive generation may be used to mitigate congestion and deliver electricity to the destination.

How does the tariff define Locational Marginal Price?

Locational Marginal Price (LMP)

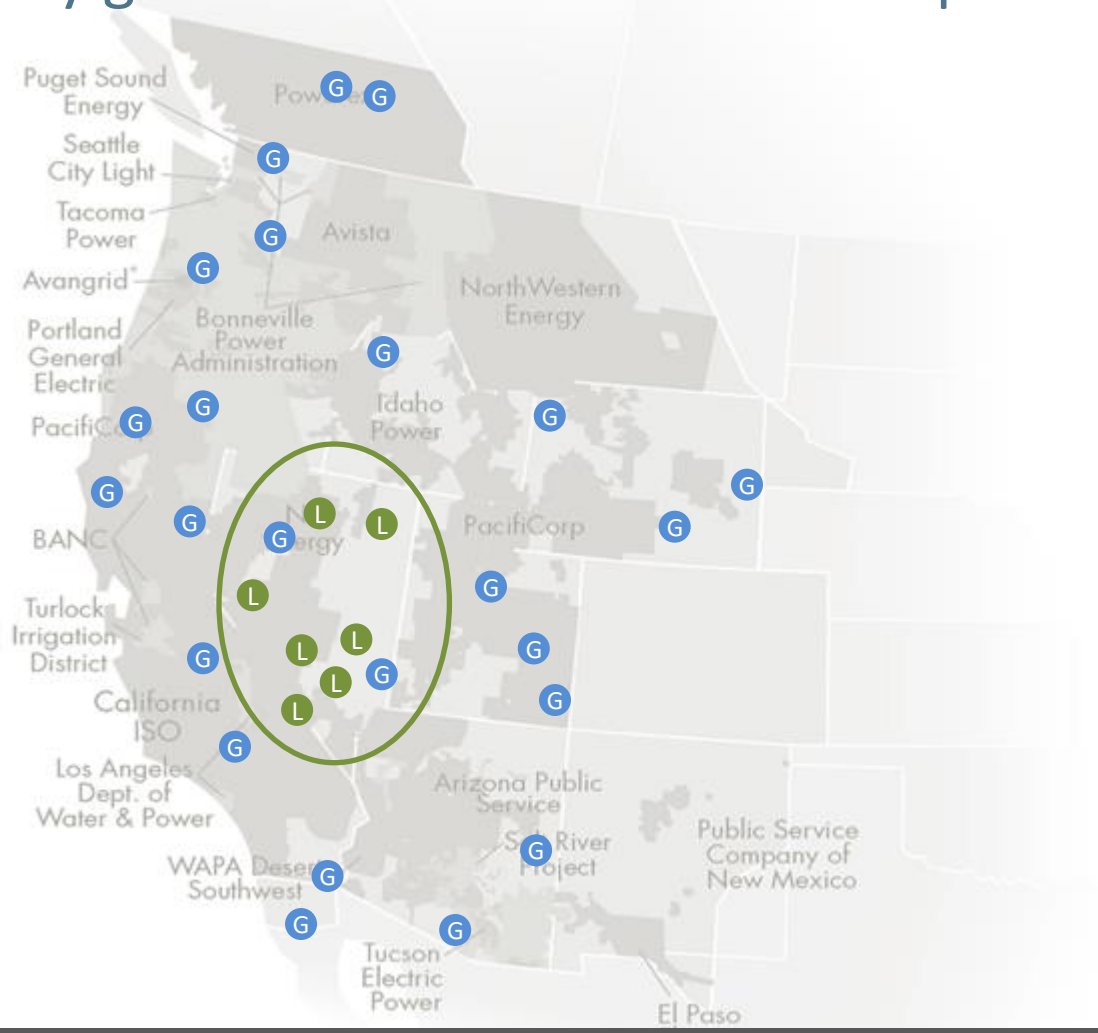
The marginal cost ($/MWh) of serving the next increment of demand at that price node consistent with existing transmission constraints and the performance characteristics of resources.

Nodal pricing is the price paid for electricity generated or consumed at a specific location

Resources are paid the nodal price

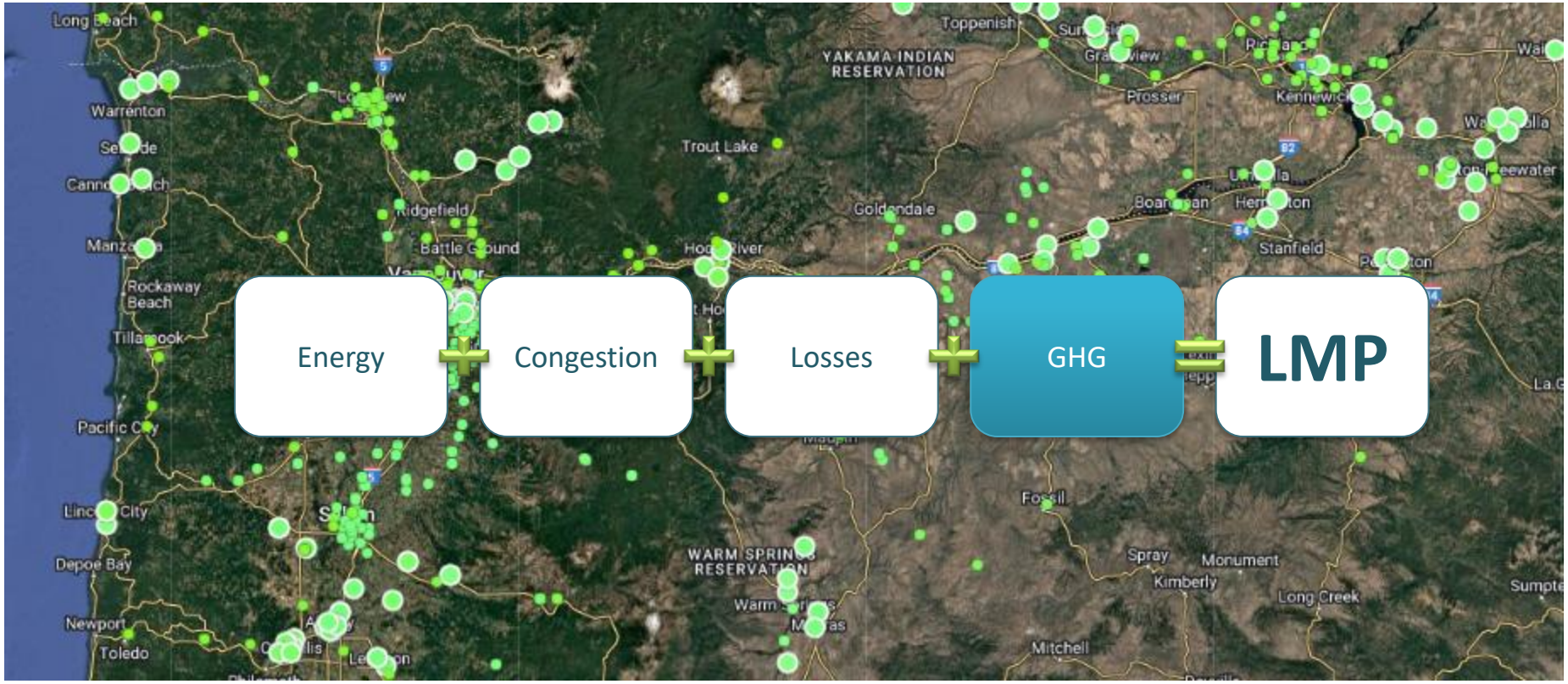
Load pays the weighed average price of all load nodes in its specific load aggregation

- Default Load Aggregation Point (DLAP)
- Custom Load Aggregation Point (CLAP)
- External Load Aggregation Point (ELAP)



Components of the Locational Marginal Price

Locational Marginal Pricing enables the actual operating conditions on the transmission system to be factored into the price of electricity at different locations.



Locational Marginal Price: Energy

Locational Marginal Price

Energy

Congestion

Losses

GHG

EDAM schedules energy for each hour of the next day by matching bid-in supply with bid-in demand.

Energy prices can vary by hour and across different Balancing Authority Areas.

Transmission capacity is optimized to enable energy transfers limited by scheduling limits.

When transfer limits are reached, price differences occur between Balancing Authority Areas, resulting in distinct energy prices for each area.

Locational Marginal Price: Congestion

Locational Marginal Price

Energy

Congestion

Losses

GHG

Congestion occurs when electricity cannot flow freely to an area due to high transmission use, limited capacity, or outages.

To mitigate congestion, more expensive generation may be used, increasing load-serving costs.

These costs are reflected in the congestion component of the LMP, affecting charges to demand and payments to supply.

Locational Marginal Price: Losses

Locational Marginal Price

Energy

Congestion

Losses

GHG

Energy losses occur as electricity is transmitted across transmission lines due to wire resistance.

Losses are similar to a light dimming as you move farther away from the source.

The market uses the Full Network Model to calculate actual losses but bases the LMP loss component at a node on marginal losses from serving an additional increment of load from an injection at that node.

Locational Marginal Price: Greenhouse Gas (GHG)

Locational Marginal Price

Energy

Congestion

Losses

GHG

Participants can use voluntary bid adders to indicate their willingness to serve demand in GHG regulation areas.

EDAM's GHG regulation model minimizes market-wide costs using price signals that account for different state regulations that price GHG emissions.

The GHG component is separate to ensure that supply and demand in non-GHG areas avoid GHG costs, while resources outside GHG areas can earn additional revenue to offset GHG regulation costs.

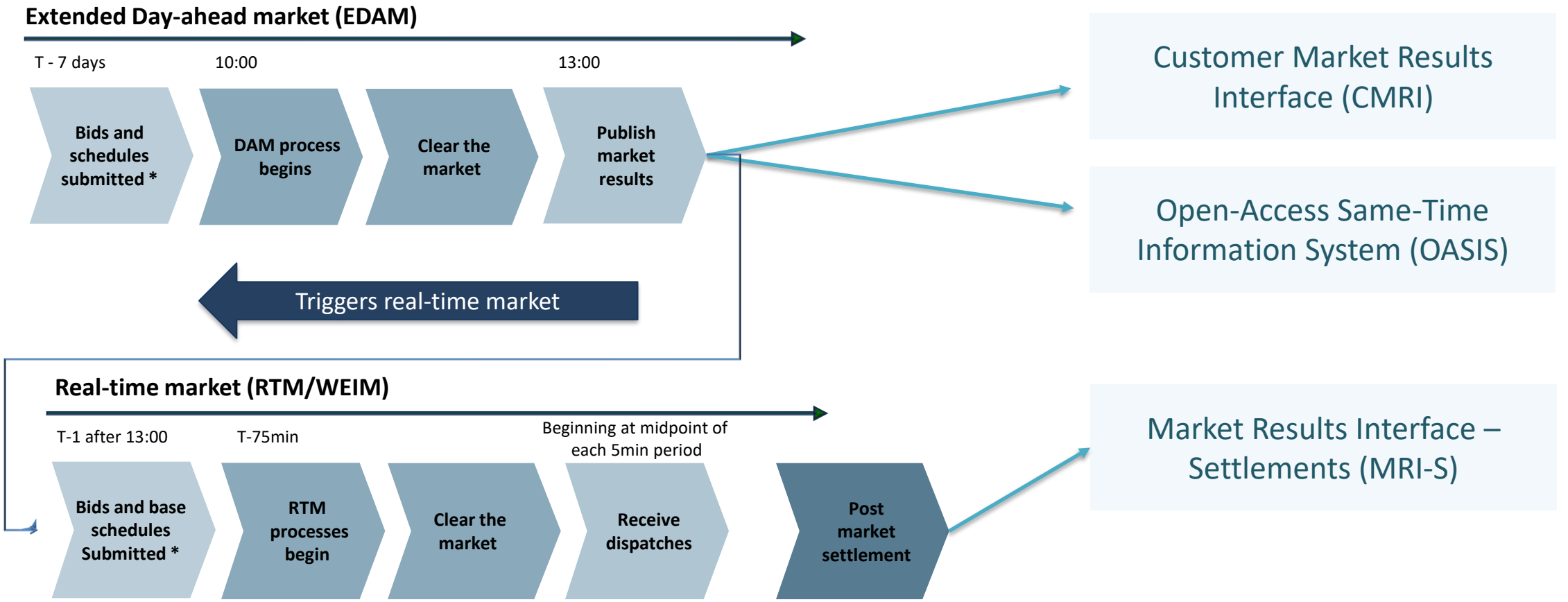
Energy delivered to GHG areas will have an LMP that includes GHG costs for imports.

Extended Day-Ahead Market Processes

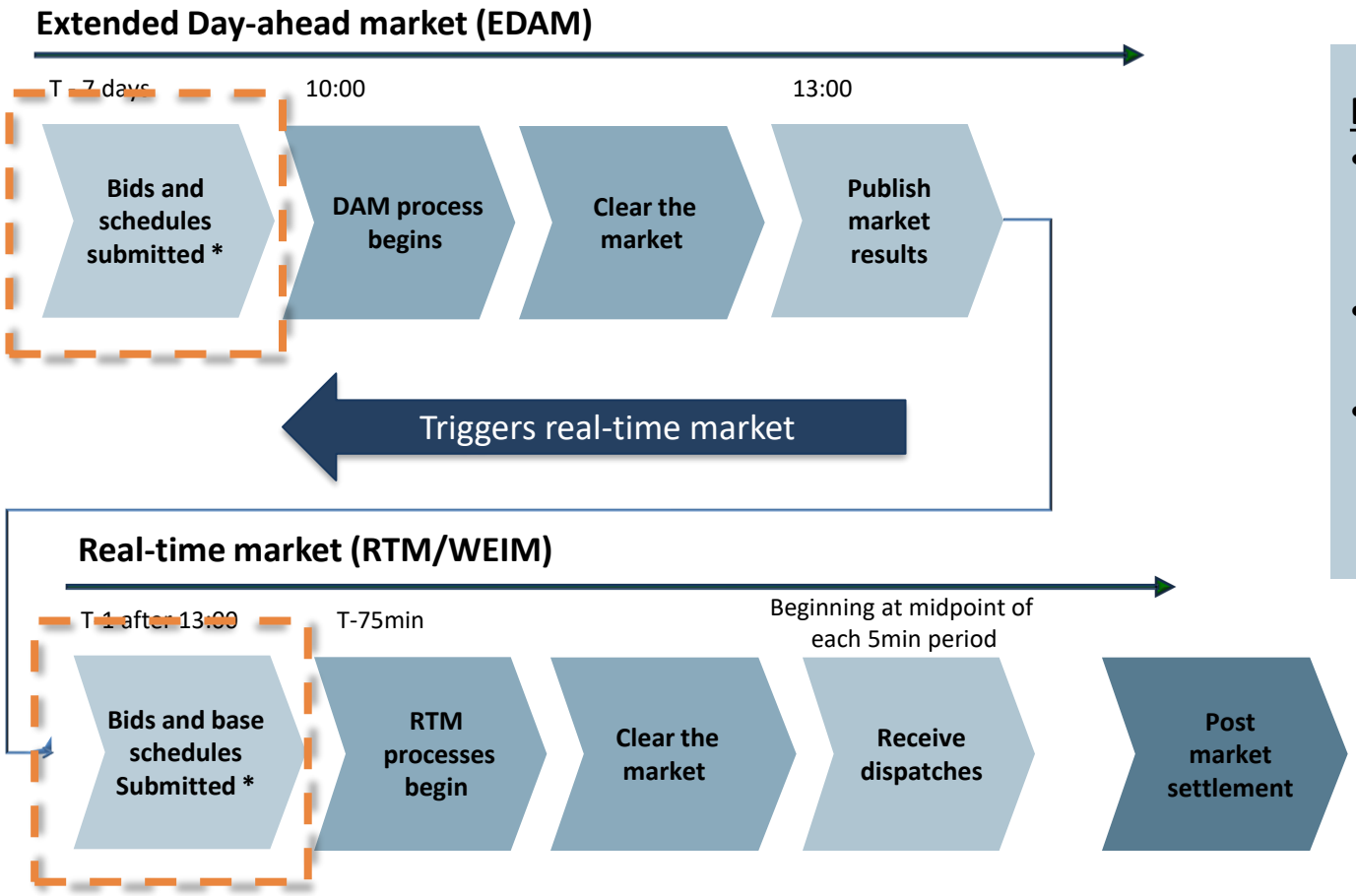
Objectives:
Describe the new Extended Day-Ahead Market processes
Distinguish which processes procure each new market product

Initiative Review | Market Pricing | EDAM Processes | Transfer System Resources | Bidding Examples | Application Changes | Market Simulation

Market timeline and data flow from bid to settlement



Market timeline and data flow from bid to settlement



EDAM Bidding Nuances

- RSE-eligible resources:
  - RSE preliminary bids are sent to RSE every 30 mins. from 6:00 am – 9:00 am
- TSR Type 2:
  - Bidding will stop at 9:00 am
- Base Schedules
  - Reminder that base schedules are not submitted in EDAM BAAs

Comparison of the current Day-Ahead Market processes vs. the new Extended Day-Ahead Market processes

Current Day-Ahead Market Processes

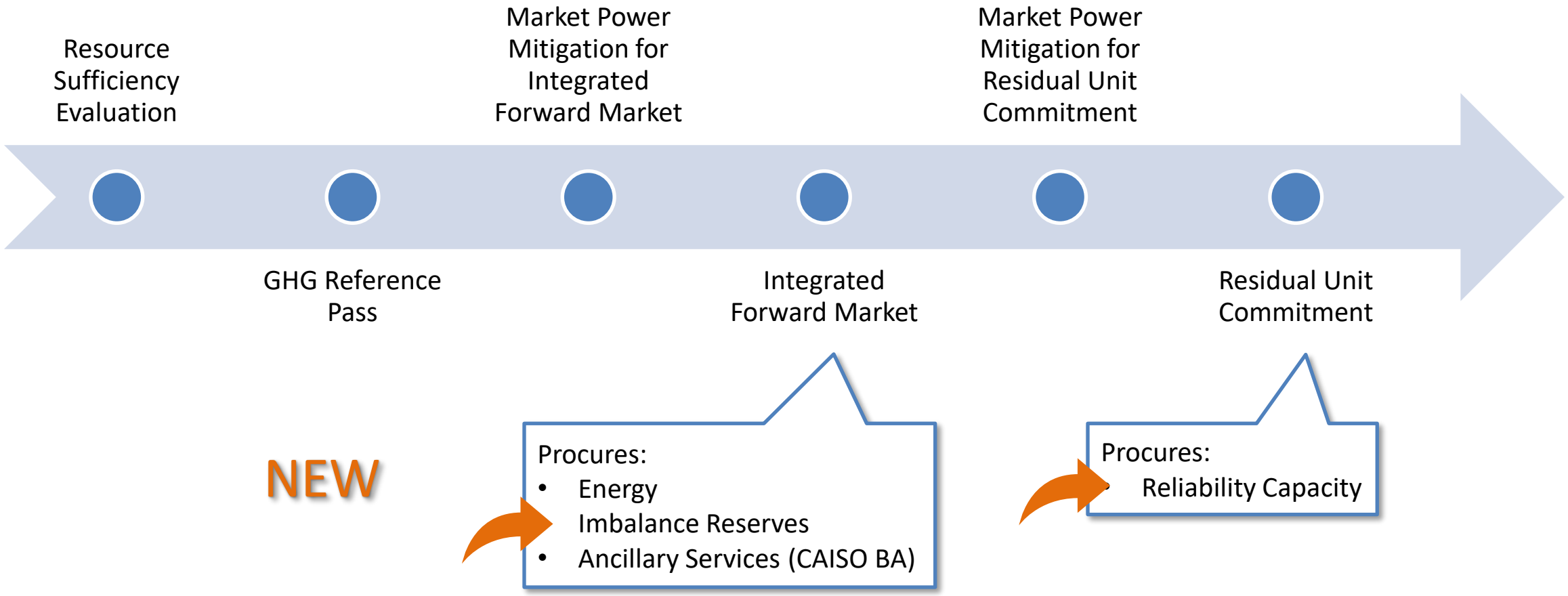
MPM	• Market Power Mitigation
IFM	• Integrated Forward Market
RUC	• Residual Unit Commitment

NEW

Extended Day-Ahead Market Processes

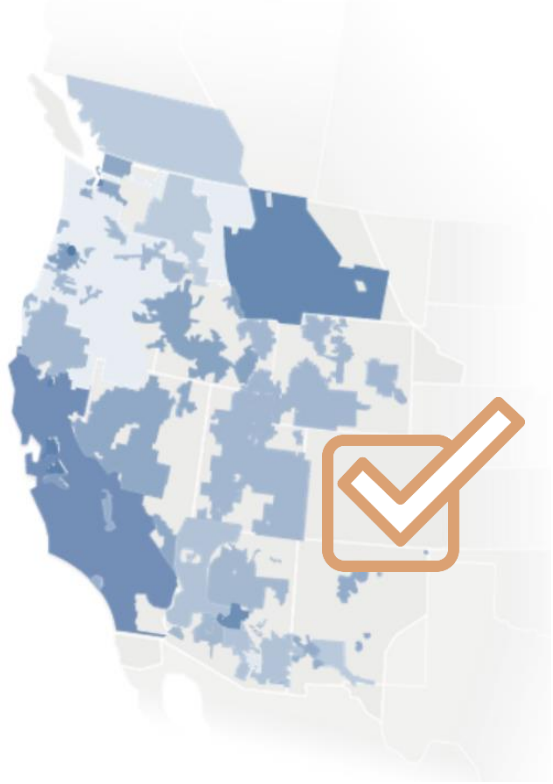
RSE	• Resource Sufficiency Evaluation
GHG	• Greenhouse Gas Reference Pass
MPM-IFM	• Market Power Mitigation for Integrated Forward Market
IFM	• Integrated Forward Market
MPM-RUC	• Market Power Mitigation for Residual Unit Commitment
RUC	• Residual Unit Commitment

Which processes procure each new market product?



Let's review each process!

Daily Resource Sufficiency Evaluation for each BAA



Each BAA's offered supply is evaluated against its demand forecast, imbalance reserve requirements and ancillary service requirements across the 24 hourly intervals of the day-ahead market.

The EDAM Entity is actively involved in the RSE process and works to pass the sufficiency test which is designed to ensure that each entity has enough supply to meet the next day's obligations.

If an EDAM entity fails the RSE, the entity may be exposed to surcharges which act as an incentive to take proactive actions to meet the RSE requirements.

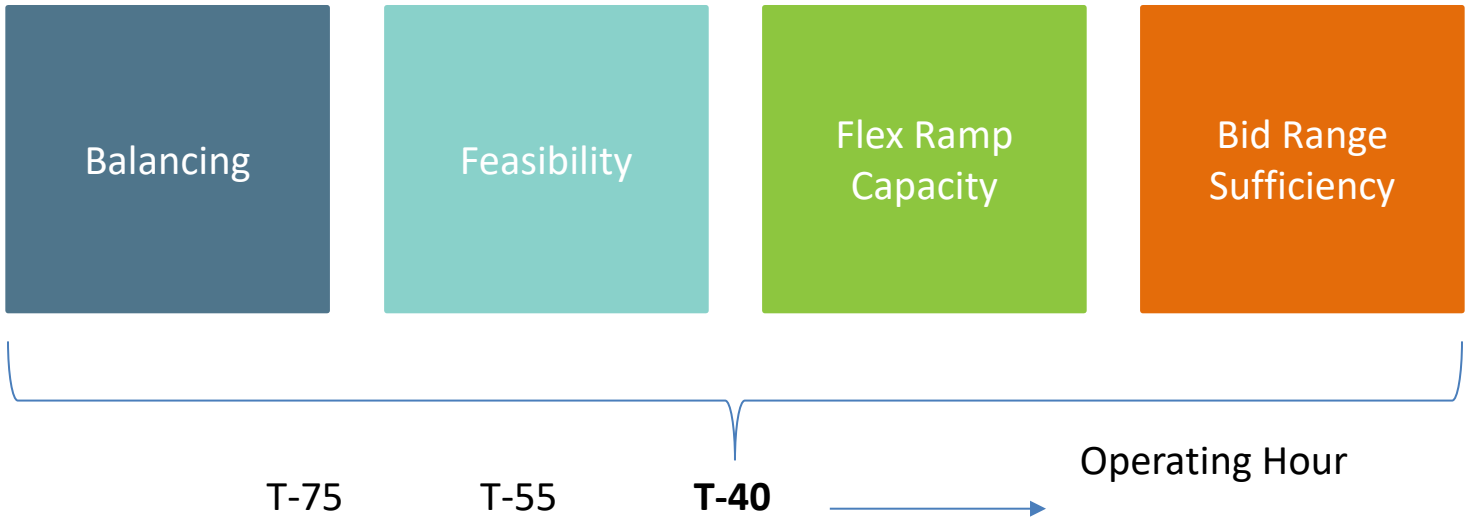
1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 24:00

24-hour time horizon

Resource Sufficiency Evaluation occurs today in **Real-Time** for all WEIM BAs

To ensure that Balancing Authorities come into each real-time hour able to support their own load with their native or imported generation, the WEIM created the Resource Sufficiency Evaluation (RSE).

The WEIM Real-Time Resource Sufficiency Evaluation Tests:



Evaluations for each operating hour

Resource Sufficiency Evaluation: EDAM

The binding day-ahead RSE test occurs each day at 10:00am, prior to running the Day-Ahead Market. The Day-Ahead Market RSE evaluates three different aspects:

1

Bids: assesses whether there are sufficient energy bids or self-schedules to meet an EDAM entity's forecasted load needs.

2

Ancillary Services: ensures that a BA has sufficient contingency reserve capacity available per AS requirements.

3

Imbalance Reserves: ensures the EDAM entity has sufficient bid-in capacity to meet uncertainty between day-ahead and real-time. Like real-time Flex Ramp Sufficiency test, with key differences

- **EDAM Entity:** bids in specific values for both Imbalance Reserve Up and Imbalance Reserve Down
- **WEIM Entity:** value is determined by the market based on energy bids

Evaluations covering 24-hour period

Greenhouse Gas (GHG) Reference Pass

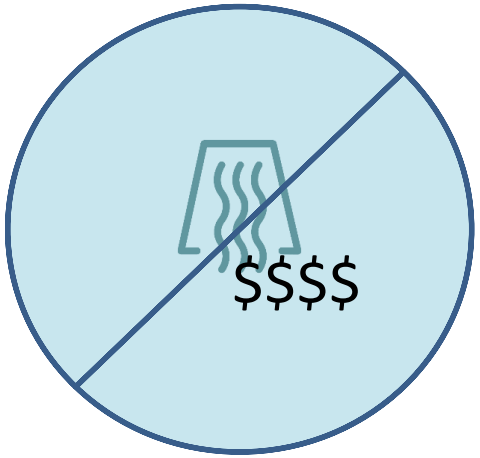
- EDAM's expanded GHG regulation model incentivizes resources from multiple western states to supply energy to climate-focused states.
- Participants can indicate their willingness to serve demand in GHG regulation areas through voluntary bid adders to their energy bids.
- The market conducts a GHG reference pass to establish the attribution baseline for serving load in GHG regulation areas.
- The GHG reference pass, conducted without GHG bids, establishes a reference point for resources and is not financially binding.

