California ISO

EDAM Enhancements 2026
Multiple GHG

November 18, 2026

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Agenda

- Project and Meetings Info
- Market Simulation Overview
  - Submissions
  - Testing Feedback
  - Questions
  - Known Issues

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Market Simulation

- Market Simulation duration 11/12/26 - 12/10/26
  - Note: MSIM Testing in MAPSTAGE environment only
- Deployment: 12/16/26
- Activation: 1/1/27

- Meeting Series
  - Monday 9AM: 11/16, 11/30, 12/7
  - Wednesday 9AM: 11/18, 12/2

- End-to-End with Settlements
  - ~~11/17,~~ 11/19
  - 12/1, 12/2, 12/3

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SIBR Submissions

- Submit cheap energy bids, and GHG bids for each GHG regulation area for exports to more than one area.
- Bid GHG at or above zero and ensure the energy bid range is equal to or greater than the GHG bid megawatt (MW) quantity
- EDAM and WEIM entities to provide Load Meter Data based on Load Aggregation Point resource identifiers to the ISO Market Services team consistent with the Settlements Quality Meter Data (SQMD) plan.
  - Note: Participants have T+2 (48 hours) to submit Load Meter Data after their SIBR submission thus only Initial is being provided for Settlements Statement for purposes of this Market Simulation.

Note: Submit bids for CA and WA for all relevant resources wherever possible.

- If in CA BAA then submit for WA
- If in WA BAA then submit for CA
- If outside CA and WA then submit for both

Note: EDAM BAAs are expected to submit DA related bids to provide reference for RTM bids.

Submission Checklist

- **Simple submission checklist**
- ✓ Resource is eligible for the target GHG Area
- ✓ Resource is not registered in that same GHG Area
- ✓ Energy Bid / Self-Schedule supports the GHG offer
- ✓ GHG Area is provided
- ✓ GHG Capacity is provided
- ✓ GHG Price is provided
- ✓ Energy Bid range supports the GHG MW
- ✓ GHG Price complies with the applicable maximum (from ECIC)
- ✓ Energy + applicable GHG price complies with the Energy Bid Soft Cap
- ✓ If using GHG Contract Obligation, Master File registration and the additional DAM validations are satisfied.

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Submissions Overview

- Participant / SC → GRDT
  - Provide the applicable resource information, particularly the GHG emission rate by GHG Area.
  - Ensure the necessary heat-rate information is also properly established.
- GRDT → Master File
  - Master File becomes the registered source for the resource/area emission-rate and relevant heat-rate information used in determining the GHG bid cap.
- Master File / allowance-price inputs → ECIC
  - ECIC uses the applicable data to calculate the resource-specific Maximum GHG Price / GHG bid cap. The recent Market Sim discussion specifically identifies ECIC as the system being checked when a resource is not getting its expected GHG price.
- ECIC → SIBR
  - SIBR receives/sees the MAX GHG Prices calculated upstream.
  - SIBR then uses that maximum to control the participant's submitted GHG bid price. If the submitted price exceeds the registered maximum, SIBR processing caps it at the maximum.
  - The submitted GHG Capacity, GHG Price, and GHG Area flow with the clean bid for market optimization. The market then determines whether the resource actually receives a GHG attribution.
- Market → GHG Award / Price
  - A GHG payment requires an energy award plus a GHG attribution. The draft BPM describes the GHG award as an incremental $/MWh financial award associated with the portion of the resource's energy award receiving GHG attribution.

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Upstream Validations

- Validate in SIBR that SIBR UI and API submissions are correct
- Validate Market Results in CMRI

CMRI Report Name	Status
RTD Schedules EIM RTD Schedules EIM GHG Attributions	CA and WA GHG attributions/Export allocations data is displaying as expected for both UI and API/
FMM Schedules EIM FMM Schedules EIM GHG Attributions	CA and WA GHG attributions/Export allocations data is displaying as expected for both UI and API/
DA Generation Market Results EDAM GHG Attributions EDAM DA Generation Market Results	DA CA data available, DA WA to be provided upon WA EDAM joining
RTD Advisory Schedules	Morning of 11/18
RTPD Advisory Schedules	Morning of 11/18

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Questions

- Is the GHG enhancement considered voluntary (as it is for non-GHG area resources) or are CA resources required to submit GHG bids for attribution to WA?
  - Answer: If a resource is outside of GHG area have option to participate or not, but if participating in GHG attribution then must submit GHG bids unless by default mapped to that GHG area.
- Are EDAM BAAs validating DA GHG attribution results as well or is DA GHG only utilized as a baseline for the RTM GHG?
  - Answer: Only EDAM BAAs can see their market results as is by resource. EDAM BAAs DA GHG submission will be utilized for RTM GHG baseline.
- What MF config is required for CAISO BA resource to submit WA GHG?
  - Answer: GHG flag and emission rate must be filled out on the GRDT for MF setup.
- Additionally, should the GHG price be reflective of additional GHG regulation cost that WA Ecology may demand for its GHG attribution or the net GHG cost between the CA representation of GHG costs in the energy bid and WA Ecology GHG Costs (e.g. WA GHG Bid Price = CA_GHG_Price - WA_Ecology_GHG_Price)
  - TBD, Policy/Design related.

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Questions

- **Question :** Can you confirm our understanding is correct that Carbon emitting resources can submit GHG bid, as well as Non-carbon emitting resources such as Energy Storage, Zero emission resources such as solar, wind, hydro, as well as other self schedule resources.
- **Answer:** All resource-specific resources can submit an hourly GHG bid; the GHG bid asks for MWs the resource is willing to offer, and a $/MWh GHG bid adder to reflect compliance costs. Resources can enter any non-zero value for the $/MWh bid adder but it will be capped by the resource's max GHG bid cap. Each resource's max GHG bid cap is informed by their heat rate and emissions rate registered in the master file.
  - What does this mean for storage, VERs, and hydro? Resources that do not have a heat rate and/or register a 0 emissions rate will be capped at zero unless they negotiate an emissions rate. Resources that self-schedule can submit a non-zero $/MWh bid adder (subject to their max GHG bid cap).
  - Emitting resources that have registered their emissions rate in the master file and resources with negotiated emissions rates can reflect a non-zero $/MWh GHG bid adder in the market even if they self-schedule.

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Questions

Question: It seems like per the current design CA and WA GHG bids can both be provided on the same resource; however, participants are saying that separate GHG bid prices are not possible right now as seems like the only thing they can enter for GHG price is a delta price that is on top of the current CA GHG price (assuming their resource is mapped for GHG in CA by default etc). Can you confirm whether this is the intended design or expected to be able to enter a separate WA GHG price instead of entering a delta price on top of the original CA GHG price etc.

- **Answer:**
  - Resources in CA should reflect any GHG compliance costs related to the CA State's cap-and-invest program in their energy offers—these resources do not submit a separate GHG bid for CA. This is because even if capacity is attributed to WA, the supply is still subject to compliance in the state of California.
  - Resources in CA can submit a GHG bid to WA and use the WA GHG $/MWh bid adder to reflect their total expected compliance costs for the WA State cap-and-invest program. This design reflects the fact that compliance with CA state does not cover compliance for WA state and entities will need to cover costs associated with both if attributed.
  - CA and WA states have announced their intent to "link" their compliance markets in 2027 which would eliminate the need to count compliance costs twice. WA/CA cap-and-invest program linkages is on the policy roadmap for Q1 next year.

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Questions

Question: Received a nonzero WA GHG allocation even though dispatched at minimum in market sim. Seems like there can be no energy bid covering this "dispatch", so we need to get a conceptual understanding of why this is happening if intended, and a response also if not intended.

- Answer:
  - GHG attribution is an accounting mechanism that allocates the net import into a GHG area, WA in this case, to external supply resources with GHG bids. The only requirement is that the GHG attribution may not be greater than the resource energy schedule and the GHG economic bid capacity. The only other constraint limiting the GHG attribution is the upper economic limit of the bid energy minus the GHG reference. This constraint limits secondary dispatch.
  - A GHG attribution does not require the RTM schedule to be higher than the pmin or the DAM schedule, similarly to the WEIM where a GHG attribution can be awarded to a supply resource dispatched below its base schedule.