GHG Processes: GHG Model

- EDAM allows utilities and other market participants to bid on energy for the next day, facilitating efficient resource allocation.
- Emissions from the identified resources are considered in market optimization processes
- GHG regulation area boundaries are determined by state mandates rather than BAs
- Model is scalable to allow for future non-overlapping GHG regulation areas

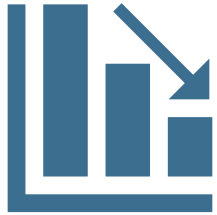
Market Power Mitigation (MPM) for Integrated Forward Market (IFM)

- At times there can be localized congestion that can result in market power being exercised.
- MPM detects and mitigates (lowers) the bids in those localized cases to ensure prices remain competitive throughout the system.



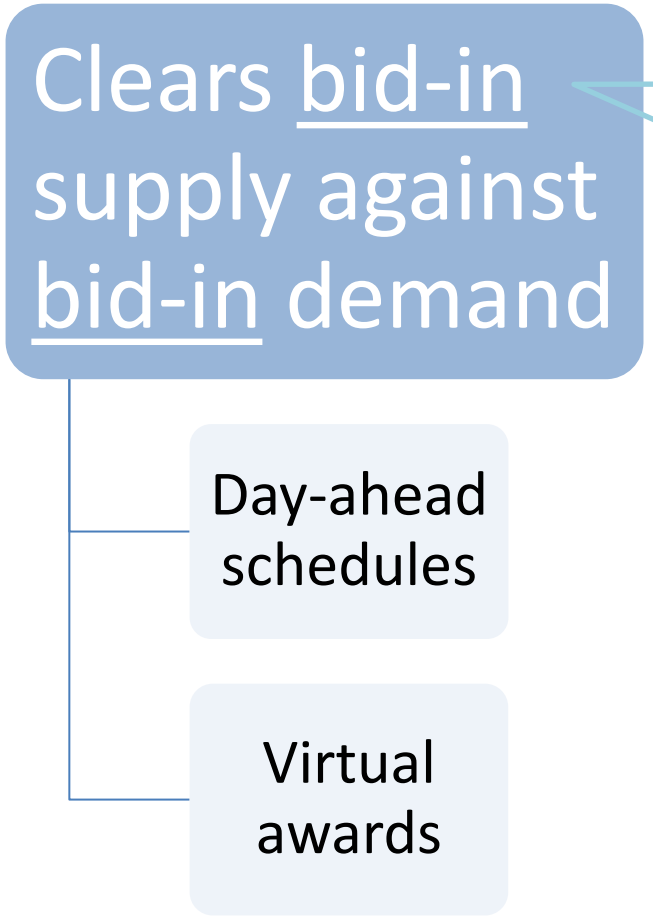
Market Power Mitigation (MPM) for Integrated Forward Market (IFM)

- If the potential for market power in a location is determined, the market analyzes the related bids and, if necessary, will replace the bids based on the following criteria:
  - **Energy bid** with the higher of the **default energy bid** or the **competitive LMP**
  - **Imbalance reserve** bid with the higher of the competitive Imbalance Reserve Up Marginal Price (IRUMP) or the **default availability bid**



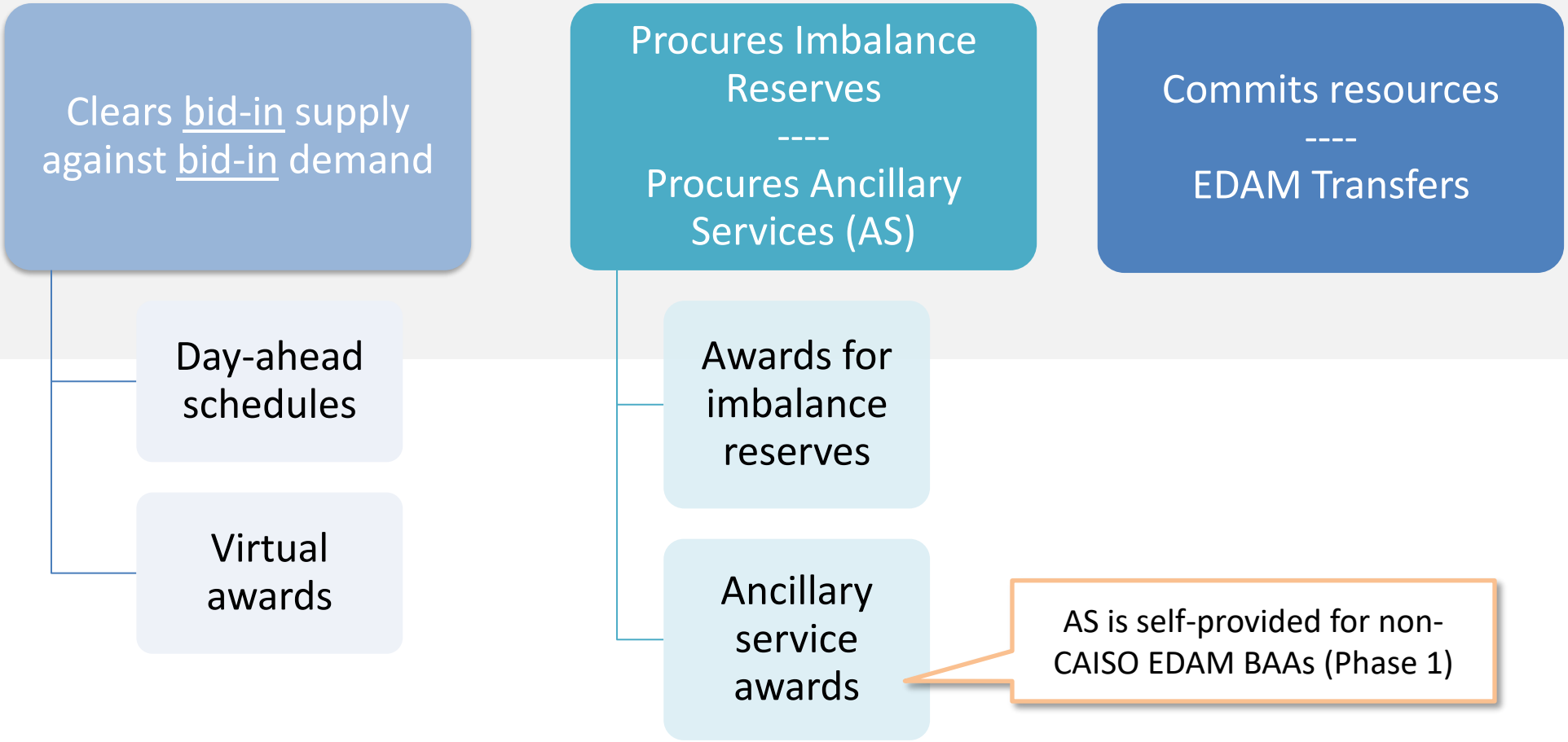
- There are no schedules or dispatches as a result of this process.
- The output of the MPM process is referred to as the clean bid set that is used in the next process.

Integrated forward market (IFM)



- As a result, sufficient capacity may not be committed to meet forecast demand
- More on this during Step 6 (RUC)

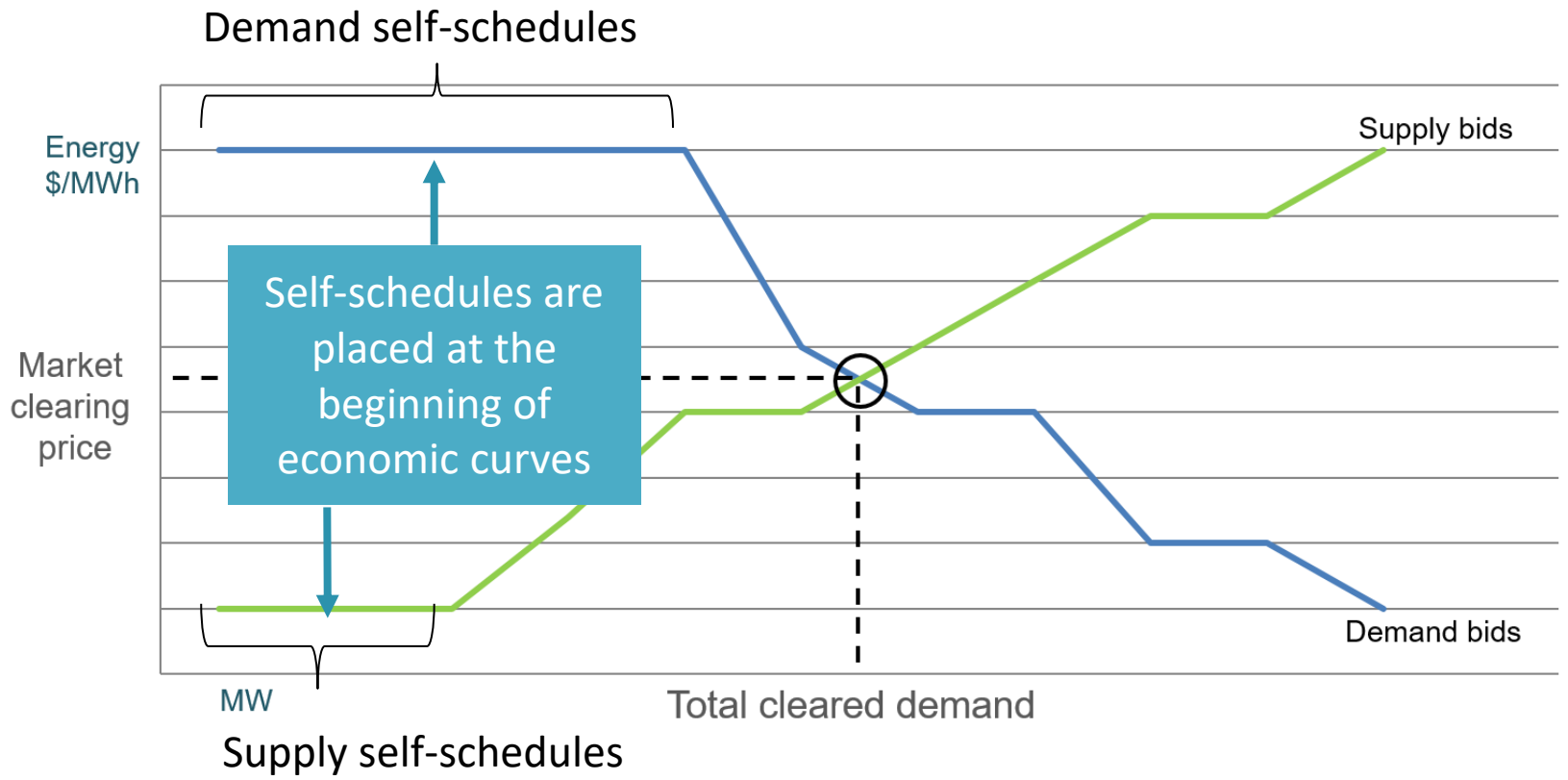
What is procured in the Integrated forward market (IFM)?



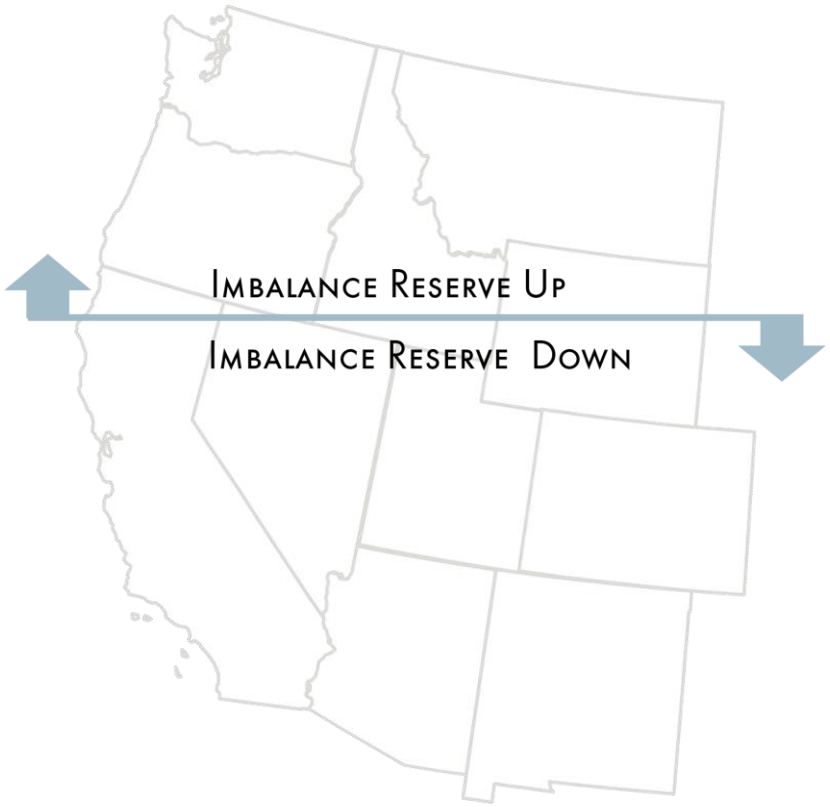
How does the IFM clear supply bids against demand bids?

Day-ahead supply bids clear against demand bids.

Real-time supply clears against load forecast.



Imbalance Reserves provide consistent method for evaluating & addressing uncertainty needs in each BA



Imbalance reserve products provide the market with a mechanism to address each BAA's expected range of uncertainty when comparing the day-ahead load forecast to real-time consumption and comparing solar and wind forecasts to their real-time outputs.

Procurement of reserves will be done on an hourly basis for each BA from the bids that are submitted by SCs across the EDAM footprint.

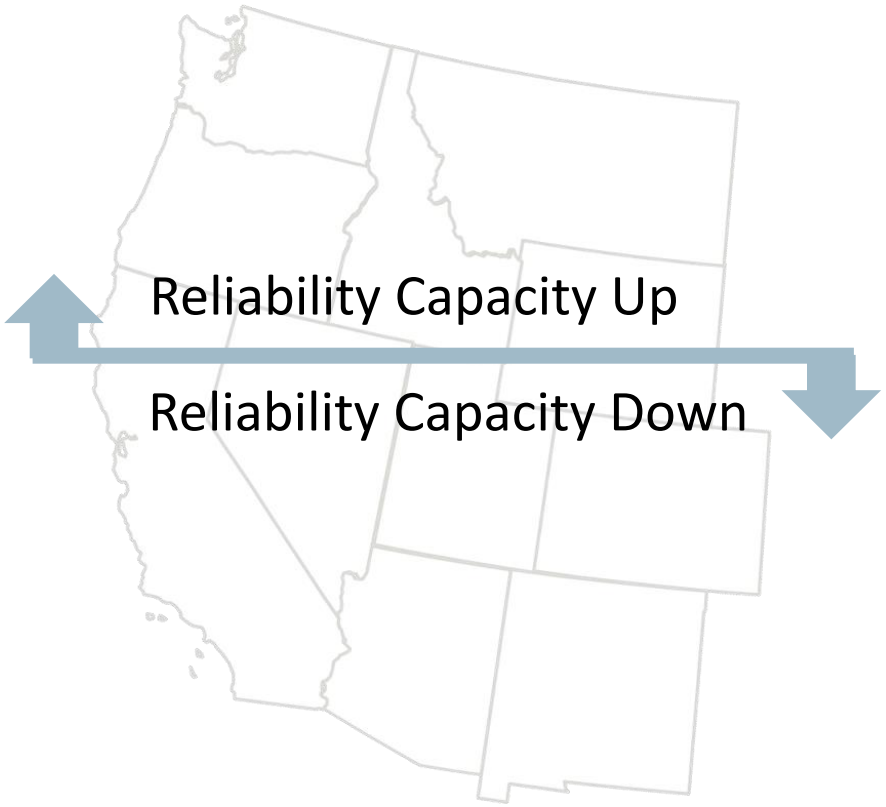
SCs submit bids for **imbalance reserve up** and **imbalance reserve down** and may receive hourly awards for **one or both** products.

Market Power Mitigation (MPM) for Residual Unit Commitment (RUC)

Prior to the Residual Unit Commitment process, there is a second Market Power Mitigation run that analyzes the bids submitted for reliability capacity and mitigates these bids, if necessary, to the **default availability bid**.

Default availability bid approximates the costs related to a resource's ability to provide reserve products.

Residual Unit Commitment (RUC) process procures reliability capacity products to ensure sufficient physical supply scheduled in day-ahead



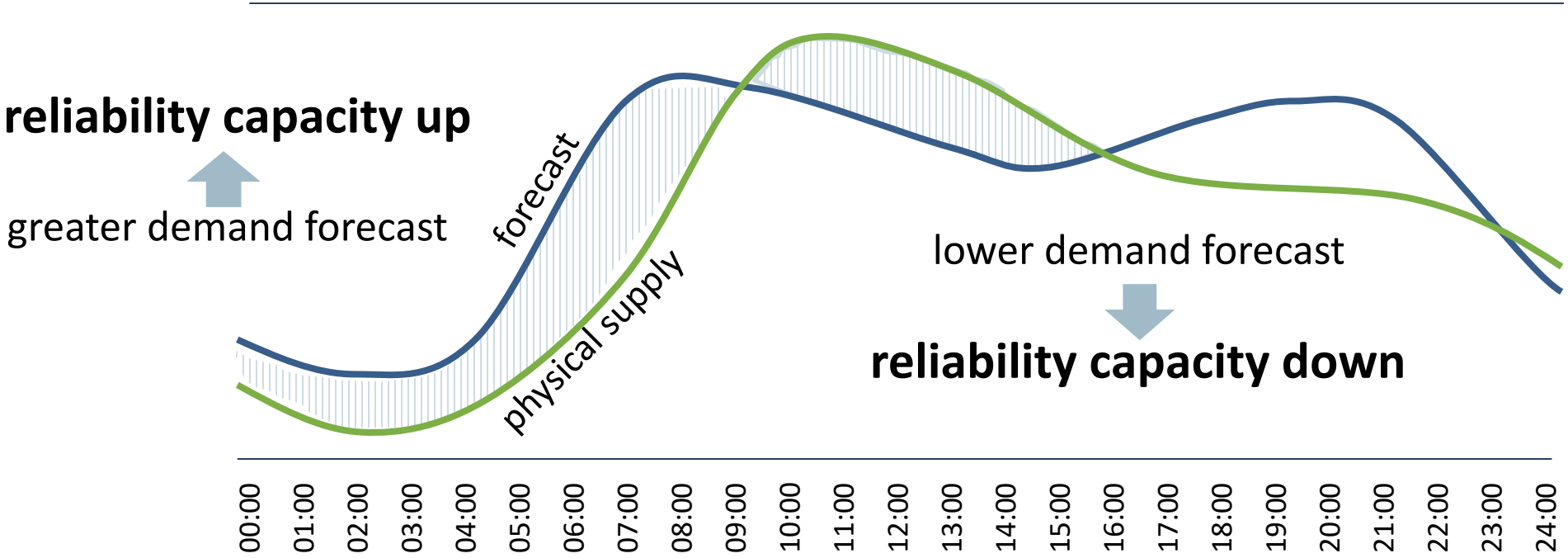
Today's RUC process procures additional capacity to meet forecasted demand.

With EDAM, reliability capacity provides BAs with upward **or** downward dispatch capability, ensuring sufficient physical supply scheduled in day-ahead.

Procurement of reliability capacity will be done on an hourly basis for each BA from the bids that are submitted by SCs across the EDAM footprint.

SCs submit bids for **reliability capacity up** and **reliability capacity down** and may receive hourly awards for **only one** of the products.

Reliability Capacity is procured in RUC, which compares the demand forecast to physical supply that clears the market



Day-Ahead: Potential market outcomes

Day-ahead awards can be for:

- Energy
- Ancillary Services (self-provided for non-CAISO EDAM BAA)
- Imbalance Reserves
- Reliability Capacity

Changes that occur post day-ahead and pre real-time may trigger redispatch in the Real-Time Market.

Comparison of Ancillary Services, Imbalance Reserves, and Reliability Capacity

Feature	Ancillary Services (AS)	Imbalance Reserves (IR)	Reliability Capacity (RC)
Purpose	Maintain grid reliability through frequency regulation and spinning/non-spinning reserves.	Address net load uncertainty and real-time ramping needs not covered by hourly day-ahead schedules.	Ensure sufficient physical supply to meet differences between cleared supply and net load forecast.
Market Timing	**CAISO BAA:** Procured in both Day-Ahead and Real-Time Markets. **EDAM BAA:** self-provided in Day-Ahead Market.	Procured in the Day-Ahead Market, co-optimized with energy and ancillary services (CAISO BA).	Procured in the Day-Ahead Market via enhanced Residual Unit Commitment (RUC) process.
Dispatchability Requirement	Must be able to respond within seconds to minutes depending on service type.	Must be dispatchable within 15 minutes; awards capped at 15-minute ramping capability.	Must be dispatchable within 60 minutes; awards capped at 60-minute ramping capability.
Bid Structure	Price and quantity bids for each service type.	Separate bids for upward and downward IR.	Separate bids for upward and downward RC.
Eligibility	Typically includes fast-responding resources like batteries, gas turbines, and demand response.	Resources capable of 15-minute ramping; excludes self-scheduled resources.	Resources capable of 60-minute ramping; includes multi-stage generating units.
Obligations	Must offer into real-time market if awarded (economic bid or self-schedule bid).	Must submit economic energy bids in real-time for awarded capacity.	Must submit economic energy bids in real-time for awarded capacity.

Things to Keep in Mind

The **Security Constrained Unit Commitment** methodology maximizes economic efficiency, relieves network congestion, and considers physical constraints to achieve least-cost resource commitment and scheduling across the full 24-hours of the trade date.

A resource's awards in the day-ahead (EDAM) timeframe have a **must offer obligation** to submit bids for energy in real-time (WEIM) to cover the range of market awards. If the SC does not submit bids, the market will insert bids to ensure the resource meets its must offer obligation.

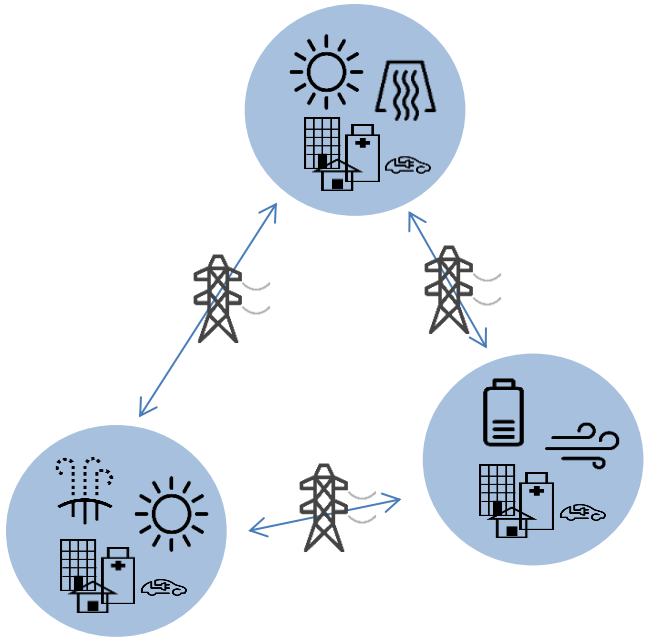
A unique aspect of **ancillary services** is that although they are included in the economic bid curve, the market will protect this capacity to be used as operating reserves for the EDAM Balancing Authority Area should the need arise.

Transfer System Resources

Objective:
Introduce the concept of Transfer System Resources

Initiative Review | Market Pricing | EDAM Processes | **Transfer System Resources** | Bidding Examples | Application Changes | Market Simulation

Transfer System Resource: Concept



- **EDAM and WEIM:** Based on transfers between Balancing Authority Areas (BAAs).
- **BAA Balance:** Each BAA is kept in balance separately with a power balance constraint.
- **Optimal Net Transfer:** Positive for export or negative for import.

Nuance:
WEIM ETSR = Energy Transfer System Resource (energy only)

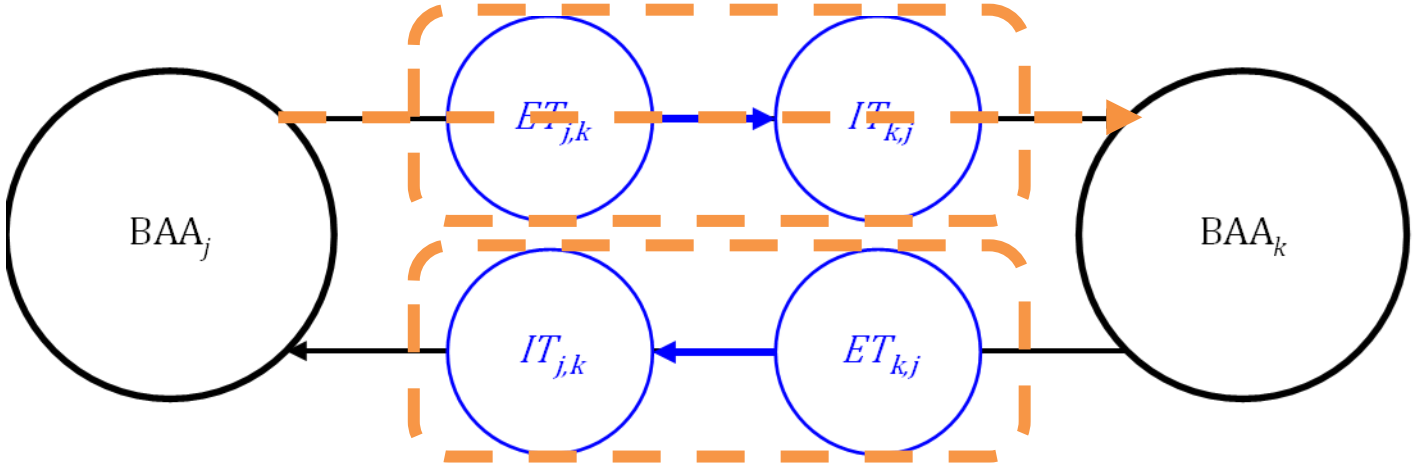
EDAM TSR = Transfer System Resource (energy & capacity)

How do Transfer System Resources (TSRs) work?