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Issues

- Known ADS Issue:
  - RTPDBindingResourceAwards related to CA IEEA product in the Instructions Grid which may introduce some duplications and limited visibility for the WA region. CAISO team investigating fix for the known issue and will provide a future communication on the resolution.
- Known SIBR Issues:
  - **Issue:** User Interface Bid Copy feature does not carry the GHG SET ID correctly, bids must be edited if copied to input the GHG data for the hours needed.
  - **Issue:** For MSG resource in the DAM bid, SIBR Rule 31676 fires if the GHG Obligation exceeds the Upper Economic Limit of the lowest Configuration.

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GHG Modeling Enhancement Phases

Two phases expand GHG market capability and refine geographic modeling, supported by coordinated development, training and market simulation.

PHASE 1 — Expand Market Capability

Effective January 1, 2027

- Support multiple GHG regulation areas
- Allow resources to bid into either or both areas
- Calculate a separate marginal GHG cost for each area

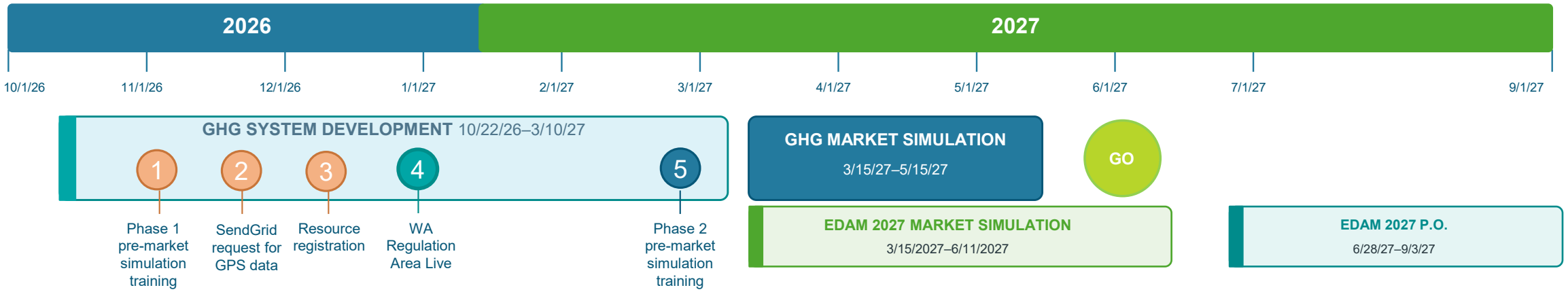
PHASE 2 — Refine Geographic Modeling

Effective June 1, 2027

- Enhance modeling for multi-state BAAs to align GHG assets with state boundaries
- Improve precision for multi-state Balancing Areas

GHG IMPLEMENTATION AND READINESS TIMELINE

Development, preparation, market simulation and go-live activities



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Enhancements planned for January 1, 2027

	Impacted entities	What to expect
WA GHG area definition	BAAs fully within the WA State boundary.	• Supply, load, and network branches in the State of Washington will be mapped to the WA GHG area. • Pricing nodes mapped to the WA GHG area will reflect a marginal cost of GHG in LMPs.
	Multi-state BAAs overlapping with WA State.	ISO will coordinate with multi-state BAs on GHG mapping.
GHG Bidding for multiple GHG areas	Market participating resources not associated with the WA or CA GHG areas.	• Resources can submit GHG bids for both WA and CA GHG areas separately. • The market will do GHG attribution for WA and CA GHG areas and print two separate GHG prices.
	CA GHG area resources.	Resources can submit GHG bids for the WA GHG area.