Modeling: Each transfer is modeled as a matching pair of export/import TSRs for each direction at an intertie.

Distribution: Net transfer optimally distributed to individual directional transfers (export/import) between BAAs at specific interties.

Definition: Statically defined in Master File to facilitate BA rights or long-term rights holders; dynamically defined in SIBR along with submission of schedule.



ET: Export Transfer
IT: Import Transfer

Clarifying Terminology: Transfer Location vs. Transfer System Resource

Sets up the “pipeline”

Transfer Location

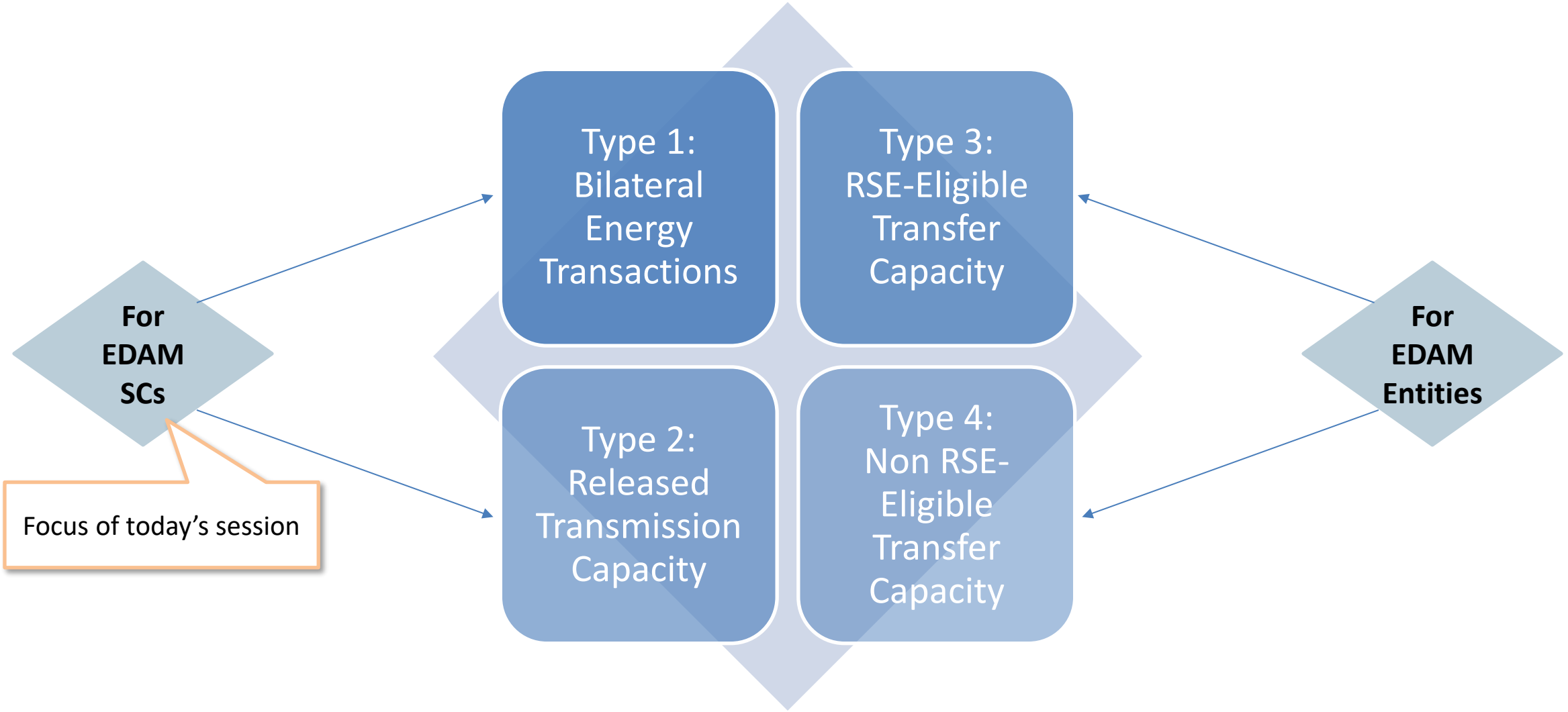
- Used to register static TSRs in Master File, as well as dynamic TSRs in SIBR.
- Identifies the pair of BAAs for the transfer.
- Identifies the location (intertie) that the transfer will occur.
- Identifies the direction of scheduled energy flow.
- Identifies the price node for the transfer, along with other attributes.

Who can use it, and for how much

Transfer System Resource

- Four types of TSRs.
- Used to register contracted rights associated with the Transfer Location (EDAM SC).
- Used to register BA rights associated with the Transfer Location (EDAM Entity).

Types of Transfer System Resources (TSRs)



TSR attributes, rules, and applicable market results

Attribute	Type 1	Type 2	Type 3	Type 4
RES_ID	Unique TSR identifier: SC_ID-FROM_BAA-INTERTIE-TO_BAA-DIRECTION-TSR_TYPE-nn, where 'nn' is an alphanumeric identifier to distinguish otherwise similar TSRs			
SC_ID	EDAM SC or "CISO"		EDAM Entity of FROM_BAA	
TRANSFER_LOCATION	Unique transfer location identifier: FROM_BAA-INTERTIE-TO_BAA-DIRECTION			
TSR_TYPE	1	2	3	4
RSE_ELIGIBILITY	Y	N	Y	N
CRN_ID	Unique registered CRN identifier or "NONE"		Not Applicable	
MATCHING_SC_ID	The unique registered SC identifier or "CISO" of the matching TSR at the MATCHING_TRANSFER_LOCATION of the TRANSFER_LOCATION			
MATCHING_RES_ID	The unique TSR identifier of the matching TSR at the MATCHING_TRANSFER_LOCATION of the TRANSFER_LOCATION			
MAXIMUM_CAPACITY (MW)	Maximum transfer capacity			
CAPACITY_LIMIT (MW)	Not Applicable	Released transfer capacity; less than or equal to the Maximum Capacity		
Energy Self-Schedule (MW)	Less than or equal to the Maximum Capacity	Not Applicable		
Ancillary Service Self-Provision (MW)	Not Applicable		For each RU, RD, SR, NR; the total must be less than or equal to the Maximum Capacity	Not Applicable
Market Results				
Energy Schedule (MW)	IFM energy schedule			
Capacity Award (MW)	Not Applicable	• IFM IRU/IRD award • RUC RCU award	• IFM RU/RD/SR/NR award • IFM IRU/IRD award • RUC RCU award	• IFM IRU/IRD award • RUC RCU award

Bilateral Energy Transactions

TRANSFER SYSTEM RESOURCES: TYPE 1

TSR Type 1: Bilateral Energy Transactions

Type 1 TSRs are for EDAM SCs (transmission customers) exercising physical and financial transmission rights on each side of a transfer.

Registration

- ✓ EDAM Entity on each side must register TSR for relevant EDAM SC in Master File.
- ✓ Or, EDAM SC may define TSR in SIBR for the trading day.

Self-Scheduling Rights

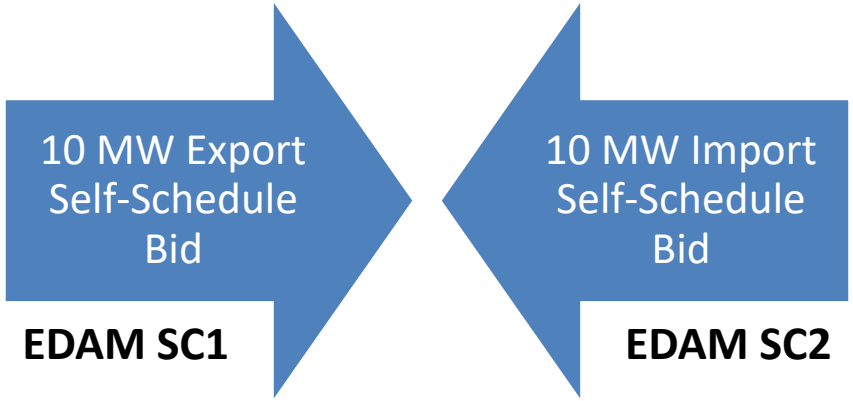
- EDAM SC may submit self-schedule bid under a unique Contract Reference Number (CRN) on respective TSR.
- All CRNs must be registered in Master File by relevant EDAM Entity.
- Self-schedule bids must be balanced and within CRN entitlement.
- Retains financial rights even if physical rights are lost.
- Self-schedule bids are RSE-eligible.

Using TSR Type 1: Bilateral Energy Transactions

Requirements

- TSR Type 1 is for self-schedule bids (not economic bids).
- Transfer revenue goes to EDAM Entity.
- Self-schedule bids must be balanced.
- EDAM SCs on both sides of the transaction have submitted matching self-schedule bids.

Example



SIBR Validation:

- ✓ Matching Intertie point, trade date/ trade hour
- ✓ Correct CRNs used
- ✓ MWs within CRN entitlement

TSR Definition and Validation

Definition and Matching

- Once an EDAM Entity submits a list of EDAM SCs and associated transmission right capacities by Contract Reference Number (CRN) at a transfer location, those EDAM SCs may define Type 1 Transfer System Resources (TSRs) for the Trading Day.
- When the corresponding EDAM SC submits a matching TSR, SIBR cross-validates the TSR pair and finalizes the TSR definition.

Bidding Requirements and Adjustments

- A Type 1 TSR bid must include an energy self-schedule that does not exceed the TSR's Maximum Capacity.
- If the EDAM Entity derates the CRN capacity before 9:00 am, SIBR will automatically reduce the TSR self-schedule bid to reflect the updated capacity.
- SIBR may also adjust the TSR self-schedule bid to match a lower value submitted for the matching TSR.

Rebidding of Type 1 TSRs in the Real-Time Market

EDAM SC Activity

- EDAM SC must rebid Type 1 TSRs in real-time to self-schedule under the CRN, unless the CRN has expired after day-ahead.
- If the CRN has expired or is “NONE,” a price-taker self-schedule bid is required.
- EDAM SCs may adjust real-time self-schedules from the day-ahead version.
- They may increase bids to use reserved (but unused) rights from day-ahead, up to the Maximum Capacity.

SIBR Validation

- CRNs are validated for entitlement (not balancing) in real-time; SIBR sets the Priority Indicator accordingly.
- SIBR ensures that the total of all Type 1 TSR self-schedule bids plus any released capacity does not exceed the CRN capacity set by the EDAM Entity for that SC and transfer location.

Released Transmission Capacity

TRANSFER SYSTEM RESOURCES: TYPE 2

TSR Type 2: Released Transmission Capacity

Type 2 TSRs are for capacity from EDAM SCs (transmission customers) that release their transmission rights on each side of a transfer.

Registration

✓ EDAM Entity on each side of transfer has registered TSR in Master File for relevant EDAM SC.

SIBR-Defined

✓ Automatically generated by SIBR based on released capacity.

Notes regarding usage

- EDAM SC releases rights on the TSR.
  - EDAM SC may be same or different for both TSRs but released transfer capacities must be equal.
  - EDAM SCs eligible to receive 50% of transfer revenue.

Using TSR Type 2: Released Transmission Capacity

- TSR Type 2 offers transfer capacity intended to maximize the system's economic potential.
- Transfer revenue goes to EDAM SC.

- **Bid Requirements:**
  - Only accepted for TSRs registered in the Master File.
  - Must specify a Capacity Limit not exceeding the TSR's Maximum Capacity.
  - Capacity is released to EDAM for optimal scheduling.

SIBR-Defined Type 2 TSRs must be submitted by 9:00 am

EDAM SCs submit the MW amount of released capacity they want to make available for Type 2 before 9:00 am.

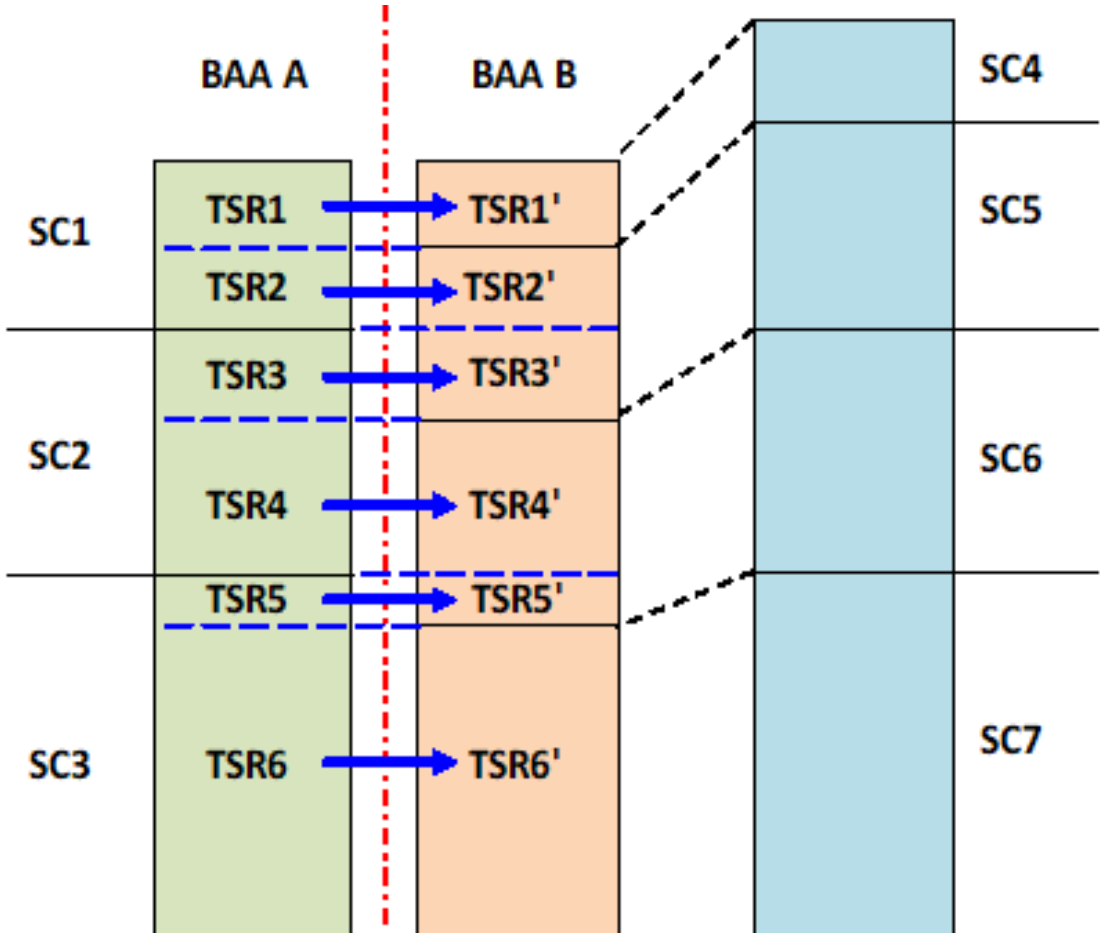
API submission details include:

- SC_ID: Registered EDAM SC
- TRANSFER_LOCATION: Registered transfer location
- TRADING_DAY: Up to 7 days in advance
- TRADING_HOUR: May vary by hour
- CRN_ID: Registered Contract Reference Number
- CRN_CAPACITY: Total transmission right for the CRN, usable for Type 1 or releasable for Type 2

SIBR Matching and TSR Generation

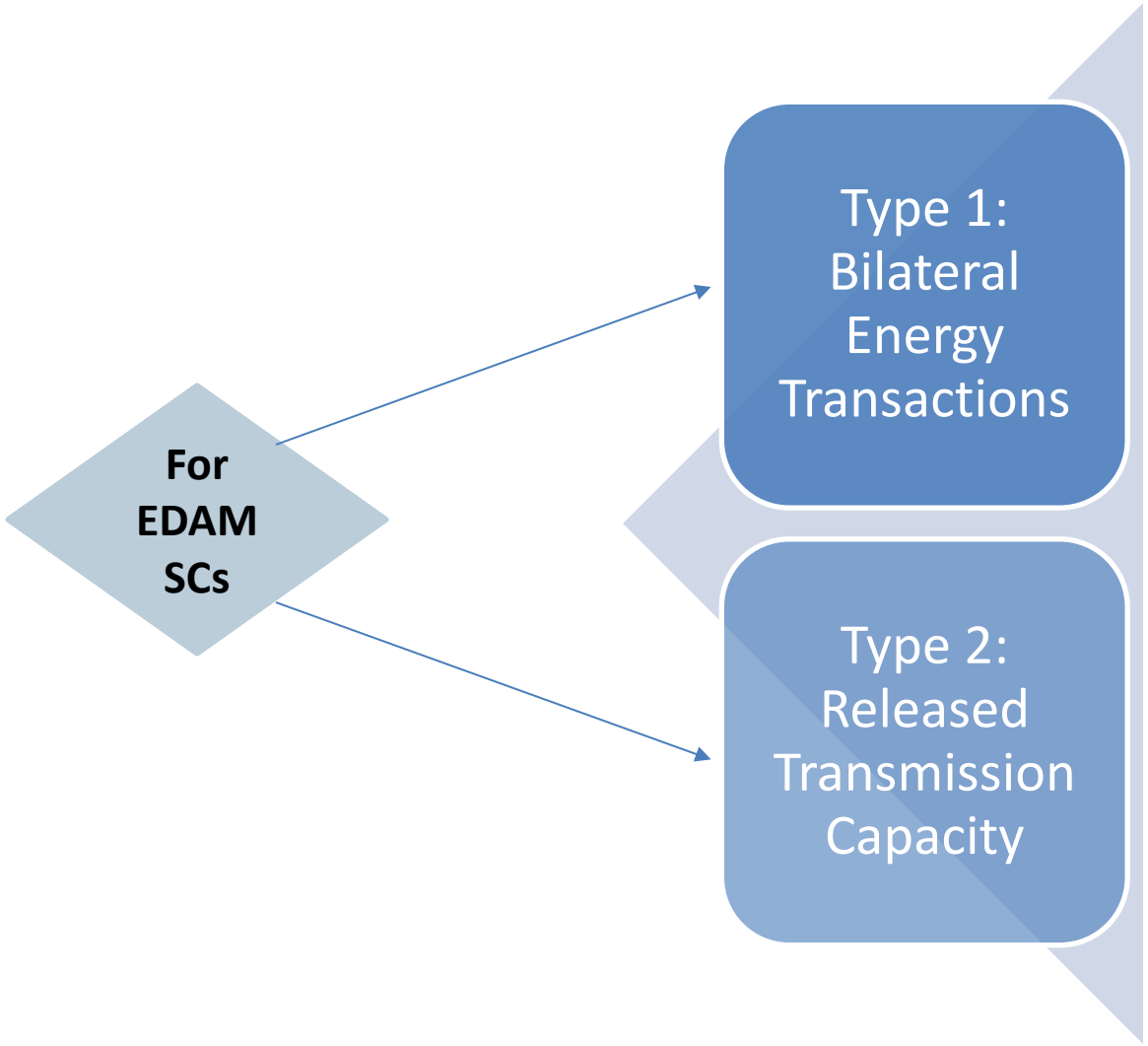
- **At 9:00 am, SIBR:**
  - Matches released capacity across the intertie.
  - Defines Type 2 TSR pairs for each Trading Hour.
  - Notifies the relevant EDAM SCs and EDAM Entities—no further action is required from EDAM SCs.
    - Matched pairs will display in SIBR.
- **Revenue Eligibility:**
  - EDAM SCs are eligible to receive 50% of the transfer revenue (unless otherwise specified in the Master File).

Matching Released Transfer Capacity Between BAAs at a Transfer Location



- This method also applies to released capacity by EDAM SCs at other transfer locations along the same intertie, even if one or both BAAs differ.
- EDAM SCs must allocate their released capacity across multiple transfer location pairs.
  - This is necessary because the SIBR matching method requires distinct released capacity values for each transfer location pair.
- For Type 2 TSRs where CAISO is the BAA at a CAISO transfer location (which also serves as a CAISO Scheduling Point):
  - SIBR will match the released capacity from EDAM SCs on the EDAM BAA side with the new firm transmission capacity released by CAISO at that Scheduling Point.
  - All TSRs (regardless of type) and all import/export resources at that Scheduling Point will be subject to the applicable intertie scheduling limits.

TSR Recap: Type 1 & Type 2



Example:
Supplier with long-term contract to supply load in another BA would likely have **TSR Type 1** and **TSR Type 2** set up in Master File.

- Use TSR Type 1 when scheduling energy for delivery to load.
- Use TSR Type 2 when releasing transmission capacity (or a portion of it) to the market.

Day-Ahead Market Awards for TSRs

Depending on the TSR Type, a TSR may have the following schedules and awards:

Market Award	Type 1	Type 2	Type 3	Type 4
Energy Schedule	✓ Energy Schedule	✓ Energy Schedule	✓ Energy Schedule	✓ Energy Schedule
Ancillary Services Award	N/A	N/A	✓ Regulation Up ✓ Regulation Down ✓ Spinning ✓ Non-Spinning	N/A
Imbalance Reserves	N/A	✓ Imbalance Reserve Up ✓ Imbalance Reserve Down	✓ Imbalance Reserve Up ✓ Imbalance Reserve Down	✓ Imbalance Reserve Up ✓ Imbalance Reserve Down
Reliability Capacity	N/A	✓ Reliability Capacity Up	✓ Reliability Capacity Up	✓ Reliability Capacity Up

TSRs in the Real-Time Market

- All Day-Ahead Market (DAM) schedules and awards are rolled over to the Real-Time Market (RTM).
- No TSR bids are submitted in RTM, except for Type 1 TSRs that must be rebid to re-affirm the exercise of CRNs via self-scheduling, subject to entitlement validation.
  - SIBR does not perform balancing validation in RTM because there are no load bids.
- SIBR generates TSR bids with the DAM schedules (as self-schedule bids) and DAM awards.
- DA TSR schedules and awards are not optimized in the RTM, but they may be reduced for derates in the TSR Maximum Capacity submitted to SIBR by EDAM Entities.
  - Reduced DAM schedules and awards are published by SIBR for transfer revenue deviation settlement.

TSR Schedule Update in the Real-Time Market (RTM)

- EDAM Entity of the from BAA, acting as the primary tagging authority for a Type 1 TSR, may update the TSR schedule (e-Tag) on behalf of the EDAM SC.
- Update may occur in real time to reflect changes in the exercise of the CRN, provided the CRN permits such updates. The updated schedule: may exceed the Clean Bid schedule, must not exceed the Maximum Capacity.
- RTM will validate that the total scheduled capacity for a CRN at a transfer location does not exceed the CRN capacity specified by the EDAM Entity. Validation includes:
  - The sum of all Type 1 TSR schedules by an EDAM SC for that CRN and transfer location.
  - Plus any capacity released in the DAM by the EDAM SC for that CRN and location.
- If the total scheduled capacity exceeds the CRN limit:
  - RTM will associate the CRN only with the valid portion of the schedule.
  - The valid portion will retain its scheduling priority.
  - Any excess schedule will be treated as a price-taker and will not qualify for financial hedging in settlement.
- An EDAM SC may exercise rights reserved in the DAM if the additional transfer capacity has not been released by the EDAM Entity under a Type 4 TSR.
  - Not allowed if the EDAM Entity has reduced the Maximum Capacity of the Type 4 TSR to trigger a redispatch in RTM.

Transfer Revenue Allocation in EDAM

Transfer Revenue Allocation: Except for Type 2 transfer capacity releases occurring before 9:00 am, transfer revenue is generally split evenly between the EDAM Entities on each side of the transfer.

Custom Revenue Splits: If a different revenue-sharing ratio is specified in the Master File (based on BAA pair, intertie, and direction) that ratio will override the default even split.

Revenue Distribution to EDAM SCs: Each EDAM Entity is responsible for distributing its share of the transfer revenue to its EDAM SCs in accordance with its Open Access Transmission Tariff (OATT).

Settlement Information: Will be provided in the training session that focuses on the settlements-related impacts of DAME, EDAM, and EDAM CAISO BAA Participation Rules.

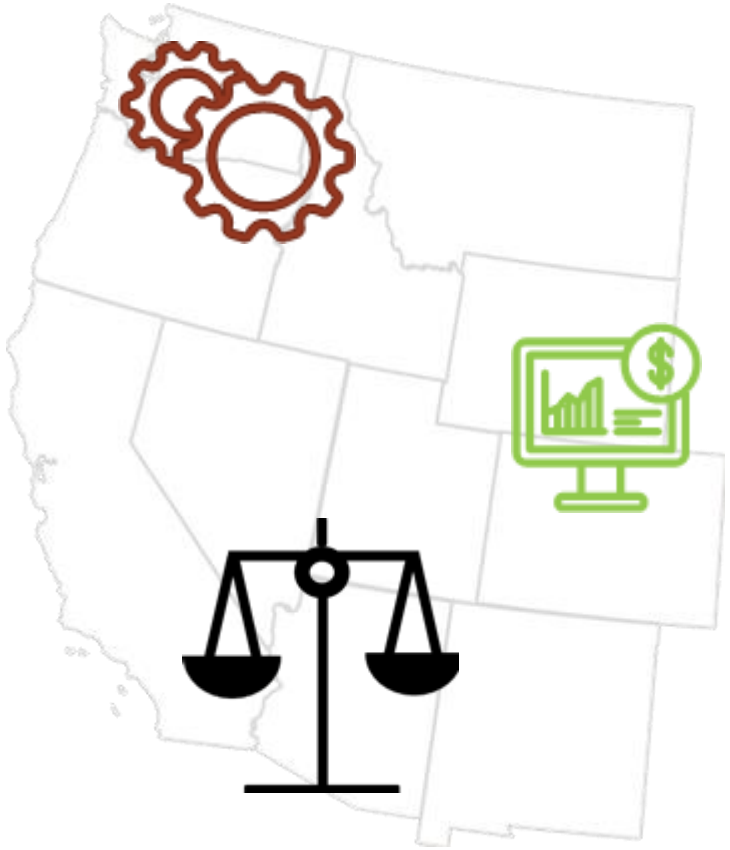
Learn more in the **settlements-focused** training!

Bidding Examples

Objective:
Interpret Day-Ahead bidding examples

Initiative Review | Market Pricing | EDAM Processes | Transfer System Resources | Bidding Examples | Application Changes | Market Simulation

Market Optimization and Results



SCs bid their resources into a variety of market products and the market processes run to determine the optimal solution for the trade date.

The methodology used to determine market awards is called **Security Constrained Unit Commitment (SCUC)**. The SCUC methodology maximizes economic efficiency, relieves network congestion, and considers physical constraints to achieve least-cost resource commitment and scheduling across the full 24-hours of the trade date.

Market results are published to provide **demand** and **supply** with their day-ahead schedules and awards.

What are the bidding parameters for the different products?

See Tariff section 39.6 for more bidding rules

Energy

- Maximum of 10 segments
- Supply bids ($/MWh) have a monotonically increasing bid curve
- Demand bids ($/MWh) have a monotonically decreasing bid curve
- Subject to energy soft bid cap of $1000/hard cap of $2000 and floor of -$150
- Default Energy Bid used for Market Power Mitigation

Imbalance Reserves

- One segment curve, bid + MW
- Default Availability Bid used for Market Power Mitigation

Reliability Capacity

- One segment curve, bid + MW
- Default Availability Bid used for Market Power Mitigation
- Automatic RCU bid insertion for certified resources

Note that there is a bid cap, not a price cap.

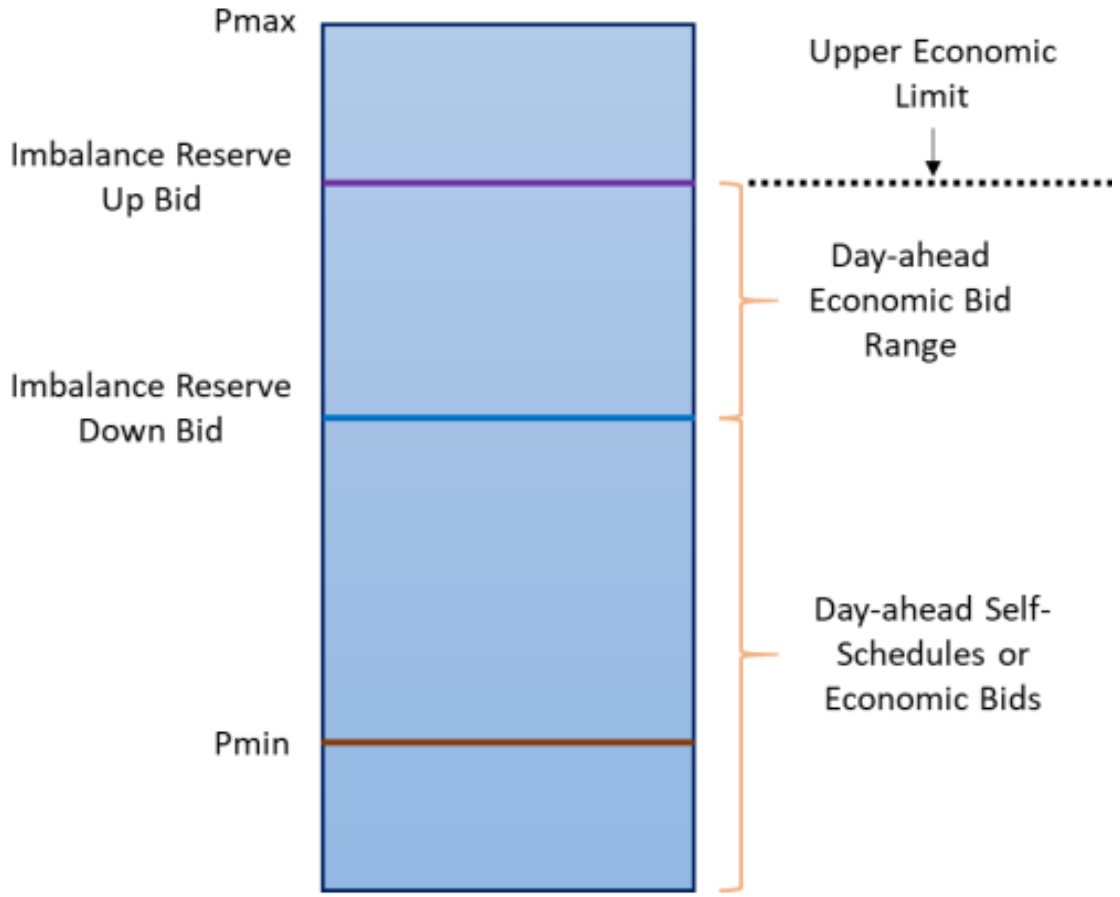
How does the day-ahead award affect a resource's real-time position?

- The Day-Ahead Market is a financial position only.
- Day-ahead awards directly affect the real-time position.
- Scheduling Coordinators are expected to deliver their day-ahead award in real-time or bid something else.
  - Day-ahead awards for energy becomes a resource's day-ahead schedule.
    - In real-time, these MWs can be: 1) re-bid economically, 2) bid as a self-schedule, or 3) a combination of self-schedule bids and economic bids.
      - **TSR nuance**: only Type 1 can re-bid in real-time. Day-ahead results for TSR types 2, 3, and 4 will flow into real-time.

Day-Ahead Bidding Rules for Imbalance Reserves and Reliability Capacity

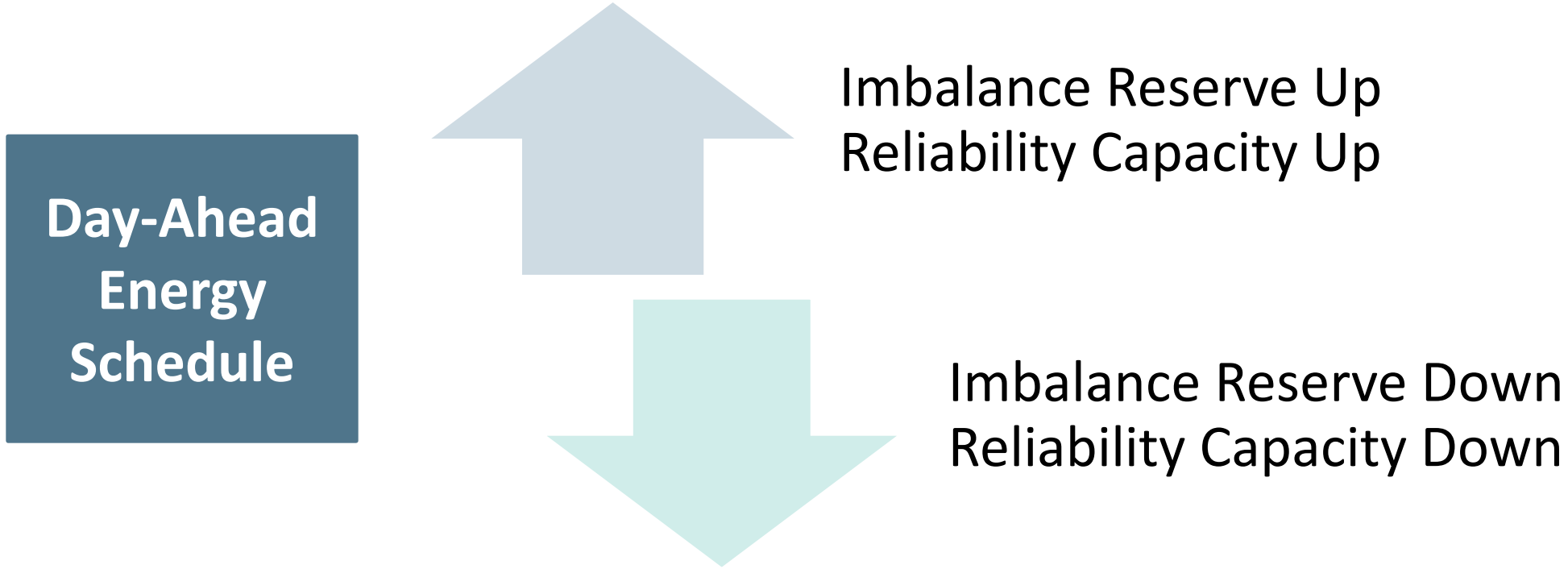
Refer to Business Requirements Specification for Day-Ahead Market Enhancement (DAME) for details on new capacity products:

- Resource Eligibility Table
- Proposed and Existing DAM Products
- Bidding Obligations



Impact of Capacity Awards on Day-Ahead Energy Schedules

A resource's awards in the day-ahead (EDAM) timeframe have a **must offer obligation** to submit bids for energy in real-time (WEIM) to cover the range of market awards. If the SC does not submit bids, the market will insert bids to ensure the resource meets its must offer obligation.



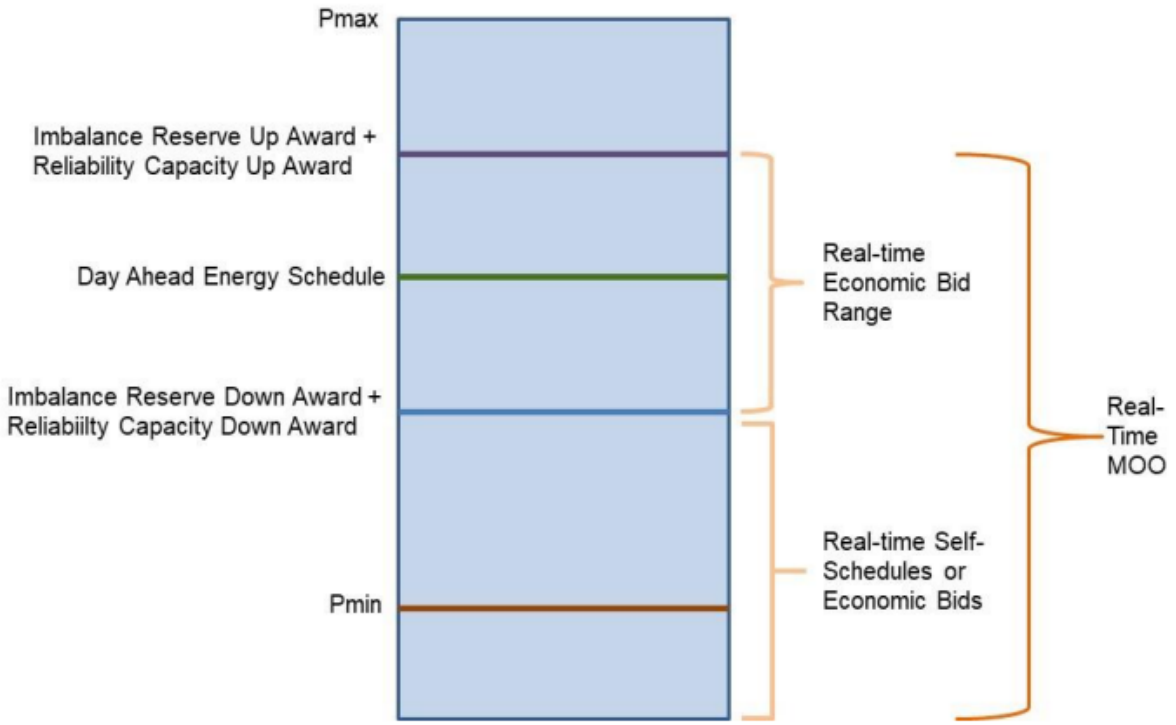
Real-Time Bidding Obligations

Refer to Business Requirements Specification for Day-Ahead Market Enhancement (DAME) for details on new capacity products

- Resource Eligibility Table
- Proposed and Existing DAM Products
- Bidding Obligations

Note that in real-time, these MWs can be:

1) Re-bid economically
2) Bid as a self-schedule, or
3) Submitted as a combination of self-schedule bids and economic bids.



Let’s work through some examples that depict option 3!

Example 1: Awards for Energy and Imbalance Reserves

Day-Ahead Awards

Energy

Imbalance Reserves

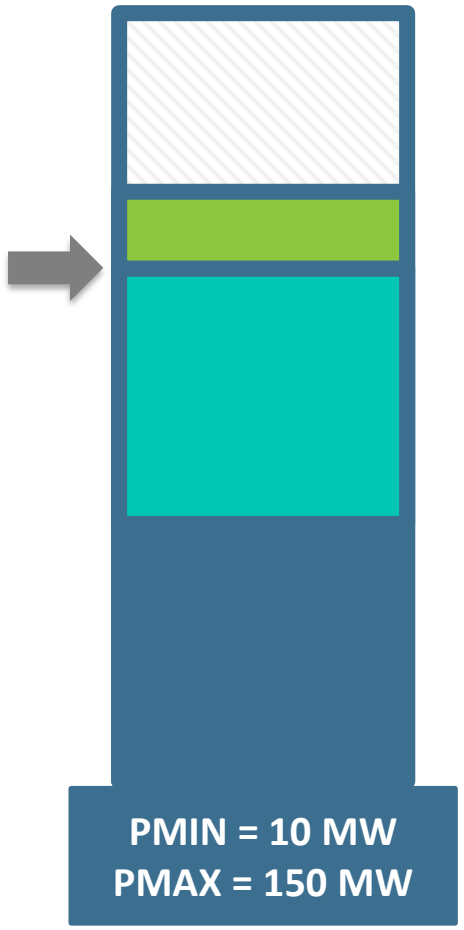
Example 1: Awards for Energy and Imbalance Reserves

Day-Ahead Awards

Energy: 100

IRD: 50

IRU: 15



Economic Bid Curve: 50-115

SS Bid: 50

Real-Time Must Offer Obligation

(Arrow indicates DA Energy Award)

Example 2: Awards for Energy, Imbalance Reserves, and Reliability Capacity

Day-Ahead Awards

Energy

Imbalance Reserves

Reliability Capacity

Example 2: Awards for Energy, Imbalance Reserves, and Reliability Capacity

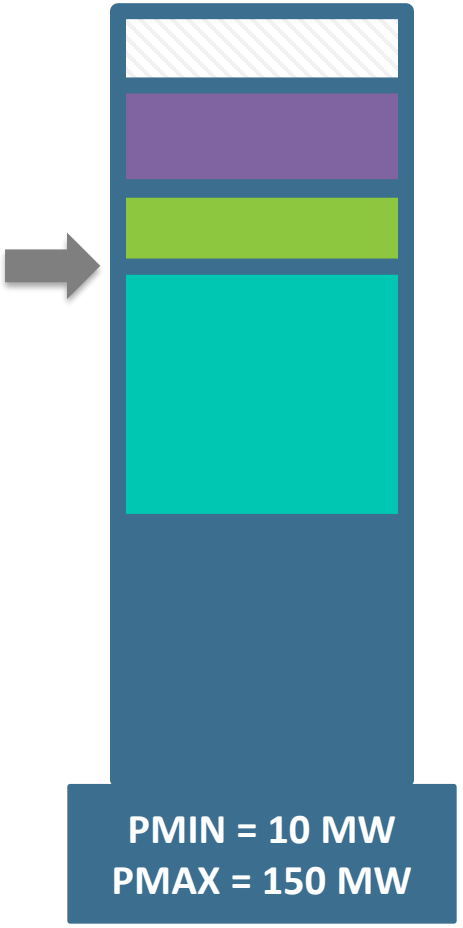
Day-Ahead Awards

Energy: 100

IRD: 50

IRU: 15

RCU: 20



Economic Bid Curve: 50-135

SS Bid: 50

Real-Time Must Offer Obligation

(Arrow indicates DA Energy Award)

Example 3: Awards for Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services

Day-Ahead Awards

Energy

Imbalance Reserves

Reliability Capacity

Ancillary Services

Example 3: Awards for Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services

Day-Ahead Awards

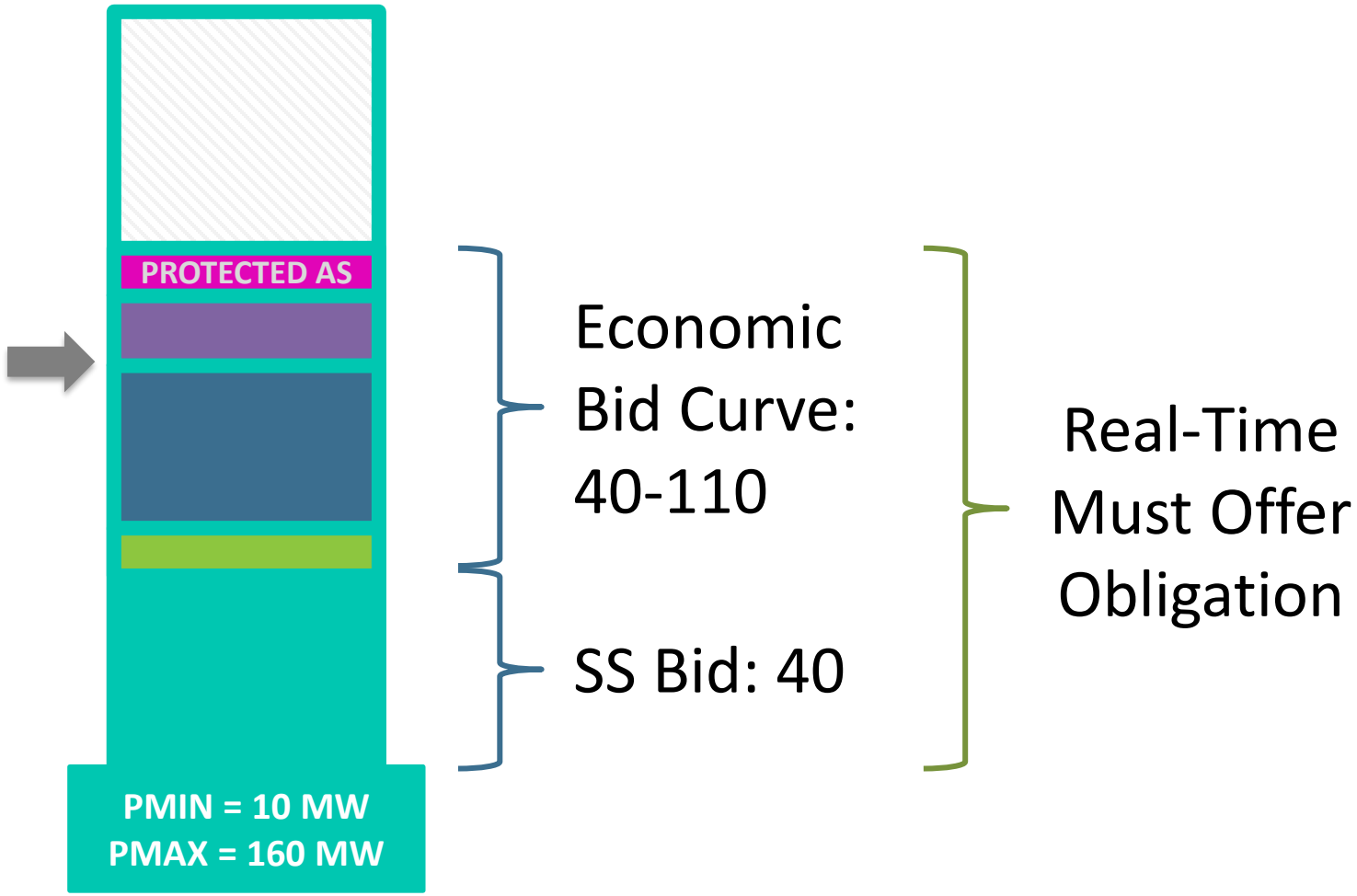
Energy: 85

IRU: 15

IRD: 35

RCD: 10

AS Spin: 10



(Arrow indicates DA Energy Award)

Application Changes

Objectives:
Outline changes in software applications supporting EDAM
Understand the updated functional data flow

Initiative Review | Market Pricing | EDAM Processes | Transfer System Resources | Bidding Examples | Application Changes | Market Simulation

Master File

How is the EDAM participation model different than WEIM?

WEIM has two participation models

Participating Resource (PR)

- Submits economic bids that allow the market to dispatch the resource in real-time.
- Uses BSAP and SIBR applications.

Non-Participating Resource (NPR)

- Operates in the BA at a base scheduled output but **does not** get economically dispatched in real-time.
- Uses BSAP application only.

EDAM has one model

- All EDAM resources are required to be participating resources, even if they will only submit self-schedule bids.
- Economic bids and self-schedule bids submitted via SIBR application.
- Follow the existing process to convert NPR to PR.

BSAP application not used in EDAM

Analyze and address current set of WEIM non-participating resources

- All non-participating resources must be converted to participating resources.
  - Refers to resources in Master File flagged as WEIM non-participating resources.
  - Does not refer to behind the meter, rooftop solar, etc.
- Submit required documentation to convert NPR to PR through existing process.
  - Resource ID remains the same.
- This may require action by the **EDAM Entity** and/or the **EDAM SC** based upon the resource fleet within the respective BAA and how they are set up in Master File.
  - Example: EDAM Entity converts resources from NPR to PR and submits resource transfer to EDAM SC.

Update resource parameters in Master File to allow for EDAM participation

Fields added to Master File to account for new capacity products added to Day-Ahead Market:

- Reliability Capacity
- Imbalance Reserves

EDAM Entity will complete CERT_RSE field.

CAISO Master File team will complete fields marked as not modifiable.

Instruction tab in GRDT contains a description of all form changes.

- Changes are highlighted in yellow
- Eligible resources listed in DAME BRS (Appendix B)

Generator RDT Definitions and Business Rules

GRDT Version 19.1

RDT Column Name (Gray-shaded fields are for reference only and are not modifiable through the RDT update process)	Column Code	Unit	Field Length	Definition	Can be Null?	Business Rule	Tips for making a change (All changes should be made through the UI or API unless specified here)
Certified for Resource Sufficiency Evaluation	CERT_RSE	Y/N	varchar2 (1)	An indentifier of a resource that is certified for Resource Sufficiency Evaluation	N	= Y if unit is certified for RSE	
Certified for Imbalance Reserve Up	CERT_IRU	Y/N	varchar2 (1)	An indentifier of a resource that is certified to provide Imbalance Reserve Up	N	=Y if unit is certified for IRU - If Y, CERT_IRU_MW will be populated	Field is not modifiable
Certified Capacity for Imbalance Reserve Up	CERT_IRU_MW	MW		Certified capacity for Imbalance Reserve Up	N		Field is not modifiable
Certified for Imbalance Reserve Down	CERT_IRD	Y/N	varchar2 (1)	An indentifier of a resource that is certified to provide Imbalance Reserve Down	N	=Y if unit is certified for IRD - If Y, CERT_IRD_MW will be populated	Field is not modifiable
Certified Capacity for Imbalance Reserve Down	CERT_IRD_MW	MW		Certified capacity for Imbalance Reserve Down	N		Field is not modifiable
Certified for Reliability Capacity Up	CERT_RCU	Y/N	varchar2 (1)	An indentifier of a resource that is certified to provide Reliability Capacity Up	N	=Y if unit is certified for RCU - If Y, CERT_RCU_MW will be populated	Field is not modifiable
Certified Capacity for Reliability Capacity Up	CERT_RCU_MW	MW		Certified capacity for Reliability Capacity Up	N		Field is not modifiable
Certified for Reliability Capacity Down	CERT_RCD	Y/N	varchar2 (1)	An indentifier of a resource that is certified to provide Reliability Capacity Down	N	=Y if unit is certified for RCD - If Y, CERT_RCD_MW will be populated	Field is not modifiable
Certified Capacity for Reliability Capacity Down	CERT_RCD_MW	MW		Certified capacity for Reliability Capacity Down	N		Field is not modifiable
Price Rank Option for Imbalance Reserve Up	PRC_RANK_IRU	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for IRU based on costs	Y	Default setting is 1	
Negotiated Rank Option for Imbalance Reserve Up	NEGO_RANK_IRU	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for IRU based on a negotiation with the CAISO	Y	Default setting is 2	
Price Rank Option for Imbalance Reserve Dwon	PRC_RANK_IRD	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for IRD based on costs	Y	Default setting is 1	
Negotiated Rank Option for Imbalance Reserve Down	NEGO_RANK_IRD	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for IRD based on a negotiation with the CAISO	Y	Default setting is 2	
Price Rank Option for Reliability Capacity Up	PRC_RANK_RCU	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for RCU based on costs	Y	Default setting is 1	
Negotiated Rank Option for Reliability Capacity Up	NEGO_RANK_RCU	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for RCU based on a negotiation with the CAISO	Y	Default setting is 2	
Price Rank Option for Reliability Capacity Dwon	PRC_RANK_RCD	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for RCD based on costs	Y	Default setting is 1	
Negotiated Rank Option for Reliability Capacity Down	NEGO_RANK_RCD	integer	varchar2 (1)	A method of calculating Default Day Ahead Bids for RCD based on a negotiation with the CAISO	Y	Default setting is 2	

Revision History | Definitions-GRDT | Definitions-IRDT | Air Quality District Map

Additional Master File changes that may apply

- Refer to the Master File section in Business Requirements (BRS) documents to view Master File changes that may apply to your resources:
  - Day-Ahead Market Enhancements (DAME)
  - Extended Day-Ahead Market (EDAM)
- For Example: GHG regulation area may need to be updated.
  - Tracks the jurisdictional state for GHG compliance obligation.
  - Currently, these options are CA and WA.

Identify Transfer Locations and TSRs in Master File to prepare for EDAM participation

WEIM customers should be familiar with the *Western Energy Imbalance Market Interchange Definition Template*.

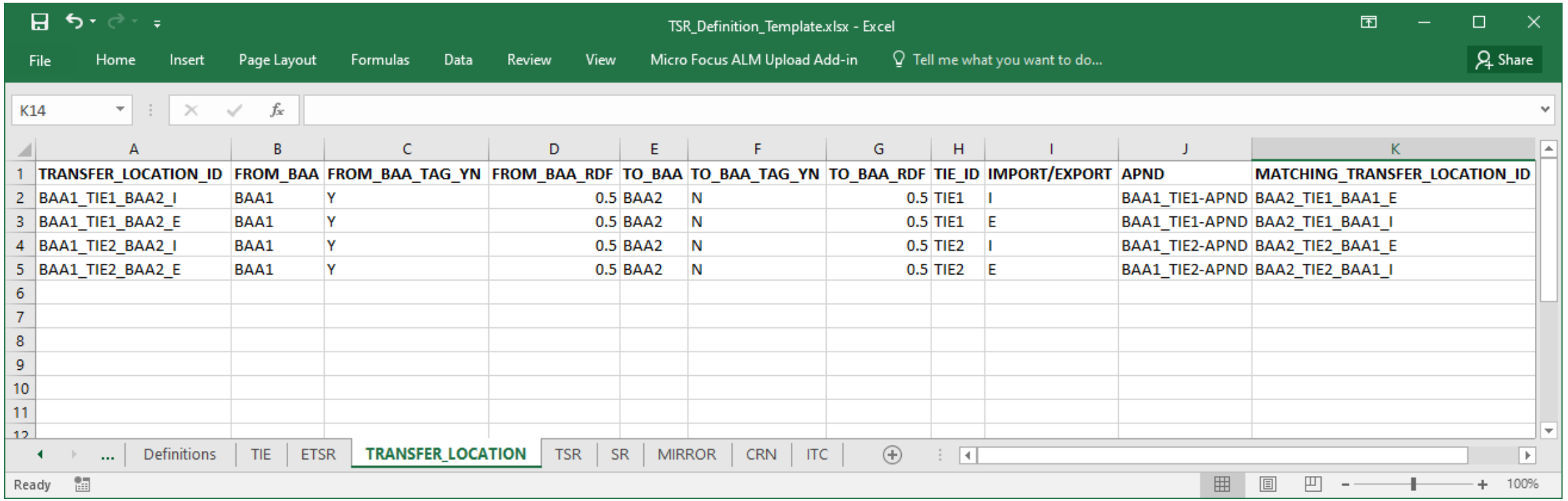
This document is being combined with the TSR Template so that once an entity joins EDAM, it will only need to maintain one template.