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Market Simulation Scenarios

Scenario Number	Structured scenario	
2A	Name	**GHG allocation in RTM across multiple GHG regulation areas in MAPSTAGE environment (upstream only)** Note: Market Participants can complete upstream submissions for any Trade Date and review results in SIBR and CMRI.
	Market	RTM
	Description	• Demonstrate that an Extended Day Ahead Market (EDAM) entity and/or a Western Energy Market (WEIM) entity can each receive Green House Gas (GHG) allocation from one GHG regulation areas in the Real-Time Market (RTM). • Demonstrate that an Extended Day Ahead Market (EDAM) entity and/or a Western Energy Market (WEIM) entity can each receive Green House Gas (GHG) allocation from more than one GHG regulation areas in the Real-Time Market (RTM).
	Market Operator Actions	• Ensure market conditions such that the relevant EDAM and/or WEIM BAA can export/import and receive GHG attribution
	EDAM/WEIM Market Participant Actions	• Utilize SIBR to submit cheap energy bids and separate GHG bids for each GHG regulation area for exports to more than one area. • Bid GHG at or above zero and ensure the energy bid range is equal to or greater than the GHG bid megawatt (MW) quantity • EDAM and WEIM entities to provide Load Meter Data based on Load Aggregation Point resource identifiers to the ISO Market Services team consistent with the Settlements Quality Meter Data (SQMD) plan. Note: Recommendation is to submit bids for CA and WA for all relevant resources wherever possible. • If in CA BAA then submit for WA • If in WA BAA then submit for CA

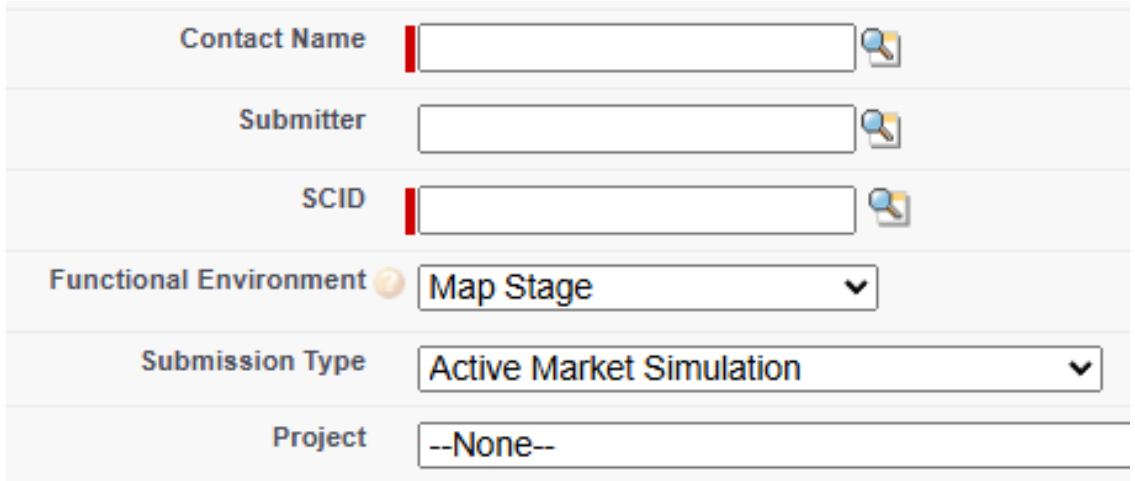
Scenario Number	Structured scenario	
		• If outside CA and WA then submit for both EDAM BAAs are expected to submit DA related bids to provide reference for RTM bids.
	Expected Outcome	The EDAM and WEIM entities to each receive GHG allocation from one and more than one GHG regulation area SIBR UI/API: validate submissions CMRI: • FMM and RTD Schedules Report for RTM GHG Allocations • EIM Green House Gas Attributions • EDAM Green House Gas Attribution • Hourly CLAP Load percentage share OASIS: • Total Net GHG Import Transfer Market Participant Portal (MPP) • All WEIM BAA load distribution factors published and viewable to WEIM entities • All EDAM BAA load distribution factors are published and viewable to EDAM entities, and each BAA's LDFs may be viewable by other BAAs