- New fields added to Master File to define transfer resources between EDAM areas.
- Supports EDAM by configuring contract rights and day-ahead transfers.

Registering Transfer Locations in Master File

Column Name	Column Code	Unit	Definition	Can be null?	Business Rule
Transfer Location ID	TRANSFER_LOCATION_ID	text	Transfer location is used to register TSR in MF, as well as transient TSR in SIBR	N	- Name convention: FROM_BAA underscore TIE_ID underscore TO_BAA underscore I/E
Balancing Authority Area FROM Side	FROM_BAA	text	The Balancing Authority Area which is the responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.	N	- Must be EDAM BAA - FROM BAA is the owner of the TSR definition template
Tag flag for FROM BAA	FROM_BAA_TAG_YN	Y/N	Defines whether the FROM side BAA will submit tags	N	- Must be either Y or N - Between FROM BAA and TO BAA, only one side can be Y, the other side must be N
FROM BAA Transfer Revenue Distribution	FROM_BAA_RDF	number	Defines how the transfer revenue is distributed between the FROM BAA and TO BAA	N	- Must be between 0 and 1, up to two digits after the decimal point - Sum of RDF from FROM_BAA and TO_BAA must equal to 1
Balancing Authority Area TO Side	TO_BAA	text	The Balancing Authority Area which is the responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.	N	- Must be EDAM BAA
Tag flag for FROM BAA	TO_BAA_TAG_YN	Y/N	Defines whether the TO side BAA will submit tags	N	- Can only be Y or N - Between FROM BAA and TO BAA, only one side can be Y, the other side must be N
FROM BAA Transfer Revenue Distribution	TO_BAA_RDF	number	Defines how the transfer revenue is distributed between the FROM BAA and TO BAA	N	- Must be between 0 and 1, up to two digits after the decimal point - Sum of RDF from FROM_BAA and TO_BAA must equal to 1
Intertie ID	TIE_ID	text	The associated intertie ID, where the EDAM Entity for the relevant EIM BAA has made transmission rights available for scheduling Energy/capacity Transfers from/to the other EDAM BAAs.	N	- This TIE_ID must match a TIE_ID defined in TIE tab. - Cannot be a meter submission tie only
Flow Direction Flag	IMPORT/EXPORT	I/E	The flag indicates the direction of energy flows, with regard to FROM_BAA. A pair of ETSR resrouces are usually created, including one Import Intertie (ITIE) and one Export Intertie (ETIE).	N	- Can only be I or E.
Price node for the Transfer Location	APND	text	The price node for the transfer location. All transfer resources defined on the transfer location will be mapped to the same price node.	N	- Defined based on the FROM BAA and TIE
Matching Transfer Location ID	MATCHING_TRANSFER_LOCATION_ID	text	Matching Transfer location ID for the EDAM BAA on the other side	N	- Name convention: FROM_BAA underscore TIE_ID underscore TO_BAA underscore I/E. where IMPORT/EXPORT is opposite direction from its corresponding transfer location.

Example of the Transfer Location worksheet with sample data



TSR_Definition_Template.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View Micro Focus ALM Upload Add-in Tell me what you want to do... Share

K14

	A	B	C	D	E	F	G	H	I	J	K
1	TRANSFER_LOCATION_ID	FROM_BAA	FROM_BAA_TAG_YN	FROM_BAA_RDF	TO_BAA	TO_BAA_TAG_YN	TO_BAA_RDF	TIE_ID	IMPORT/EXPORT	APND	MATCHING_TRANSFER_LOCATION_ID
2	BAA1_TIE1_BAA2_I	BAA1	Y	0.5	BAA2	N	0.5	TIE1	I	BAA1_TIE1-APND	BAA2_TIE1_BAA1_E
3	BAA1_TIE1_BAA2_E	BAA1	Y	0.5	BAA2	N	0.5	TIE1	E	BAA1_TIE1-APND	BAA2_TIE1_BAA1_I
4	BAA1_TIE2_BAA2_I	BAA1	Y	0.5	BAA2	N	0.5	TIE2	I	BAA1_TIE2-APND	BAA2_TIE2_BAA1_E
5	BAA1_TIE2_BAA2_E	BAA1	Y	0.5	BAA2	N	0.5	TIE2	E	BAA1_TIE2-APND	BAA2_TIE2_BAA1_I
6											
7											
8											
9											
10											
11											
12											

... Definitions TIE ETSR TRANSFER_LOCATION TSR SR MIRROR CRN ITC

Ready 100%

Registering Transfer System Resources in Master File (1 of 2)

Column Name	Column Code	Unit	Definition	Can be null?	Business Rule
Resource ID	RES_ID	text	EDAM transfer resource ID	N	- Name convention: FROM_BAA underscore TIE_ID underscore TO_BAA underscore IMPORT/EXPORT underscore TSR_TYPE underscore SC_ID underscore nn (nn is a numeric identifier) without spaces.
Scheduling Coordinator	SC_ID	text	The Scheduling Coordinator for the TSR	N	- Transmission customer SC for TSR type 1 and 2, cannot be EDAM entity SC - EDAM entity SC for TSR type 3 and 4
Maximum Capacity	MAX_CAP	number	Maximum scheduling capacity of the TSR	N	- Whole MW amount
Transfer Location ID	TRANSFER_ LOCATION_ID	text	Defines the transfer location ID for the corresponding TSR	N	- Must be defined on the TRANSFER_LOCATION tab
TSR Type	TSR_TYPE	number (1,2,3,4)	1. Bilateral energy transactions between Transmission Customers (TCs) that exercise their physical, and financial if applicable, transfer rights on each side of the transfer location. 2. Capacity from TCs that release their transfer rights on each side of the transfer location. 3. RSE-eligible transfer capacity released by EDAM Entities. 4. Non-RSE-eligible transfer capacity released by EDAM Entities.	N	- Can only be 1, 2, 3 or 4
Certified for RSE	CERT_RSE_YN	Y/N	The flag indicates if the TSR is eligible for RSE	N	- Y for TSR type 1 and 3 - N for TSR type 2 and 4

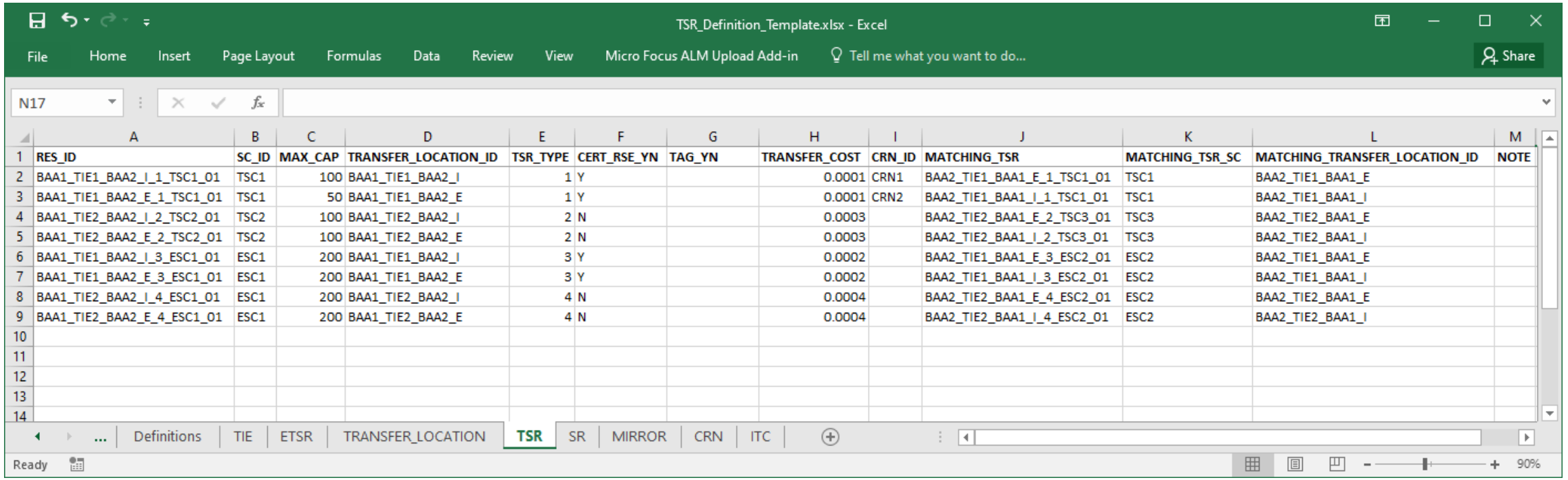
Additional fields on next slide

Registering Transfer System Resources in Master File (2 of 2)

Column Name	Column Code	Unit	Definition	Can be null?	Business Rule
Tag Flag	TAG_YN	Y/N	The flag indicates whether the FROM entity is responsible for base schedule.	N	- Y means FROM_BAA is responsible for tagging energy schedule and/or capacity award; - N means TO_BAA is responsible for tagging energy schedule and/or capacity award; - Both BAAs much coordinate and agree. If needed, ISO can verify with TO BAA.
Unique Contract Identifier	CRN_ID	text	Registered contract associated with the TSR	N	- Default values: - Type 1: 0.0001 - Type 2: 0.0003 - Type 3: 0.0002 - Type 4: 0.0004
Transfer Cost	TRANSFER_COST	text	Transfer cost for the TSR	Y	- Only applicable for type 1
Matching TSR Resource ID	MATCHING_TSR	text	Matching TSR Resource ID for the EDAM BAA on the other side	N	- Name convention: FROM_BAA underscore TO_BAA underscore TIE_ID underscore IMPORT/EXPORT underscore TSR_TYPE underscore SC_ID underscore nn (nn is a numeric identifier) without spaces. where IMPORT/EXPORT is opposite direction from its corresponding ETSR.
Scheduling Coordinator for the Matching TSR	MATCHING_TSR_SC_ID	text	The Scheduling Coordinator for the matching TSR	N	- Transmission customer SC for TSR type 1 and 2, cannot be EDAM entity SC - EDAM entity SC for TSR type 3 and 4
Transfer Location ID for the Matching TSR	MATCHING_TRANSFER_LOCATION_ID	text	The Transfer Location ID for the matching TSR	N	
Note	NOTE	text	Additional information	Y	

Example of the TSR worksheet with sample data

All TSR types must be defined by the EDAM Entity on each side of a transfer by registering the TSR in the Master File. *



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	RES_ID	SC_ID	MAX_CAP	TRANSFER_LOCATION_ID	TSR_TYPE	CERT_RSE_YN	TAG_YN	TRANSFER_COST	CRN_ID	MATCHING_TSR	MATCHING_TSR_SC	MATCHING_TRANSFER_LOCATION_ID	NOTE
2	BAA1_TIE1_BAA2_I_1_TSC1_01	TSC1	100	BAA1_TIE1_BAA2_I	1	Y		0.0001	CRN1	BAA2_TIE1_BAA1_E_1_TSC1_01	TSC1	BAA2_TIE1_BAA1_E	
3	BAA1_TIE1_BAA2_E_1_TSC1_01	TSC1	50	BAA1_TIE1_BAA2_E	1	Y		0.0001	CRN2	BAA2_TIE1_BAA1_I_1_TSC1_01	TSC1	BAA2_TIE1_BAA1_I	
4	BAA1_TIE2_BAA2_I_2_TSC2_01	TSC2	100	BAA1_TIE2_BAA2_I	2	N		0.0003		BAA2_TIE2_BAA1_E_2_TSC3_01	TSC3	BAA2_TIE2_BAA1_E	
5	BAA1_TIE2_BAA2_E_2_TSC2_01	TSC2	100	BAA1_TIE2_BAA2_E	2	N		0.0003		BAA2_TIE2_BAA1_I_2_TSC3_01	TSC3	BAA2_TIE2_BAA1_I	
6	BAA1_TIE1_BAA2_I_3_ESC1_01	ESC1	200	BAA1_TIE1_BAA2_I	3	Y		0.0002		BAA2_TIE1_BAA1_E_3_ESC2_01	ESC2	BAA2_TIE1_BAA1_E	
7	BAA1_TIE1_BAA2_E_3_ESC1_01	ESC1	200	BAA1_TIE1_BAA2_E	3	Y		0.0002		BAA2_TIE1_BAA1_I_3_ESC2_01	ESC2	BAA2_TIE1_BAA1_I	
8	BAA1_TIE2_BAA2_I_4_ESC1_01	ESC1	200	BAA1_TIE2_BAA2_I	4	N		0.0004		BAA2_TIE2_BAA1_E_4_ESC2_01	ESC2	BAA2_TIE2_BAA1_E	
9	BAA1_TIE2_BAA2_E_4_ESC1_01	ESC1	200	BAA1_TIE2_BAA2_E	4	N		0.0004		BAA2_TIE2_BAA1_I_4_ESC2_01	ESC2	BAA2_TIE2_BAA1_I	
10													
11													
12													
13													
14													

* (except for the Type 1 TSRs defined by EDAM SCs in SIBR and Type 2 TSRs that result from SIBR matching)

TSR Definition: Cross Validation

TSR definition (in Master File or SIBR) must be cross validated with the definition of its matching TSR (MATCHING_RES_ID) that is defined by the EDAM Entity or EDAM SC on the other side of the transfer.

- **RES_ID** must be the same as the **MATCHING_RES_ID** in the matching TSR definition.
- **SC_ID** must be the same as the **MATCHING_SC_ID** in the matching TSR definition.
- **TRANSFER_LOCATION** must be the same as the **MATCHING_TRANSFER_LOCATION** in the matching TSR definition.
- **TSR_TYPE** must be the same in the **matching TSR definition**.
- **MAXIMUM_CAPACITY** must be the same in the **matching TSR definition**, otherwise the lower value prevails.

EXISTING TRANSMISSION CONTRACTS

Register long-term contracts within Master File

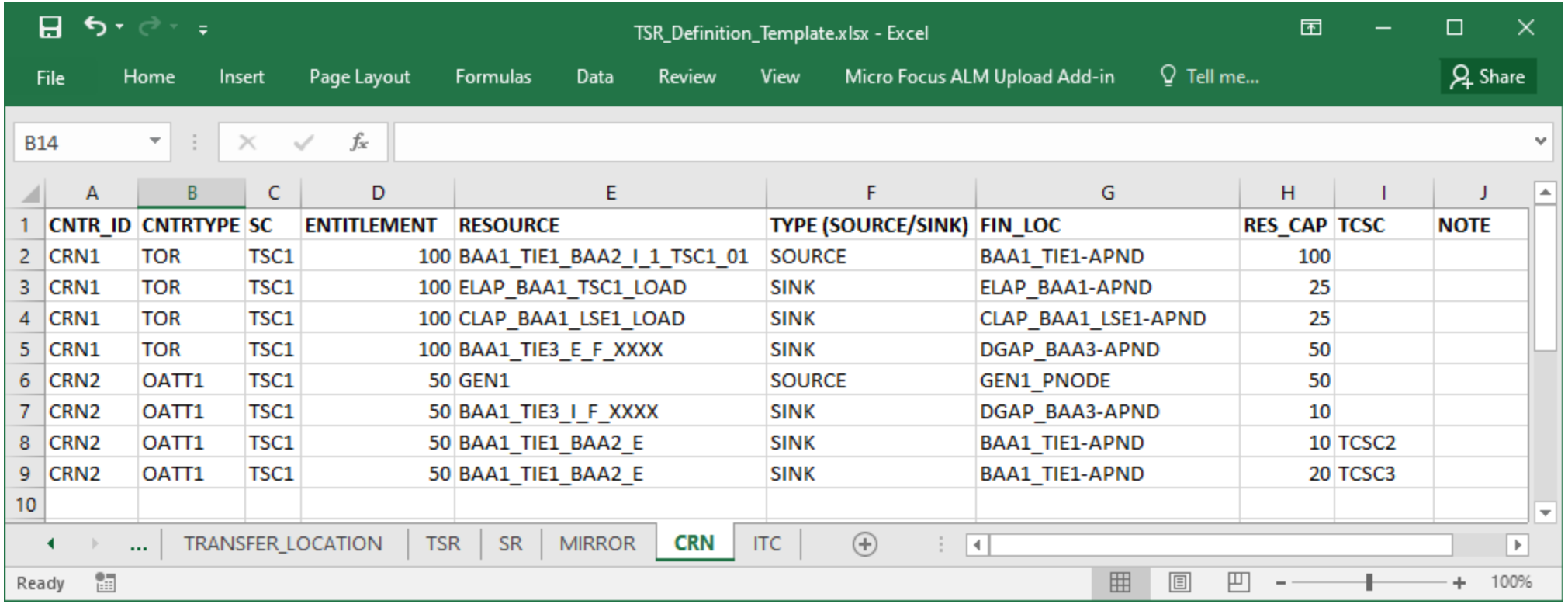
- EDAM Entity to register long-term contracts in Master File to obtain a Contract Reference Number (CRN).
- The purpose for registering a CRN is provide details such as:
  - The respective SCs who own the contract rights.
  - The type of contract (which identifies scheduling priority).
  - The MW capacity of the contract.

- EDAM SC will reference their respective CRNs when submitting schedules within the Scheduling Infrastructure and Business Rules (SIBR) application.

Registering Contract Rights in Master File to obtain a Contract Reference Number (CRN)

Column Name	Column Code	Unit	Definition	Can be null?	Business Rule
Contract ID	CNTR_ID	text	Unique identifier for contract rights	N	- Name convention: BAAunderscore free text
Contract Type	CNTRTYPE	text	Types of the contract rights	N	Valid contract types: - TOR - ETC - OATT1 - OATT2
Scheduling Coordinator	SC	text	SC for the owner of the contract rights	N	- Must be an existing registered SC
Max contract entitlement	ENTITLEMENT	number	Maximum contract rights in MW	N	- Must be whole number
Resource ID	RESOURCE	text	Resource associated with the contract rights	N	- Can be generator, load, import/export, TSR or transfer location
Resource Type	TYPE (SOURCE/SINK)	text	Type of resource for the contract	N	- Valid options are either SOURCE or SINK - SOURCE can be generators, imports including TSR, or transfer location with import direction - SINK can be load, exports inlcuding TSR, or transfer location with export direction
Financial location	FIN_LOC	text	Financial location of the contract rights for the corresponding resource	N	- Can be a Pnode or an APNode
Resource Contract Capacity	RES_CAP	text	Contract rights at resource level in MW	N	- Must be whole number - Must be less than or equal to contract entitlement
Transmission Customer Scheduling Cooridnator	TCSC	text	SC for the corresponding contract rights under the transfer location	Y	- Only needed when the resource is a transfer location - Total MW amounts under the same transfer location cannot exceed the contract entitlement
Note	NOTE	text	Additional information	Y	

Example of the CRN worksheet with sample data



	A	B	C	D	E	F	G	H	I	J
1	CNTR_ID	CNTRTYPE	SC	ENTITLEMENT	RESOURCE	TYPE (SOURCE/SINK)	FIN_LOC	RES_CAP	TCSC	NOTE
2	CRN1	TOR	TSC1	100	BAA1_TIE1_BAA2_I_1_TSC1_01	SOURCE	BAA1_TIE1-APND	100		
3	CRN1	TOR	TSC1	100	ELAP_BAA1_TSC1_LOAD	SINK	ELAP_BAA1-APND	25		
4	CRN1	TOR	TSC1	100	CLAP_BAA1_LSE1_LOAD	SINK	CLAP_BAA1_LSE1-APND	25		
5	CRN1	TOR	TSC1	100	BAA1_TIE3_E_F_XXXX	SINK	DGAP_BAA3-APND	50		
6	CRN2	OATT1	TSC1	50	GEN1	SOURCE	GEN1_PNODE	50		
7	CRN2	OATT1	TSC1	50	BAA1_TIE3_I_F_XXXX	SINK	DGAP_BAA3-APND	10		
8	CRN2	OATT1	TSC1	50	BAA1_TIE1_BAA2_E	SINK	BAA1_TIE1-APND	10	TCSC2	
9	CRN2	OATT1	TSC1	50	BAA1_TIE1_BAA2_E	SINK	BAA1_TIE1-APND	20	TCSC3	
10										

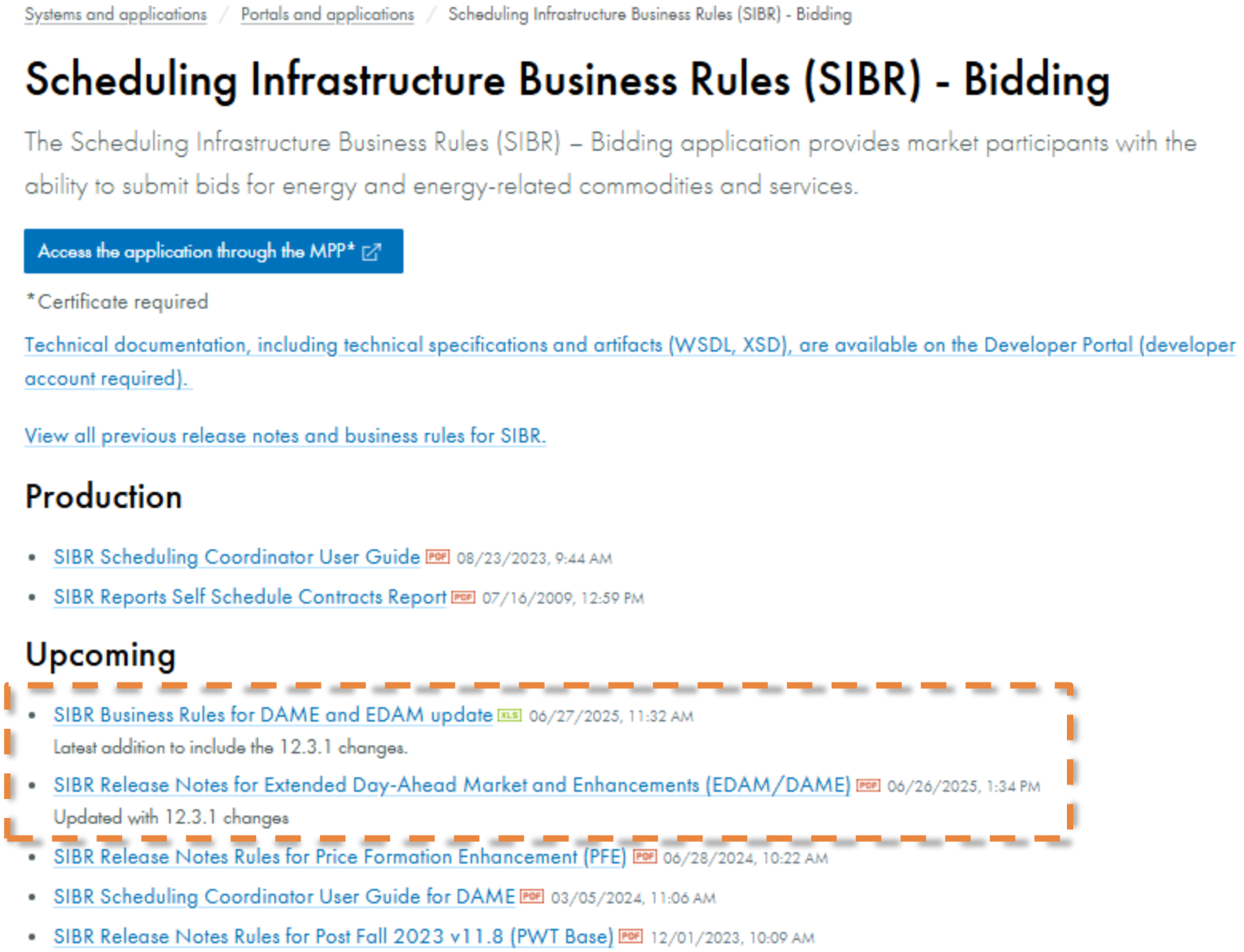
Scheduling Infrastructure & Business Rules (SIBR)

TSR Definition in SIBR

- The TSR definition in SIBR persists only for the Trading Day; it must be redefined every day if needed until it is registered in the Master File.
- An EDAM Entity may submit in SIBR a TSR definition for a registered TSR in the Master File to indicate a derate on the registered Maximum Capacity.
- An EDAM Entity may also resubmit a TSR definition in SIBR to update the Maximum Capacity, subject to cross revalidation; however, derates are only accepted before 9:00 am. After successful cross validation of TSR definitions, the valid TSRs are available for submission of TSR bids by the respective EDAM SCs, who will be notified accordingly.

SIBR documentation is posted to caiso.com

- Existing business rules are posted, along with upcoming changes based on EDAM implementation.
- Release notes capture changes made to business rules.
- Additional technical information is posted to the ISO's Developer Portal (account required).



Systems and applications / Portals and applications / Scheduling Infrastructure Business Rules (SIBR) - Bidding

Scheduling Infrastructure Business Rules (SIBR) - Bidding

The Scheduling Infrastructure Business Rules (SIBR) – Bidding application provides market participants with the ability to submit bids for energy and energy-related commodities and services.

Access the application through the MPP*

*Certificate required

Technical documentation, including technical specifications and artifacts (WSDL, XSD), are available on the Developer Portal (developer account required).

View all previous release notes and business rules for SIBR.

Production

- SIBR Scheduling Coordinator User Guide PDF 08/23/2023, 9:44 AM
- SIBR Reports Self Schedule Contracts Report PDF 07/16/2009, 12:59 PM

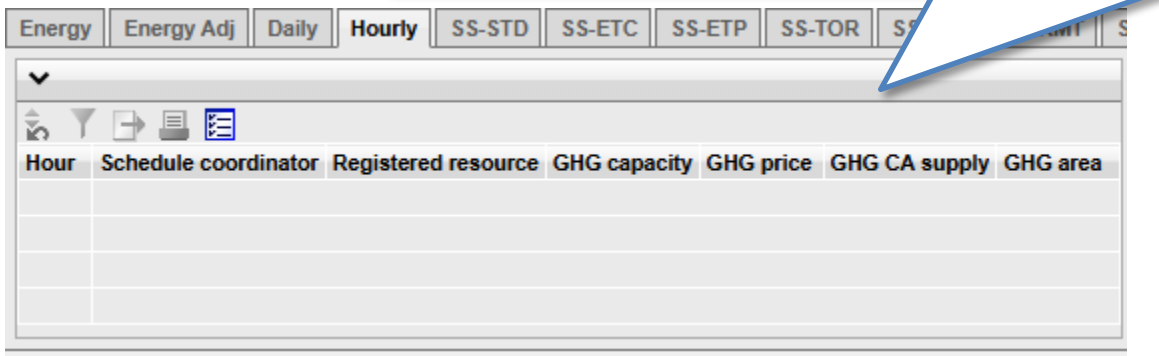
Upcoming

- SIBR Business Rules for DAME and EDAM update XLS 06/27/2025, 11:32 AM
  Latest addition to include the 12.3.1 changes.
- SIBR Release Notes for Extended Day-Ahead Market and Enhancements (EDAM/DAME) PDF 06/26/2025, 1:34 PM
  Updated with 12.3.1 changes
- SIBR Release Notes Rules for Price Formation Enhancement (PFE) PDF 06/28/2024, 10:22 AM
- SIBR Scheduling Coordinator User Guide for DAME PDF 03/05/2024, 11:06 AM
- SIBR Release Notes Rules for Post Fall 2023 v11.8 (PWT Base) PDF 12/01/2023, 10:09 AM

Green House Gas (GHG) Bidding and Changes to SIBR UI

Scheduling Coordinators with resources physically located outside of a GHG regulation area have the option to designate their energy to serve load needs inside of GHG regulation areas through their bid submissions.

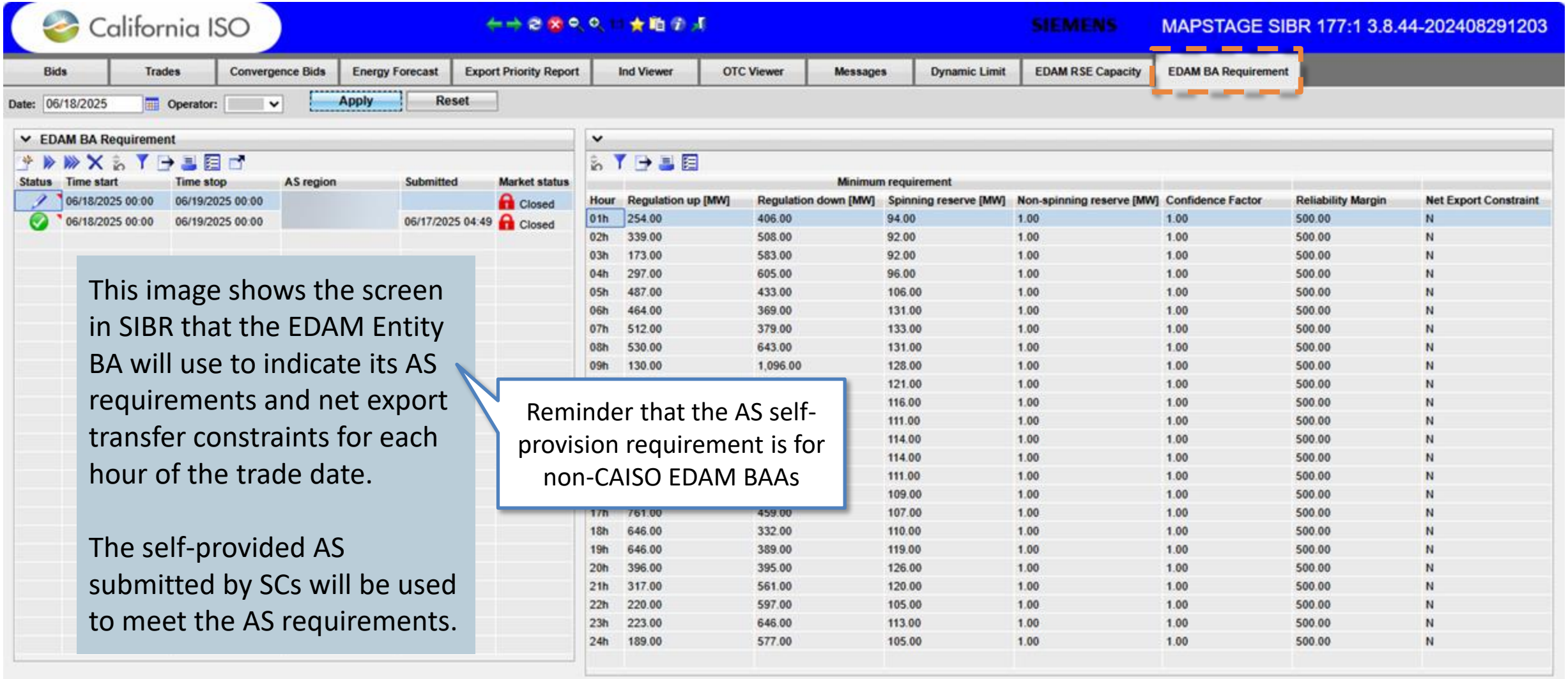
GHG bid adders to energy bids submitted through the SIBR **hourly** bid tab reflect GHG regulation costs for imports



New field: GHG Area

Field to be removed: GHG CA Supply

SIBR: EDAM Entity provides AS requirements and net export transfer constraints

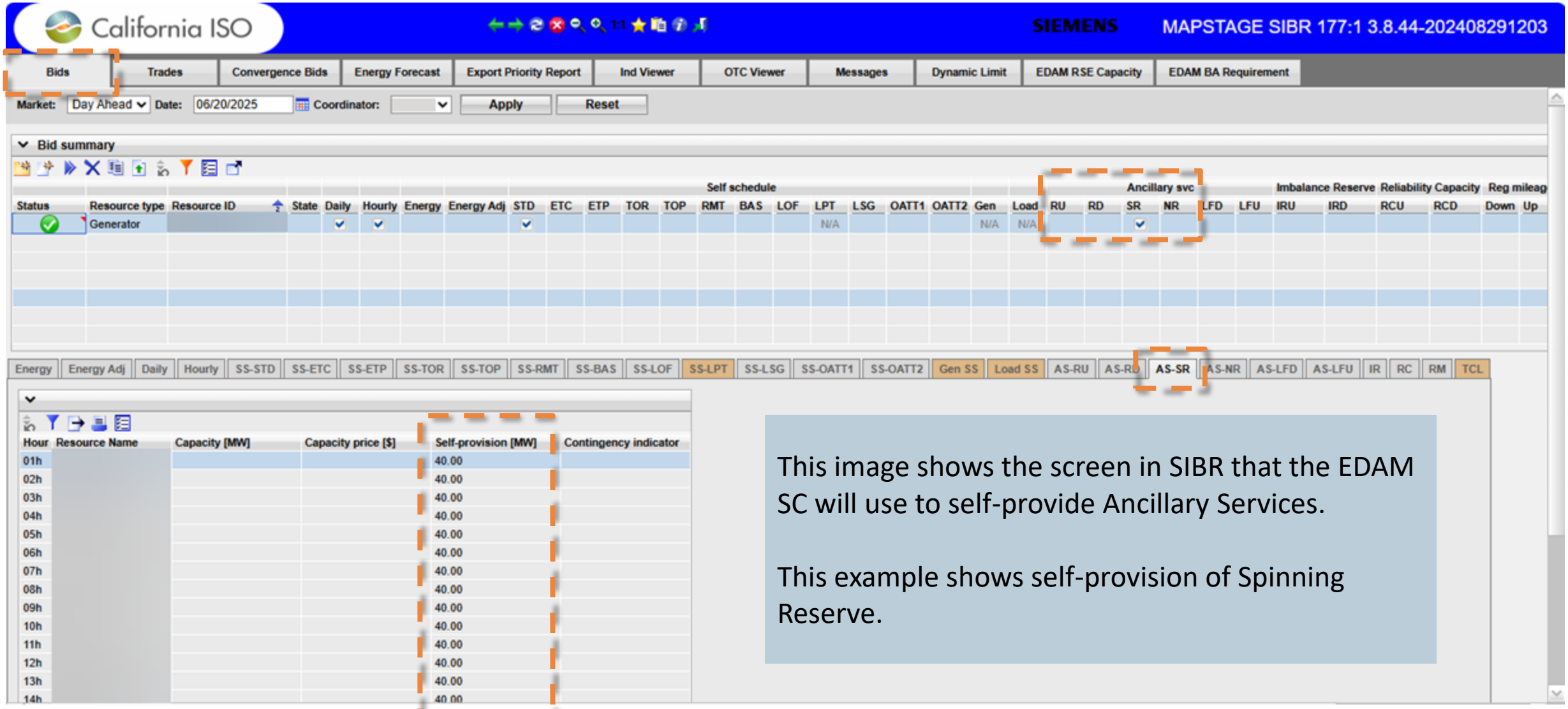


This image shows the screen in SIBR that the EDAM Entity BA will use to indicate its AS requirements and net export transfer constraints for each hour of the trade date.

The self-provided AS submitted by SCs will be used to meet the AS requirements.

Reminder that the AS self-provision requirement is for non-CAISO EDAM BAAs

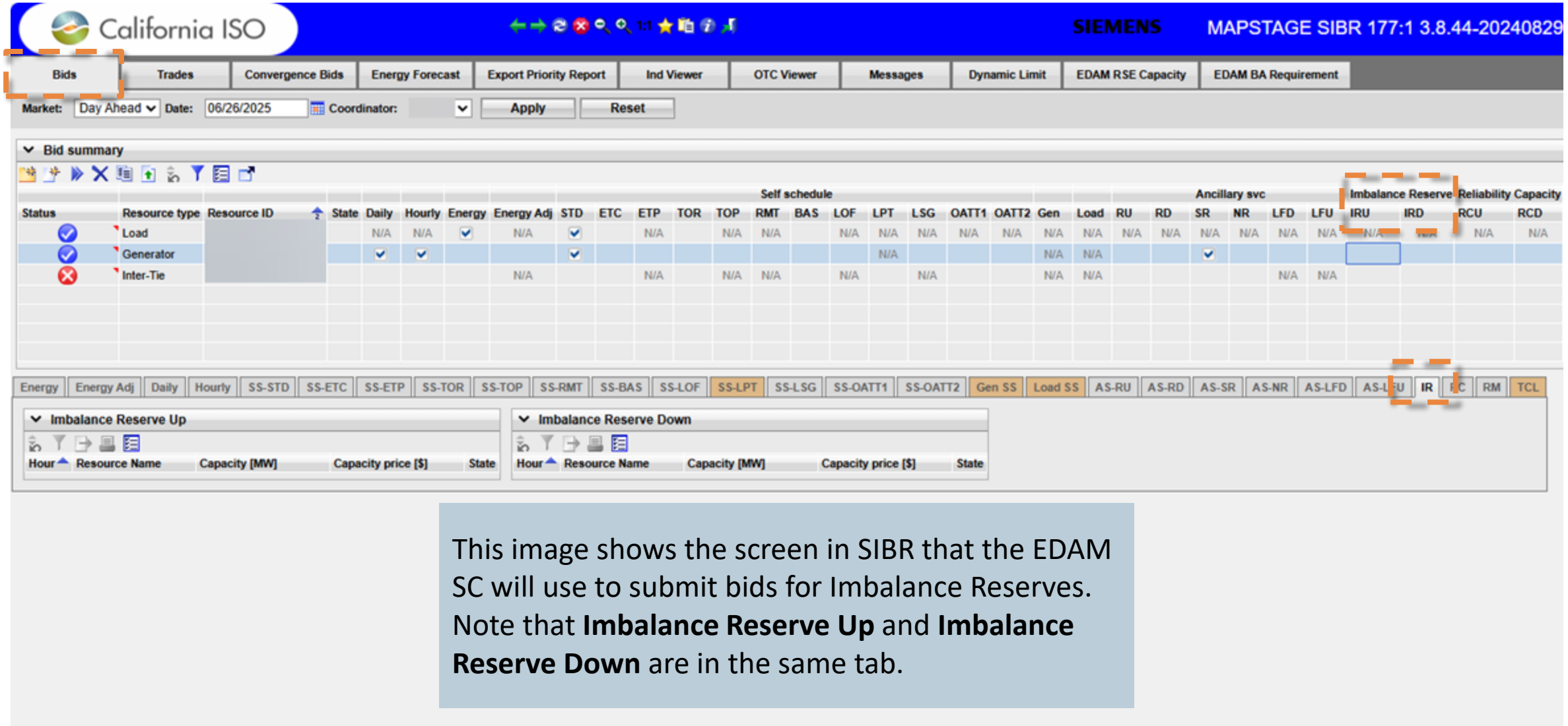
SIBR: Ancillary Services (AS) Self-Provision



This image shows the screen in SIBR that the EDAM SC will use to self-provide Ancillary Services.

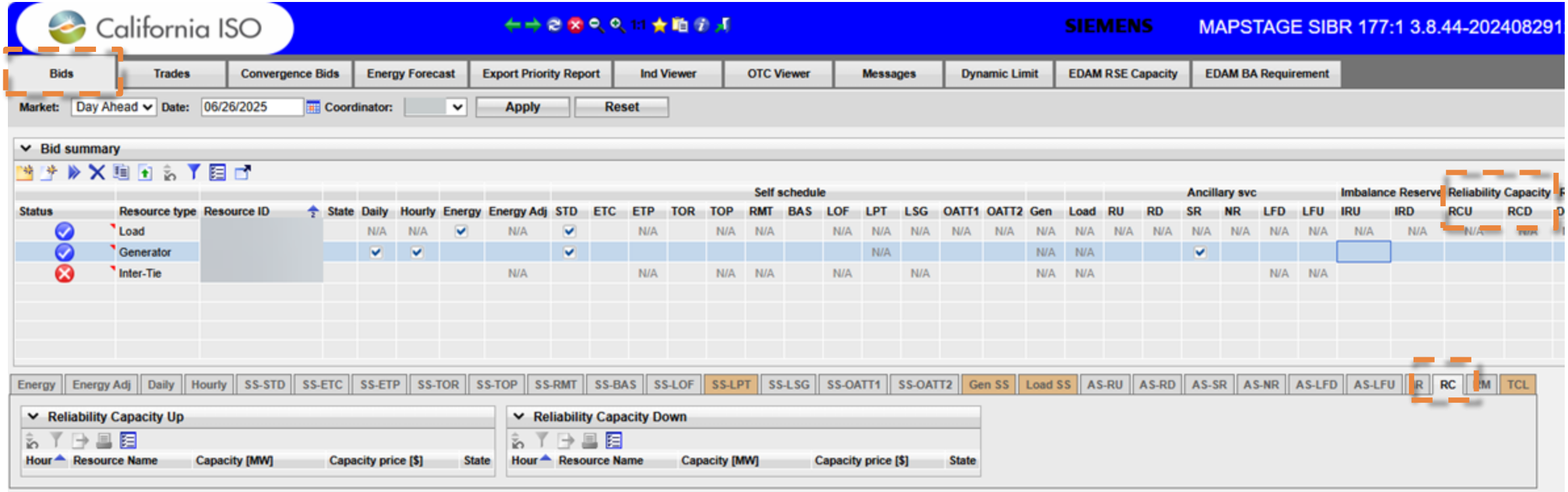
This example shows self-provision of Spinning Reserve.

SIBR: Submitting bids for Imbalance Reserves



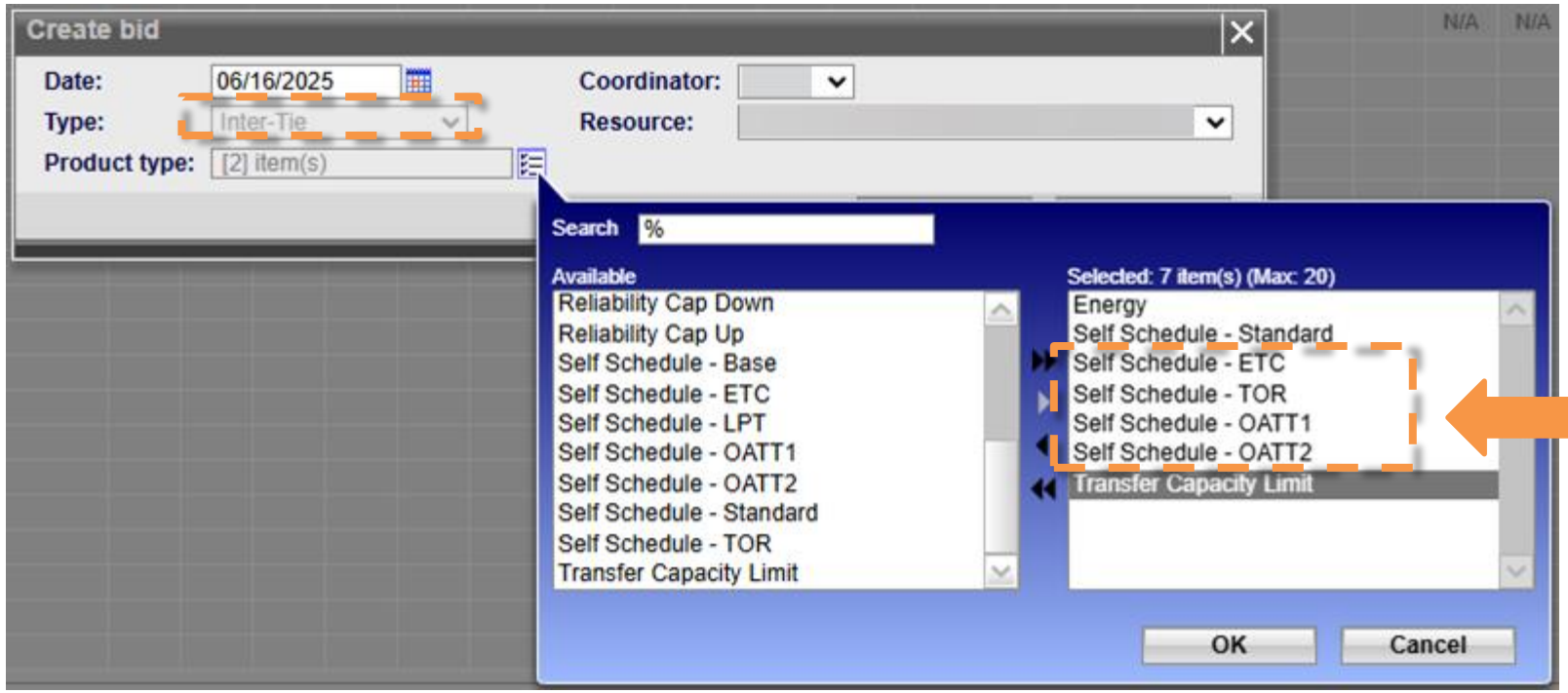
This image shows the screen in SIBR that the EDAM SC will use to submit bids for Imbalance Reserves. Note that **Imbalance Reserve Up** and **Imbalance Reserve Down** are in the same tab.

SIBR: Submitting bids for Reliability Capacity



This image shows the screen in SIBR that the EDAM SC will use to submit bids for Reliability Capacity. Note that **Reliability Capacity Up** and **Reliability Capacity Down** are in the same tab.

SIBR: Create Bid – TSR Type 1



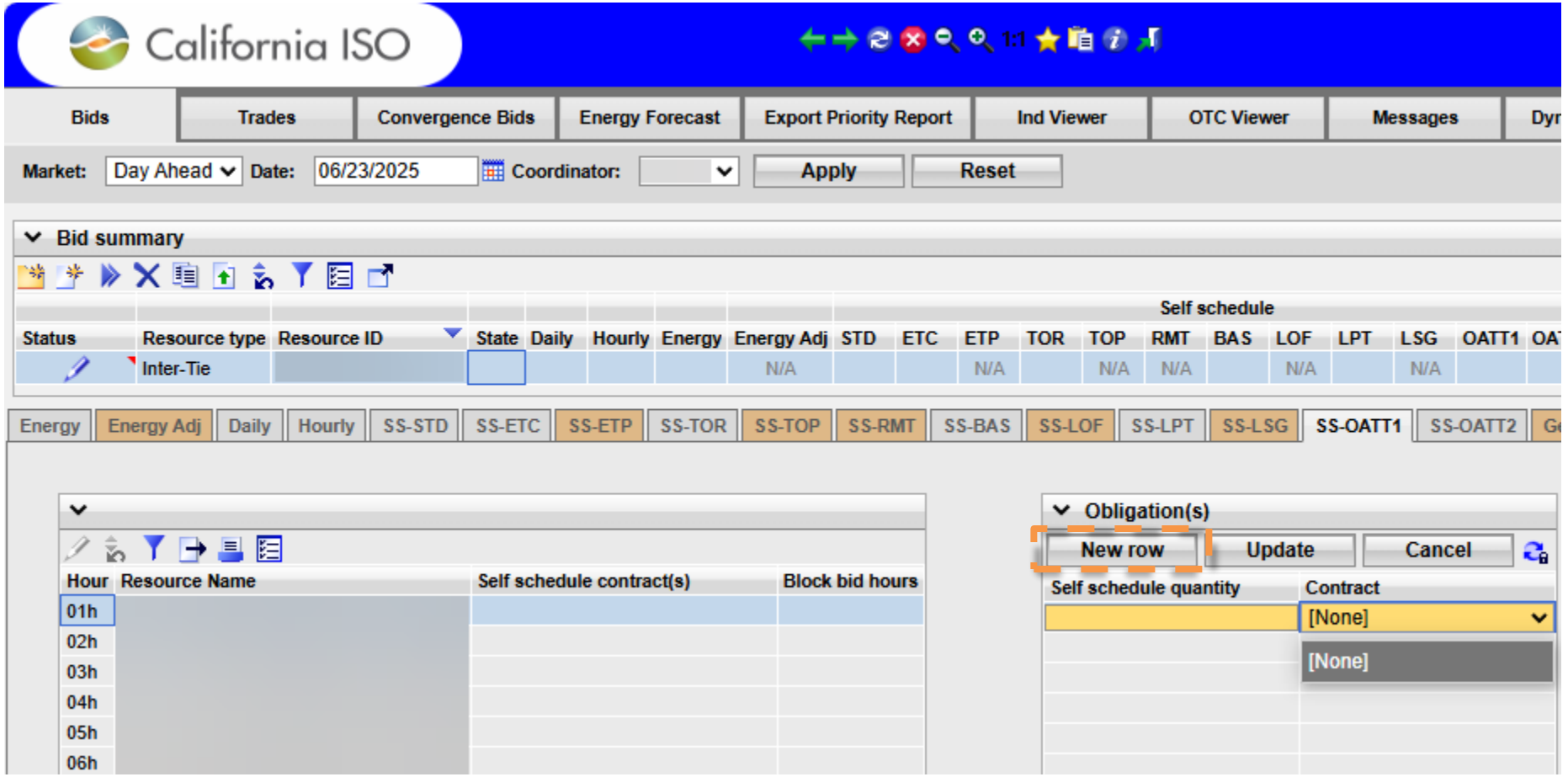
These bid types are for use with CRN (TSR Type 1)

- ETC/TOR are existing types
- OATT1/OATT2 are new

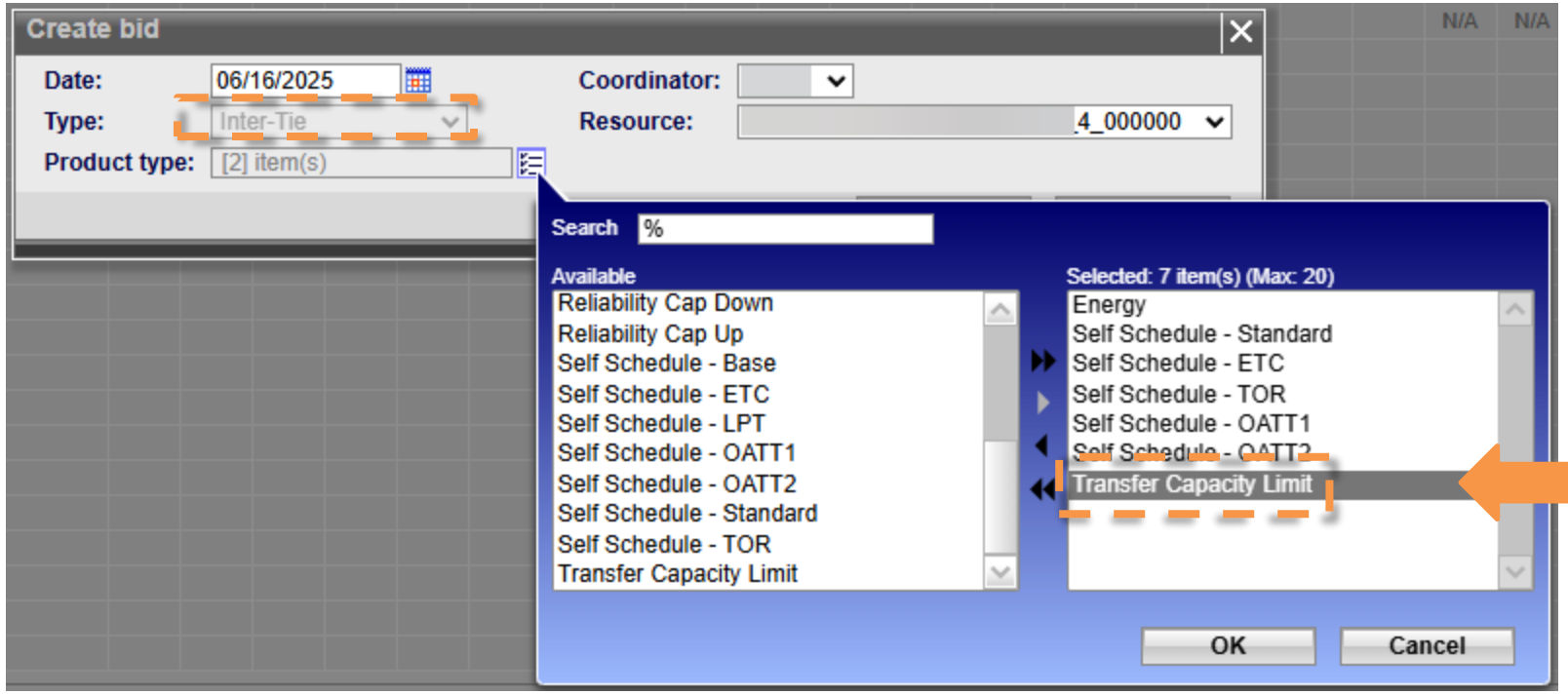
SIBR: Create Bid – TSR Type 1

Actions:

- Select New row
- Use Drop down
- Available CRN List
- Self-Schedule MW
- 1 or more hours