Market Simulation Scenarios

6.3.3 Group **EDAM MSS – 002B Multiple GHG**

Scenario Number	Structured scenario	
2B	Name	**GHG allocation in RTM across multiple GHG regulation areas in MAPSTAGE environment (full scenario)** Note: Market Participants can focus submissions for full end-to-end validation for the following Trade Dates: 11/17, 11/19, 12/1, 12/3.
	Market	RTM
	Description	• Demonstrate that an Extended Day Ahead Market (EDAM) entity and/or a Western Energy Market (WEIM) entity can each receive Green House Gas (GHG) allocation from one GHG regulation areas in the Real-Time Market (RTM). • Demonstrate that an Extended Day Ahead Market (EDAM) entity and/or a Western Energy Market (WEIM) entity can each receive Green House Gas (GHG) allocation from more than one GHG regulation areas in the Real-Time Market (RTM).
	Market Operator Actions	• Ensure market conditions such that the relevant EDAM and/or WEIM BAA can export/import and receive GHG attribution
	EDAM/WEIM Market Participant Actions	• Utilize SIBR to submit cheap energy bids and separate GHG bids for each GHG regulation area for exports to more than one area. • Bid GHG at or above zero and ensure the energy bid range is equal to or greater than the GHG bid megawatt (MW) quantity • EDAM and WEIM entities to provide Load Meter Data based on Load Aggregation Point resource identifiers to the ISO Market Services team consistent with the Settlements Quality Meter Data (SQMD) plan. Note: Recommendation is to submit bids for CA and WA for all relevant resources wherever possible. • If in CA BAA then submit for WA • If in WA BAA then submit for CA • If outside CA and WA then submit for both EDAM BAAs are expected to submit DA related bids to provide reference for RTM bids.
	Expected Outcome	The EDAM and WEIM entities to each receive GHG allocation from one and more than one GHG regulation area SIBR UI/API: validate submissions CMRI: • FMM and RTD Schedules Report for RTM GHG Allocations • EIM Green House Gas Attributions • EDAM Green House Gas Attribution • Hourly CLAP Load percentage share OASIS: • Total Net GHG Import Transfer Market Participant Portal (MPP) • All WEIM BAA load distribution factors published and viewable to WEIM entities • All EDAM BAA load distribution factors are published and viewable to EDAM entities, and each BAA's LDFs may be viewable by other BAAs

Market Simulation – CIDI Requests and Reporting



Select the following CIDI fields:

- SCID
- Environment: MAPSTAGE
- Submission Type: Active Market Simulation
- Title: Add HIGH, MED, LOW at beginning of title
- Description

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Reference Links – Training

- Greenhouse gas readiness phase 1 pre-market simulation training (11/2/26)
  - Video - Greenhouse Gas Readiness Phase 1 Pre-Market Simulation Training
  - Presentation - Greenhouse Gas Readiness Phase 1 Pre-Market Simulation Training

- Greenhouse Gas overview training (9/29/26)
  - Video - Greenhouse Gas Enhancements Overview Training - Sep 29, 2026
  - Presentation - Greenhouse Gas Enhancements Overview - Sep 29, 2026
  - Greenhouse Gas Readiness Handbook

- Evergreen training: Greenhouse Gas Coordination - GHG Price Formation
  - Chapter 1
  - Chapter 2
  - Chapter 3
  - Chapter 4

- Greenhouse Gas (GHG) Bidding and Pricing Updates for EDAM Readiness Note

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Reference Links – Documentation

- Business Requirements Specification v1.7 Redline – Extended Day-Ahead Market
- Business Requirements Specification v1.6 – EDAM Enhancements 2026
- Business Practice Manuals (BPMs)
  - BPM for Extended Day-Ahead Market, Section 23: Greenhouse Gas (GHG) Accounting (applicable for both EDAM and WEIM-only entities)
  - BPM for Western Energy Imbalance Market Section 11.3.3 Accounting for Greenhouse Gas Regulation
  - BPM for Market Instruments View GHG Readiness Handbook for applicable sections
  - BPM for the Full Network Model
  - BPM for Settlements and Billing

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