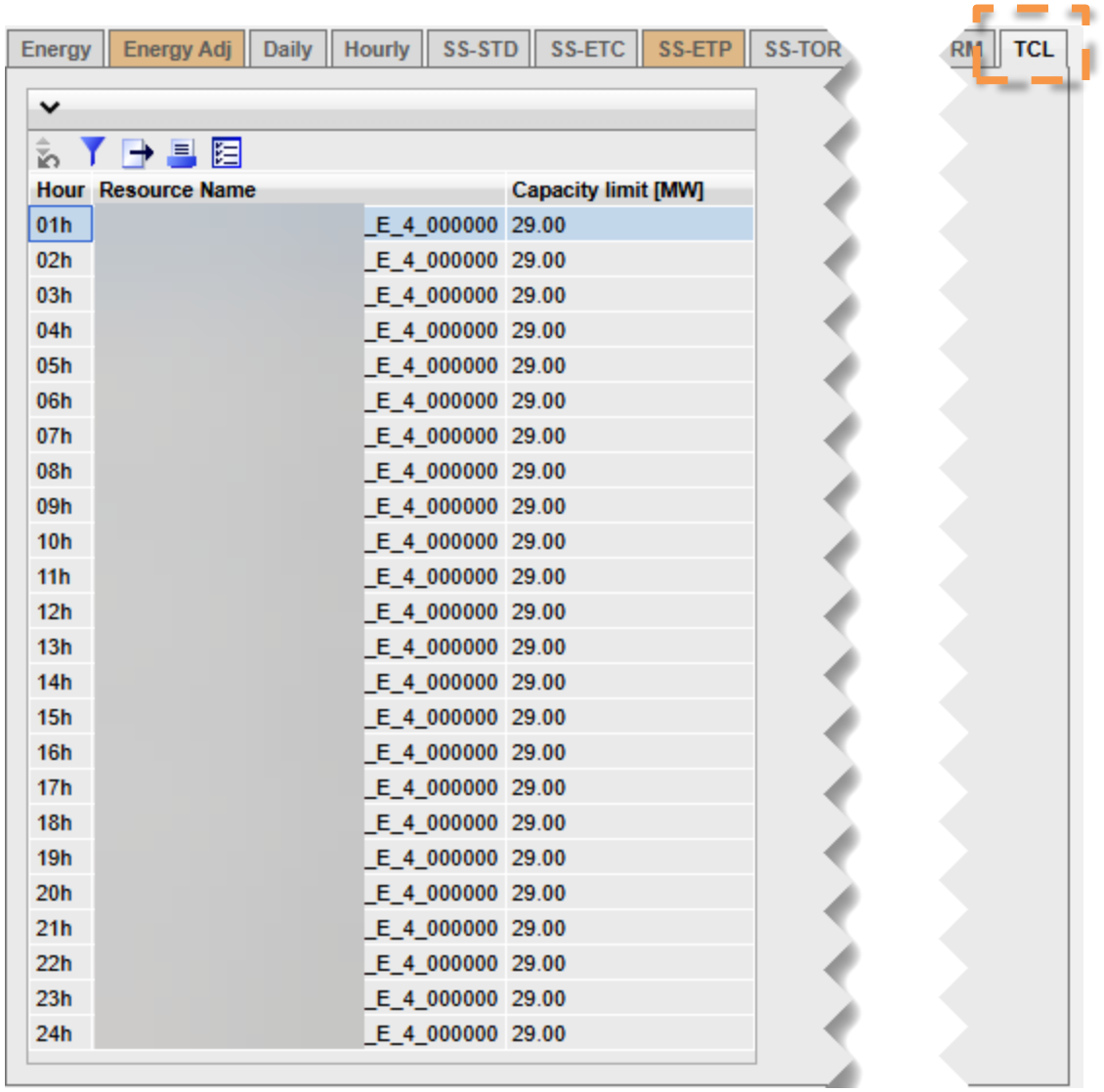


SIBR: Create Bid – TSR Type 2, TSR Type 3, TSR Type 4



Release transfer capacity
(TSR Type 2/ TSR Type 3/TSR Type 4)

TSR Transfer Capacity Limit



Hour	Resource Name		Capacity limit [MW]
01h		_E_4_000000	29.00
02h		_E_4_000000	29.00
03h		_E_4_000000	29.00
04h		_E_4_000000	29.00
05h		_E_4_000000	29.00
06h		_E_4_000000	29.00
07h		_E_4_000000	29.00
08h		_E_4_000000	29.00
09h		_E_4_000000	29.00
10h		_E_4_000000	29.00
11h		_E_4_000000	29.00
12h		_E_4_000000	29.00
13h		_E_4_000000	29.00
14h		_E_4_000000	29.00
15h		_E_4_000000	29.00
16h		_E_4_000000	29.00
17h		_E_4_000000	29.00
18h		_E_4_000000	29.00
19h		_E_4_000000	29.00
20h		_E_4_000000	29.00
21h		_E_4_000000	29.00
22h		_E_4_000000	29.00
23h		_E_4_000000	29.00
24h		_E_4_000000	29.00

Actions:

- Click on the TSR shown on the **Bid summary** screen (not visible in this image)
- Scroll down to the **TCL** tab along bottom of screen which shows the **Transfer Capacity Limit**
- indicate the amount of capacity being released on this TSR for each hour
- (TSR Type 2/TSR Type 3/TSR Type 4)

Sample Bid Messages based on SIBR Rules

- This screenshot shows an example of the types of messages you will see based on SIBR rules. There will be new rules for TSR CRNs (TSR Type 1) that are like the ones shown below.

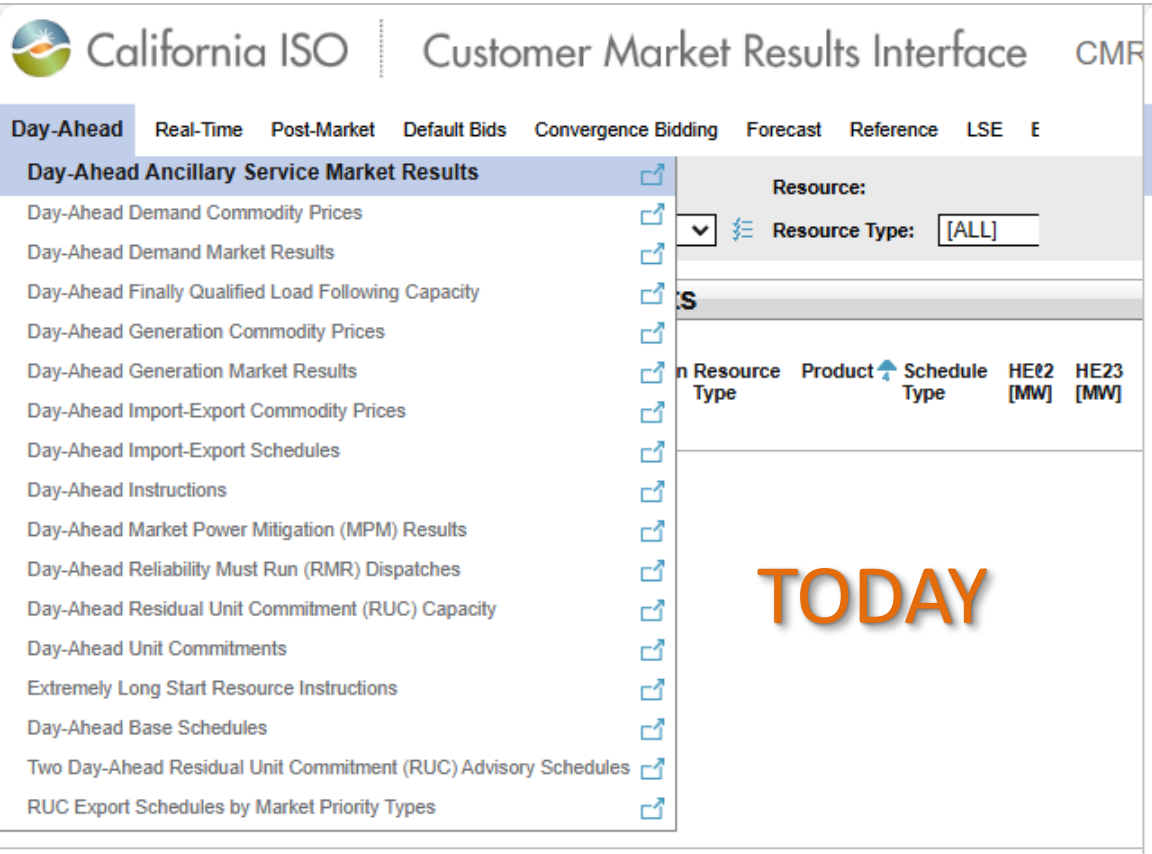
- The new rules are available in the SIBR rules document posted on caiso.com.

Bid Messages

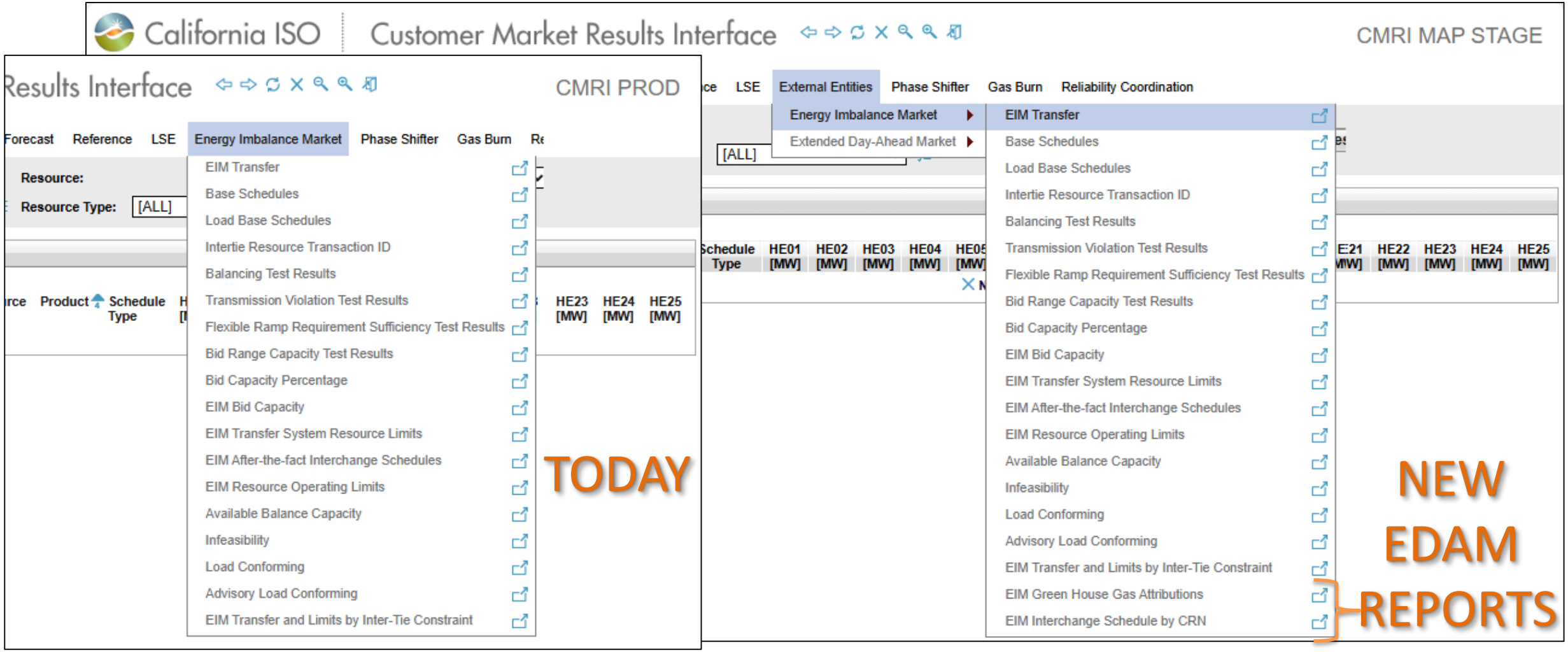
Product	Rule#	Level	Message
	40001	6	TV bid processed - and is market accepted (Valid, MF Insert, Conditionally Valid, Modified, Conditionally Modified)
	43001	6	Bid is accepted - processed for - Open Tie Status initialization (set to N)
Self Schedule - TOR	60008	6	ETC data validation - TOR Contract passed Priority
Self Schedule - TOR	63002	6	ETC data validation - TOR Balanced
Self Schedule - TOR	63005	6	ETC data validation - TOR Chain passed Priority
	63010	6	Wheeling Transaction validation - Wheeling Balance Set to YES because there is an Export/Load resources with the same Wheeling Reference for the same Trading Hour.
	63011	6	Wheeling Transaction validation - Wheeling Balance Set to YES because there is Import/Generation resources with the same Wheeling Reference

Customer Market Results Interface (CMRI)

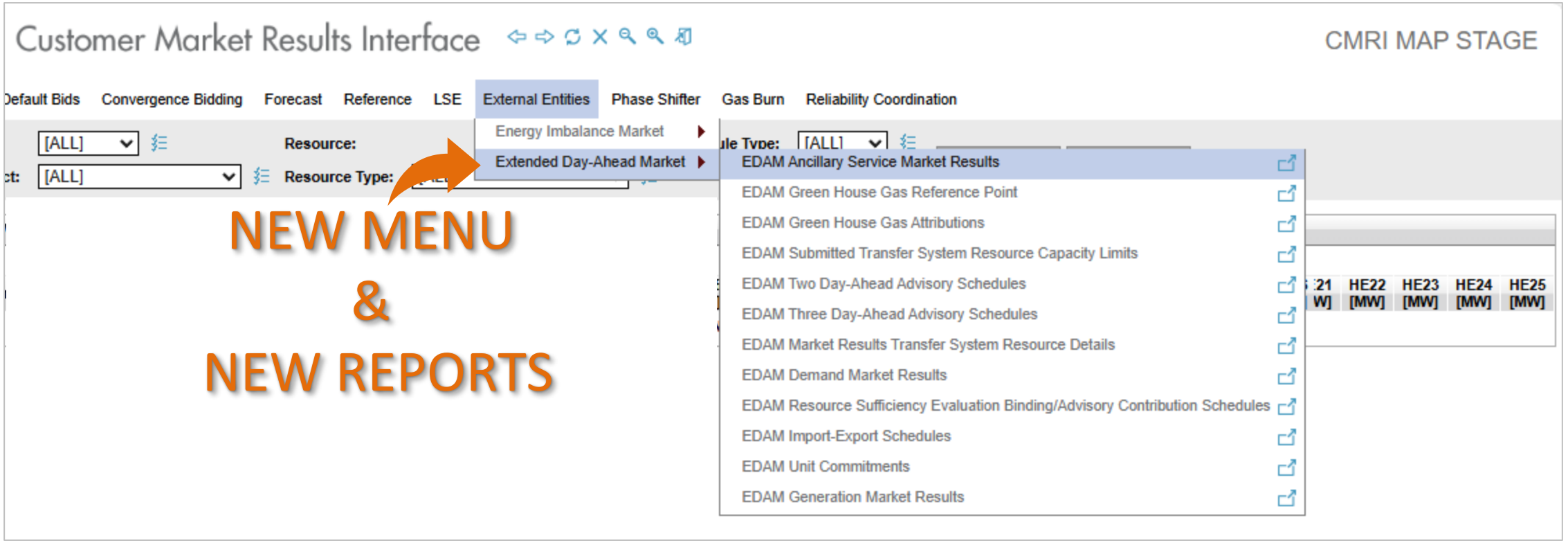
CMRI: Comparison of today's **Day-Ahead** Tab vs. EDAM's **Day-Ahead** Tab



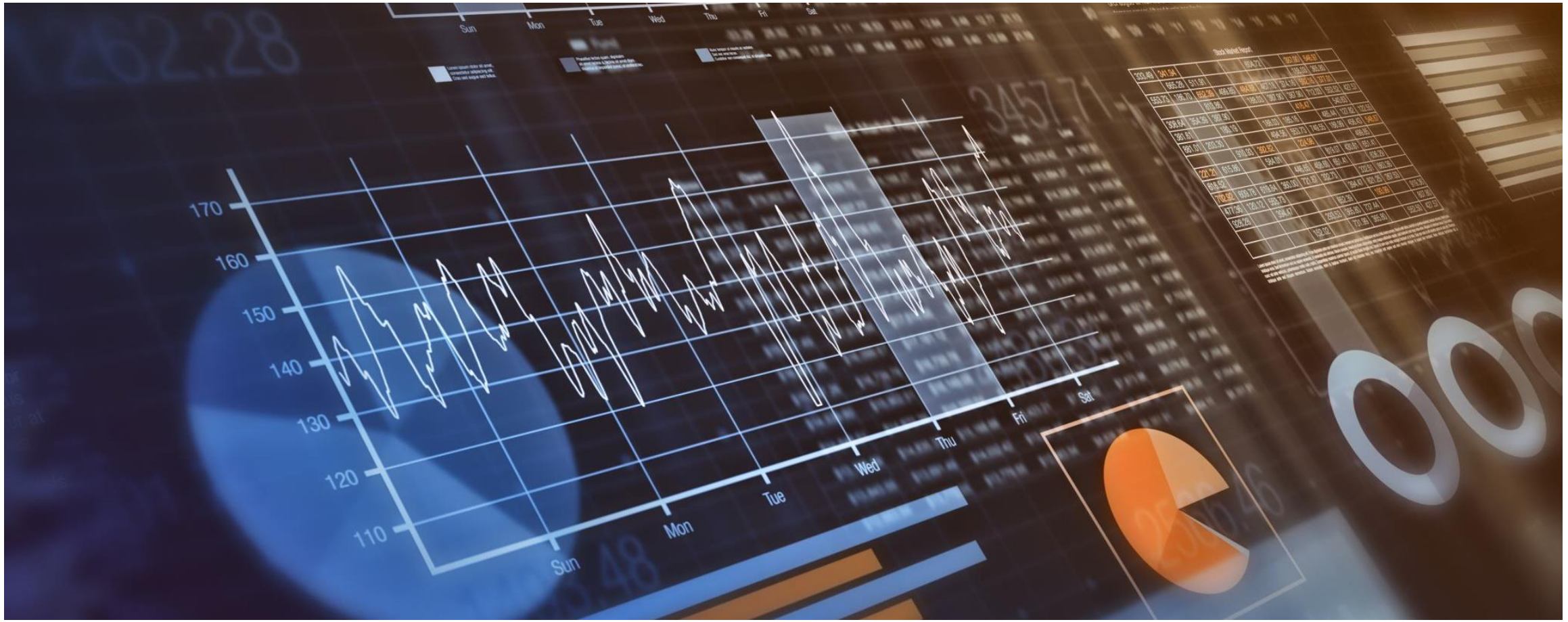
CMRI: Comparison of today's **Energy Imbalance Market** Tab vs. EDAM's **External Entities > Energy Imbalance Market** Menu



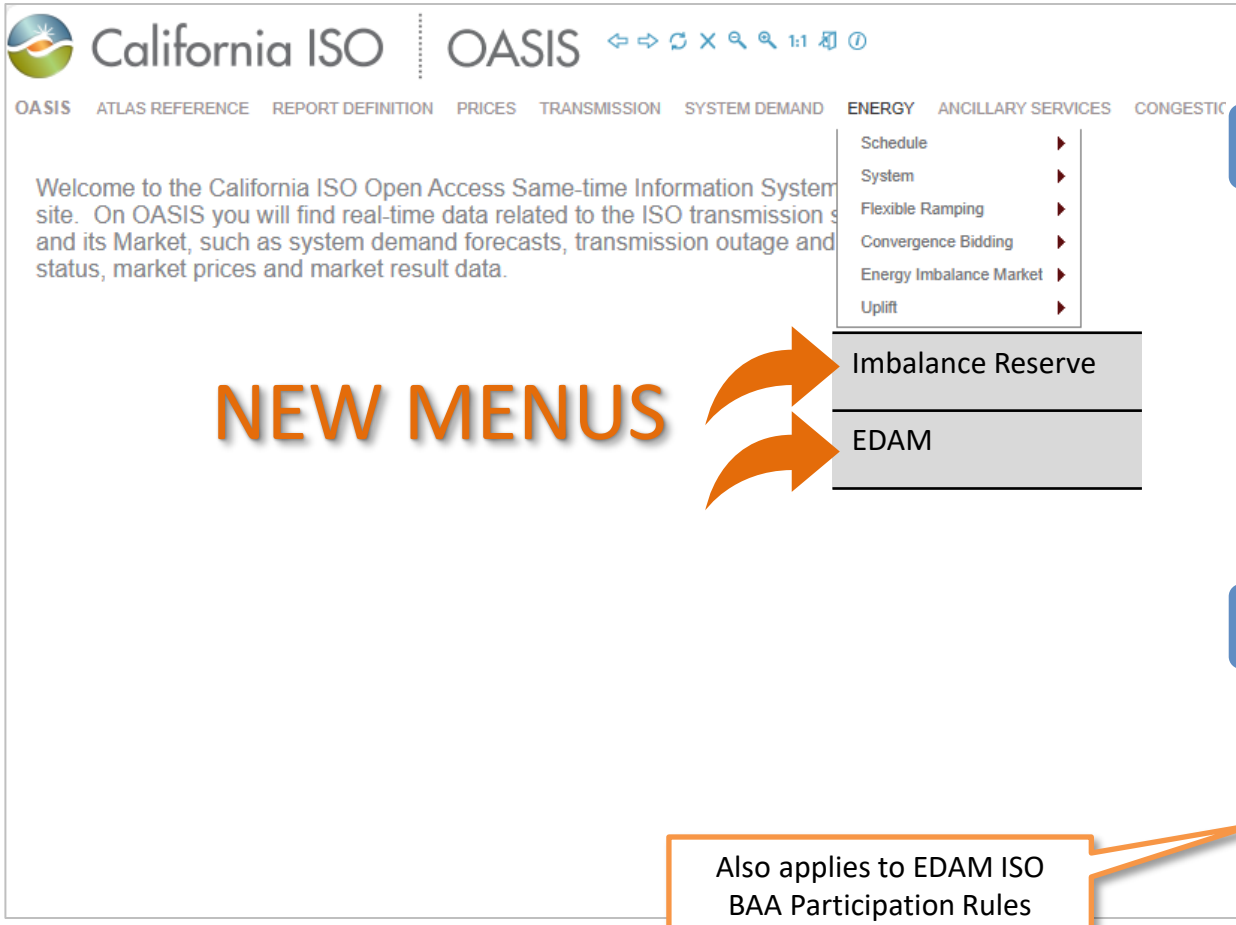
CMRI: **External Entities** Tab > **Extended Day-Ahead Market** Menu



Open Access Same-Time Information System (OASIS)



OASIS: Mockup of new **Imbalance Reserve** and **EDAM** menus



NEW REPORTS

Available on Imbalance Reserve Menu

- Imbalance Reserve Requirement Thresholds
- Imbalance Reserve Requirements Input Polynomials
- Imbalance Reserve Requirements Uncertainty Histograms
- Imbalance Reserve Forecasts
- Imbalance Reserve Demand Curves
- Capacity Requirements and Awards
- Imbalance Reserve Surplus
- Imbalance Reserve Results

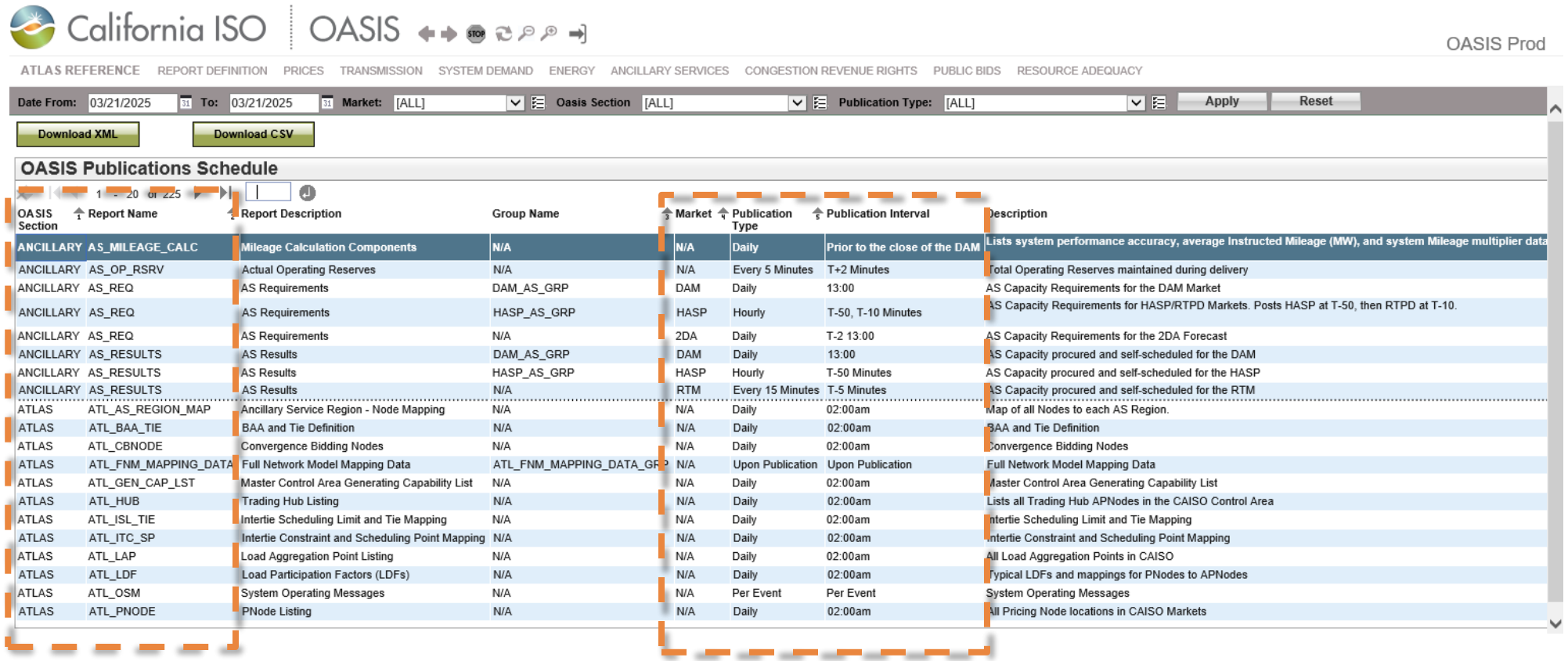
Available on EDAM Menu

- EDAM Wind and Solar Forecasts
- Total Net GHG Import Transfer
- Aggregated/BAA Level Final/Binding
- EDAM Net Export Transfer Constraint Input Parameters
- Tagged Transmission and Energy Status

Also applies to EDAM ISO BAA Participation Rules

Reminder: OASIS provides a publications schedule of reports. EDAM reports will be added to the schedule.

Market Reports



OASIS Section	Report Name	Report Description	Group Name	Market	Publication Type	Publication Interval	Description
ANCILLARY	AS_MILEAGE_CALC	Mileage Calculation Components	N/A	N/A	Daily	Prior to the close of the DAM	Lists system performance accuracy, average Instructed Mileage (MW), and system Mileage multiplier data
ANCILLARY	AS_OP_RSRV	Actual Operating Reserves	N/A	N/A	Every 5 Minutes	T+2 Minutes	Total Operating Reserves maintained during delivery
ANCILLARY	AS_REQ	AS Requirements	DAM_AS_GRP	DAM	Daily	13:00	AS Capacity Requirements for the DAM Market
ANCILLARY	AS_REQ	AS Requirements	HASP_AS_GRP	HASP	Hourly	T-50, T-10 Minutes	AS Capacity Requirements for HASP/RTPD Markets. Posts HASP at T-50, then RTPD at T-10.
ANCILLARY	AS_REQ	AS Requirements	N/A	2DA	Daily	T-2 13:00	AS Capacity Requirements for the 2DA Forecast
ANCILLARY	AS_RESULTS	AS Results	DAM_AS_GRP	DAM	Daily	13:00	AS Capacity procured and self-scheduled for the DAM
ANCILLARY	AS_RESULTS	AS Results	HASP_AS_GRP	HASP	Hourly	T-50 Minutes	AS Capacity procured and self-scheduled for the HASP
ANCILLARY	AS_RESULTS	AS Results	N/A	RTM	Every 15 Minutes	T-5 Minutes	AS Capacity procured and self-scheduled for the RTM
ATLAS	ATL_AS_REGION_MAP	Ancillary Service Region - Node Mapping	N/A	N/A	Daily	02:00am	Map of all Nodes to each AS Region.
ATLAS	ATL_BAA_TIE	BAA and Tie Definition	N/A	N/A	Daily	02:00am	BAA and Tie Definition
ATLAS	ATL_CBNODE	Convergence Bidding Nodes	N/A	N/A	Daily	02:00am	Convergence Bidding Nodes
ATLAS	ATL_FNM_MAPPING_DATA	Full Network Model Mapping Data	ATL_FNM_MAPPING_DATA_GRP	N/A	Upon Publication	Upon Publication	Full Network Model Mapping Data
ATLAS	ATL_GEN_CAP_LST	Master Control Area Generating Capability List	N/A	N/A	Daily	02:00am	Master Control Area Generating Capability List
ATLAS	ATL_HUB	Trading Hub Listing	N/A	N/A	Daily	02:00am	Lists all Trading Hub APNodes in the CAISO Control Area
ATLAS	ATL_ISL_TIE	Intertie Scheduling Limit and Tie Mapping	N/A	N/A	Daily	02:00am	Intertie Scheduling Limit and Tie Mapping
ATLAS	ATL_ITC_SP	Intertie Constraint and Scheduling Point Mapping	N/A	N/A	Daily	02:00am	Intertie Constraint and Scheduling Point Mapping
ATLAS	ATL_LAP	Load Aggregation Point Listing	N/A	N/A	Daily	02:00am	All Load Aggregation Points in CAISO
ATLAS	ATL_LDF	Load Participation Factors (LDFs)	N/A	N/A	Daily	02:00am	Typical LDFs and mappings for PNodes to APNodes
ATLAS	ATL_OSM	System Operating Messages	N/A	N/A	Per Event	Per Event	System Operating Messages
ATLAS	ATL_PNODE	PNode Listing	N/A	N/A	Daily	02:00am	All Pricing Node locations in CAISO Markets

OASIS > Atlas Reference > Publications > OASIS Publications Schedule

Market Simulation

Objective:
Review market simulation scenarios

Initiative Review | Market Pricing | EDAM Processes | Transfer System Resources | Bidding Examples | Application Changes | Market Simulation

Setup for Market Simulation Activities

Follow these steps to participate in the DAME and EDAM Implementation pre-Market Simulation meeting series:

Submit a CIDI Request:

- Log in to the CAISO Customer Inquiry, Dispute, and Information (CIDI) system.
  - Create a new request with the 'Functional Environment' set to "Market Simulation."
  - In the request, specify your intent to participate in the DAME & EDAM Market Simulation. Include the following information:
    - Market Simulation initiative(s) you will participate in.
    - Any specific resources or systems you plan to test.
    - Contact names and email addresses for coordination.

Email Option:

- If you do not have access to CIDI, you may send an email to marketsim@caiso.com with the subject line "DAME & EDAM Market Simulation Registration."
- Provide the same information as outlined above.

Market Simulation Meetings

DAME, EDAM, and EDAM CAISO Balancing Authority PR Market Simulation Meeting

- Recurring meeting series on as-needed basis directly with market simulation participants to provide focus and in-depth discussion of details needed for active participation.

Market Simulation Forum

- Monthly general sessions open to the public for high-level status updates and discussion.

- All meetings published to www.caiso.com calendar.

Market Simulation Scenarios for **DAME** located on Release Planning Page

Number	Scenario	Number	Scenario
1	Demonstrate proper submission of IRU/IRD and RCU/RCD bids	3	Demonstrate settlements charge codes for IRU/IRD bids in case of bid cost recovery
2	Demonstrate change of activated transmission constraints for IRU/IRD deployment	4	Demonstrate settlements charge codes for RCU/RCD bids in case of bid cost recovery

https://www.caiso.com/documents/marketsimulationstructuredscenarios-dayaheadmarketenhancements.pdf

Market Simulation Scenarios for E**DAM** located on Release Planning Page

Number	Scenario	Number	Scenario
1	DA-resource sufficiency test upward direction	9	RUC Energy Net Short
2	DA-resource sufficiency test downward direction	10	DAM impact on RTM flex ramp up test and FRU procurement
3	DA Congestion Management within EDAM Entity BAAs	11	DAM results impact on RTM flex ramp down test and FRD procurement
4	DA mitigation within EDAM Entity BAAs	12	WA/CA GHG allocation in RTM
5	DA Green House Gas allocation and Attribution constraint	13	Transient TSRs support for TYPE 1
6	Enable Net Export Transfer Constraint	14	EDAM Access Charge for Revenue Recovery
7	EDAM Entity BAA isolation	15	TSR support for TYPE 2
8	Transfer capability via MF registered TSR		

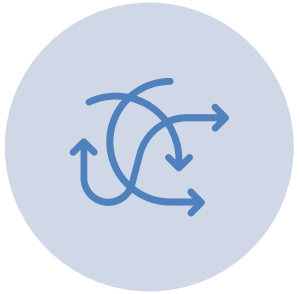
https://www.caiso.com/documents/marketsimulationstructuredscenarios-extendeddayaheadmarket.pdf

Wrap Up

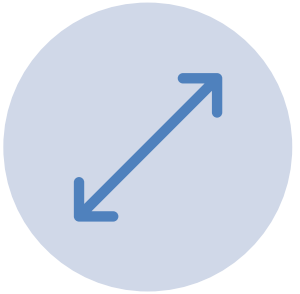
Summary, Q&A

- What’s happening next.

Reference Material



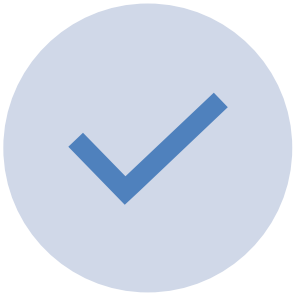
You may encounter discrepancies between EDAM training material and current content posted on caiso.com.



EDAM training describes market's future state.

Current content will not reflect EDAM changes until Go Live.

In the meantime, access the project-related documents on the ISO's Release Planning Page to view pending changes.

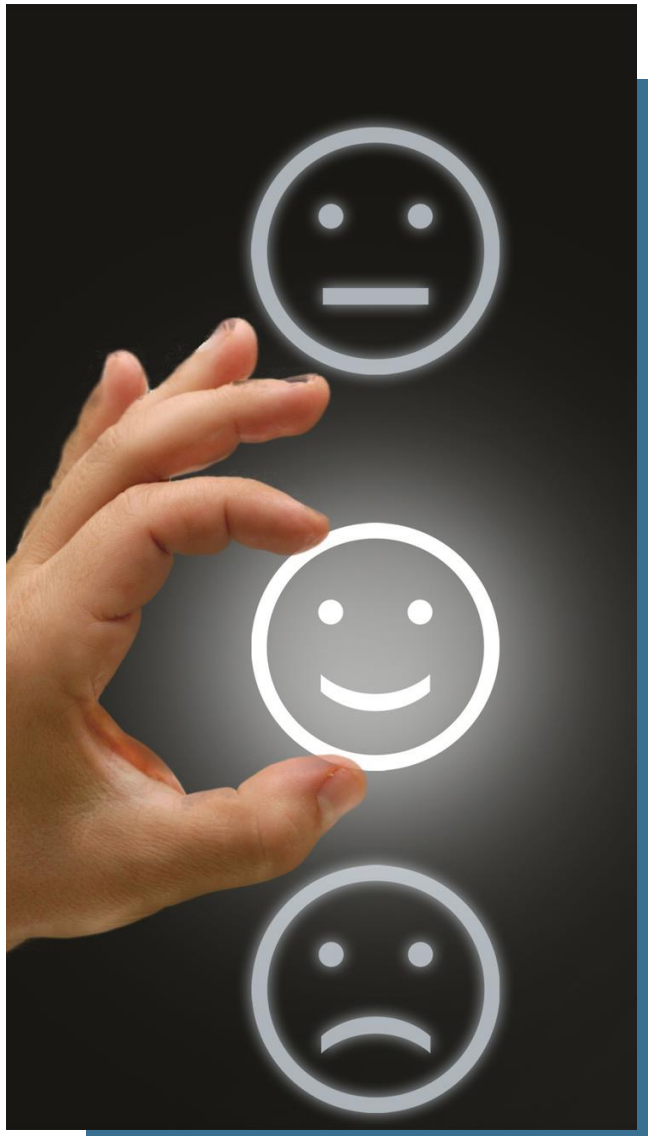


CAISO recently posted draft BPM language to the Release Planning Page.

User group forums provide additional engagement opportunities

Release User Group (RUG)	Technical User Group (TUG)	Settlement User Group (SUG)	Market Simulation	Business Practice Manual (BPM)
Bi-weekly meeting to assesses market initiative implementation impacts to determine target timeframes, project milestones and other resource considerations.	**Bi-weekly** meeting to assesses process and technology design, implementation and evolution, and identifies and evaluates resolutions for technical issues.	**Bi-weekly** discussion forum for Market Participants and RC West customers to obtain information, provide input and ask questions on current ISO initiatives and activities affecting the settlement and invoicing processes.	**Weekly *(as needed)*** discussion forum for Market Participants to review market initiative implementation impacts, timeframes, millstones, and other relevant information.	**Monthly** meeting to discuss proposed revision requests on Business Practice Manuals (BPMs) that are in the initial and recommendation stages of the BPM change management stakeholder process.
Release User Group	ISO Developer Site	Settlement User Group	Release Planning Meetings	Business Practice Manual Meetings

Find recurring meeting dates on the ISO Calendar:
https://www.caiso.com/meetings-events/calendar



Tell us how we did

Takes 3-5 minutes to complete

Helps us improve future training

Link: https://www.surveymonkey.com/r/caisocoursesurvey

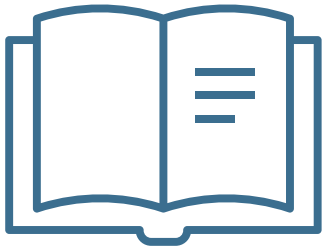
Thank you for your participation!

For clarification on anything presented in this training, send an email to: CustomerReadiness@caiso.com

For other questions or stakeholder specific questions or concerns use one of these methods:

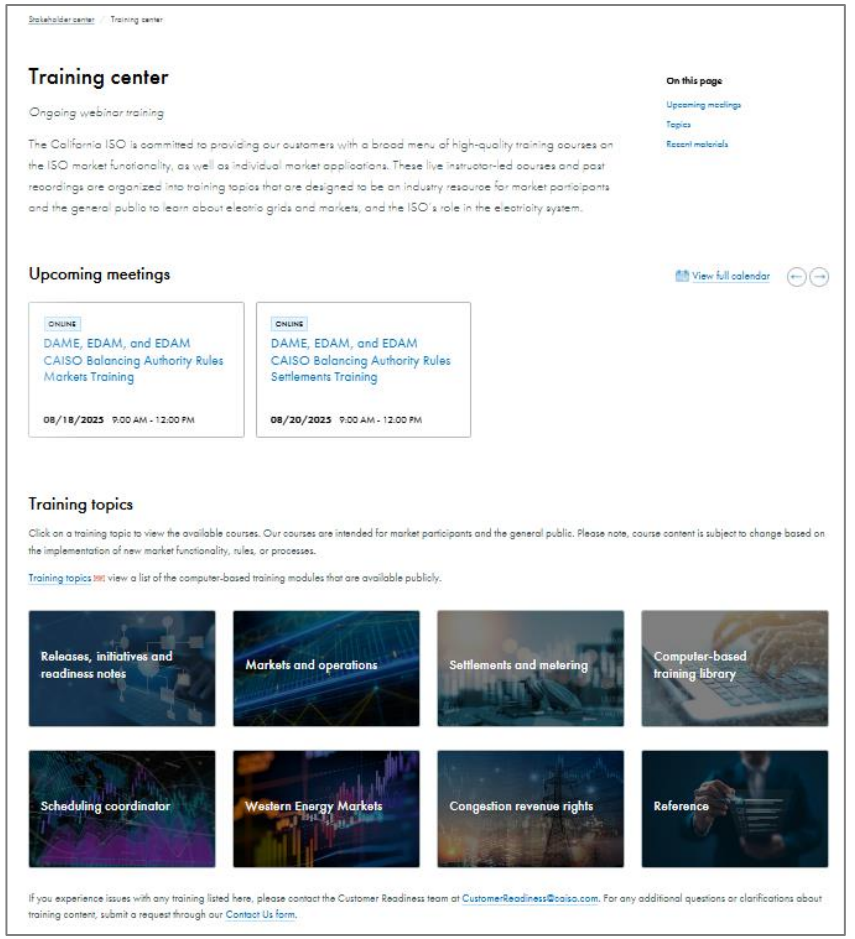
- Submit a CIDI ticket
- Contact your Scheduling Coordinator
- Use the "Contact us" page on caiso.com to submit questions

REFERENCE MATERIAL

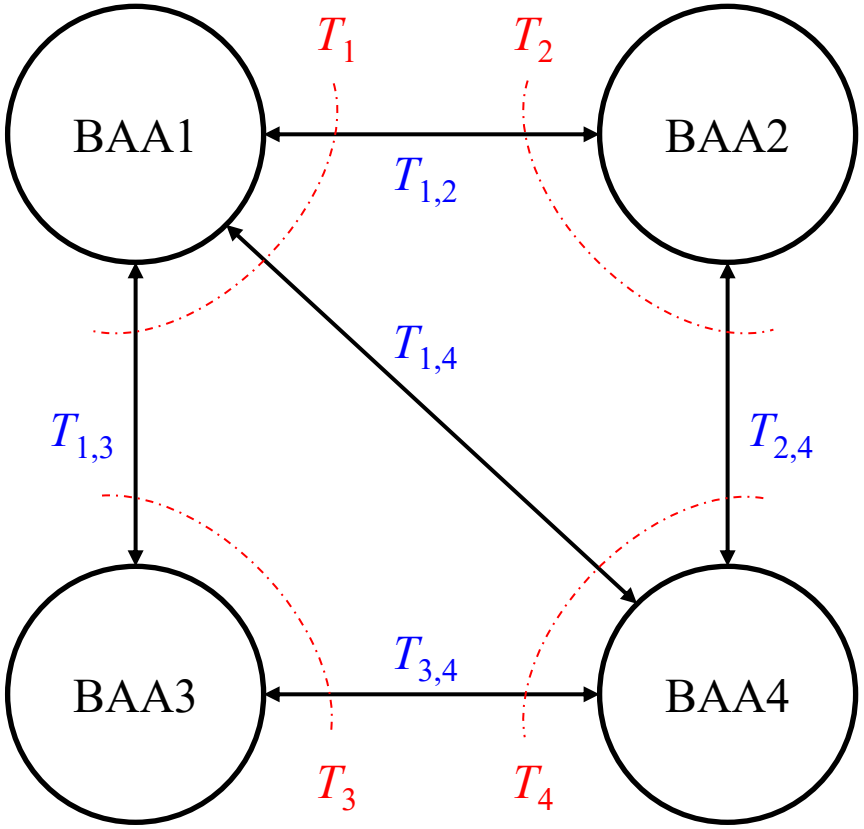


ISO Training Center

- The California ISO is committed to providing our customers with a broad menu of high-quality training courses on the ISO market functionality, as well as individual market applications.
- These live instructor-led courses and past recordings are organized into training topics that are designed to be an industry resource for market participants and the public to learn about electric grids and markets, and the ISO's role in the electricity system.
- Access recent training material and computer-based training modules in the ISO Training Center.



How EDAM Works: This slide provides the calculations for energy transfers between BAAs*



$$\min\left(\sum_i C_i\,(G_i - L_i)\right)$$

$$\sum_{i \in BAA_j} (G_i - L_i) - Loss_j = T_j, \forall j$$

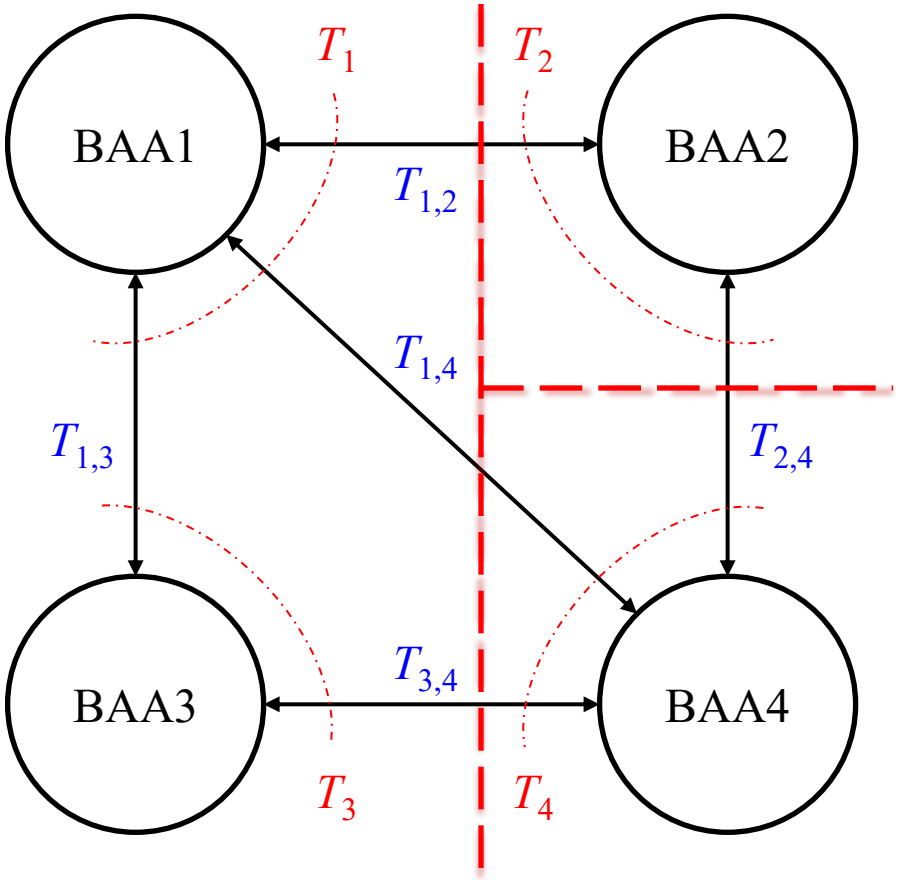
$$\sum_j T_j = 0$$

$$T_j = \sum_{j \neq k} T_{j,k} = \sum_{j \neq k} \left(ET_{j,k} - IT_{j,k}\right), \forall j$$

$$\left.\begin{aligned} 0 \le ET_{j,k} = IT_{k,j} \le \overline{ET}_{j,k} \\ 0 \le IT_{j,k} = ET_{k,j} \le \overline{IT}_{j,k} \end{aligned}\right\}, \forall j \neq k$$

* Source: G.Angelidis presentation: February 2024

EDAM BAA Prices: This slide illustrates how price separation between BAAs can result in a different marginal energy cost (MEC) for each BAA*



- No SMEC
- Each BAA has its own MEC
  - The BAA PBC shadow price
- Price separation across interfaces where all transfers are constrained
  - $ET_{1,2}$, $ET_{1,4}$, and $ET_{3,4}$ constrained
    - MEC1 = MEC3 < MEC2 = MEC4
  - $ET_{2,4}$ also constrained
    - MEC1 = MEC3 < MEC2 < MEC4
- Price separation across transfers yields transfer revenue

* Source: G.Angelidis presentation: February 2024

Reference Material (during implementation)

During DAME/EDAM implementation, the updated documents that contain pending changes are posted to the CAISO's release planning page: https://www.caiso.com/systems-applications/release-planning

Spring 2026

- DAME, EDAM, EDAM CAISO BAA Settlements Calendar 2025-2026 XLS 05/01/2025, 9:54 AM
- Draft Market Simulation Plan v1.1 - Spring 2026 Release PDF 02/12/2025, 11:16 AM
- Draft Parallel Operations Plan EDAM-DAME 2026 PDF 04/15/2024, 11:38 AM

Settlements release - technical documents

- Draft Design Bill Determinant Standard and Convention DOC 04/29/2025, 3:22 PM
- 1st DAME and EDAM Draft Configuration Output File Published Apr 29, 2025 ZIP 04/29/2025, 6:34 PM
- Draft ISO Charge Code Matrix XLS 04/29/2025, 6:33 PM
- Draft of DAME and EDAM Charge Code Change Summary with Tariff Mapping XLS 04/29/2025, 3:14 PM
- Draft Attachment F Access Charge Rates Submission Template XLS 08/15/2025, 2:47 PM
- Draft Attachment F Access Charge Rates Submission Procedure DOC 08/15/2025, 1:58 PM

Reference Material (during implementation)

- DAME BRS: https://www.caiso.com/documents/business-requirements-specification-day-ahead-market-enhancement.pdf
- EDAM BRS: https://www.caiso.com/documents/business-requirements-specification-extended-day-ahead-market.pdf
- Market Simulation Structured Scenarios:
  - DAME: https://www.caiso.com/documents/marketsimulationstructuredscenarios-dayaheadmarketenhancements.pdf
  - EDAM: https://www.caiso.com/documents/marketsimulationstructuredscenarios-extendeddayaheadmarket.pdf

Reference Material: Bidding and Validation

These resources provide more information about bidding and validation.

Title	Link
Business Practice Manual (BPM) for Market Instruments	https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Instruments This entire BPM focuses on how Scheduling Coordinators submit Bids into the Market.
Business Practice Manual (BPM) for Market Operations	https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Operations Section 2.5.2 – Bids
Knowledge Article: Reasons Day-Ahead Market Results May Not Seem Economic	https://caiso.my.site.com/custsvccomm/s/article/Reasons-Day-Ahead-Market-Results-May-Not-Seem-Economic
Resource Performance Expectations of Dispatch and Operating Instructions (CBT)	https://www.caiso.com/content/cbt/resource-performance-expectations-dispatch-operating-instructions/story.html

Reference Material: Bidding and Validation (cont.)

These resources provide more information about bidding and validation.

Title	Link
SIBR Business Rules for Bidding	https://www.caiso.com/systems-applications/portals-applications/scheduling-infrastructure-business-rules-sibr-bidding
Tariff	https://www.caiso.com/legal-regulatory/tariff Section 30 – Bid and Self-Schedule Submission for all CAISO Markets

Reference Material: Full Network Model and Master File

After EDAM go-live, updated forms and documents are stored in the appropriate locations on CAISO's website

- CAISO's Network and resource modeling page contains information about the Full Network Model:
  - https://www.caiso.com/market-operations/network-resource-modeling
- Business Practice Manual for Managing Full Network Model:
  - https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Managing%20Full%20Network%20Model
- The Master File page contains the forms used to submit requests to add or change specific operating parameters that reside in the Master File:
  - https://www.caiso.com/systems-applications/portals-applications/master-file

Reference Material: Full Network Model and Master File

The network model defines system parameters, price node and market scheduling limit mappings and planned network model updates. View the **FNM schedule** and **WEIM generator resource data template** files here:

- https://www.westerneim.com/Pages/Resources.aspx

Process to convert non-participating resource to participating resource: https://www.westerneim.com/Documents/Western-Energy-Imbalance-Market-Procedure-For-Non-Participating-And-Participating-Resources.pdf

Documents that are used to establish and update agreements are located on the Western Energy Markets website. Refer to this page for items such as setting up or transferring EDAM resources and requesting custom load aggregation points:

- https://www.westerneim.com/Pages/ExtendedDayAheadMarketImplementation.aspx

Reference Material: Greenhouse Gas Regulation

- California Air Resources Board (CARB) GHG Homepage
- California Air Resources Board (CARB) GHG Emission Inventory Data page
- California Air Resources Board (CARB) GHG Inventory page
- California Air Resources Board (CARB) GHG Mandatory Emissions Reporting page

- Presentation: Greenhouse Gas Coordination – Price Formation: https://stakeholdercenter.caiso.com/InitiativeDocuments/Presentation-Greenhouse-Gas-Coordination-Working-Group-Price-Formation-Sep-19-2024.pdf
  - Evergreen Training – GHG Coordination – GHG Price Formation Chapter 1
  - Evergreen Training – GHG Coordination – GHG Price Formation Chapter 2
  - Evergreen Training – GHG Coordination – GHG Price Formation Chapter 3
  - Evergreen Training – GHG Coordination – GHG Price Formation Chapter 4

- State of Washington Dept. of Ecology page

Reference Material: Scheduling Coordinator Certification

- Scheduling Coordinator Onboarding:
  - https://www.caiso.com/market-operations/scheduling-coordinator/become-a-scheduling-coordinator
- Scheduling Coordinator Certification Overview:
  - https://www.caiso.com/documents/sccertificationoverview.pdf
- EDAM Scheduling Coordinator Decision Matrix outlines necessary steps for potential applicants to participate in EDAM and how to get started:
  - https://www.caiso.com/documents/edam-scheduling-coordinator-decision-matrix.pdf