Training: Greenhouse Gas Enhancements Overview Part 2
Pre-Market Sim Training, Phase 1

November 2, 2026

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Course audience and focus

Primary audiences for this training course:

- Policy and regulatory staff
- Scheduling Coordinators/marketers responsible for GHG bidding
- Staff responsible for resource and market modeling
- Entities impacted by Washington GHG implementation and geographic boundary changes

Primary focus:

- Overview of Washington State GHG area activation
- GHG bidding enhancements for both states



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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

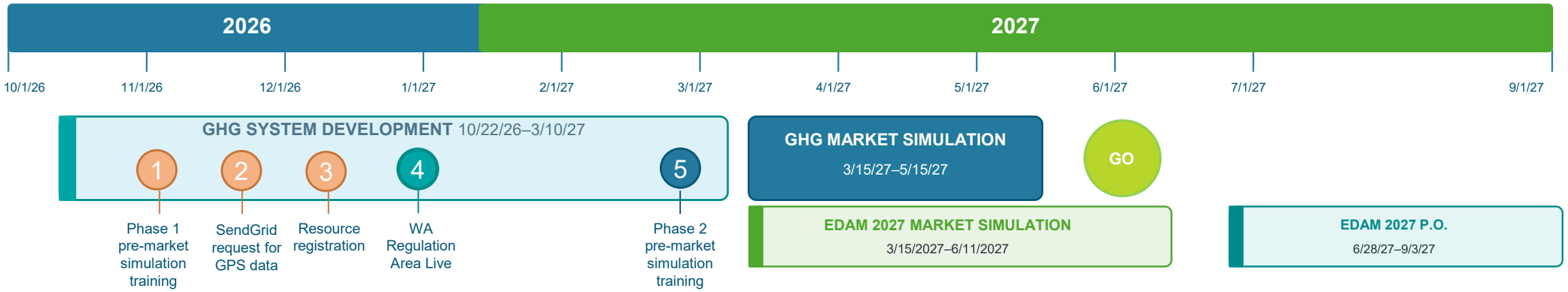
PHASE 2 — Refine Geographic Modeling

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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GHG committed capacity



Guidance on

- Role of committed capacity in GHG bid verification
- Registration and bidding

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GHG bid eligibility

MW Offered

→ Validated against the resource's **GHG counterfactual**

GHG Bid Adder

→ Validated against the resource's **max GHG bid cap**

GHG Area

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GHG counterfactual

A resource's GHG award is limited by its **counterfactual schedule –** an estimate of what that resource's schedule would be if not for demand in a GHG area.

How is the counterfactual determined?

	Day-ahead	Real-time
DA participating resources	GHG reference pass	Day-ahead energy award – Day-ahead GHG Award
RT only participating resources	N/A	Base schedule

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GHG Committed capacity

Capacity with an obligation to serve load in a GHG area– '**GHG committed capacity**'– is not subject to the counterfactual limitation.

How do entities identify the committed capacity that should be excluded from the counterfactual constraint?

	Day-ahead	Real-time
DA participating resources	Self report GHG committed capacity	
RT only participating resources	N/A	Include in base transfers, or exclude from base schedules and offer into the WEIM

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Registering committed capacity

- **Applicability:** SCs for day-ahead participating supply resources with load obligations in a GHG area.

- **Registration:** Use GHG Contract field in Generator Resource Data Template (GRDT).

Resource ID	GHG Regulation Area	GHG Contractual Capacity
	CA/WA	*Up to Pmax*

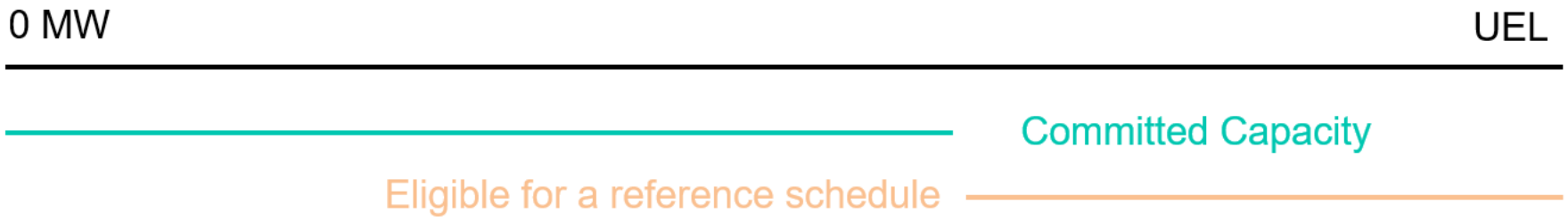
  – MW registered will be visible in SIBR after 5-10 business days.

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How does the market use GHG committed capacity?

The market excludes committed capacity from the **GHG reference pass--** this guarantees the committed capacity **will not** receive a reference (counterfactual) schedule.

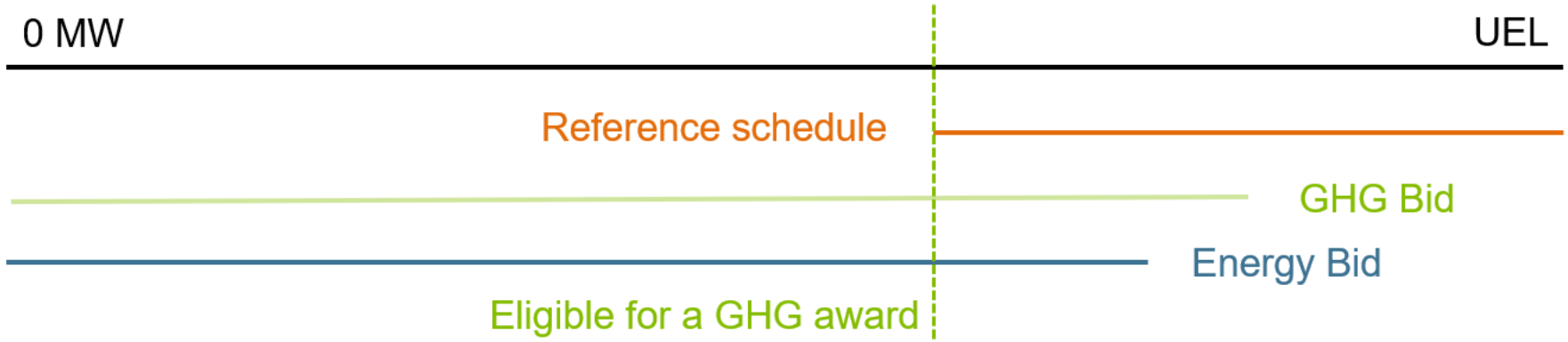
Example:
Upper Economic Limit (UEL) – Committed capacity may get a reference schedule



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How does this impact eligible GHG capacity?

Eligible GHG capacity is the lesser of: (UEL – Counterfactual), GHG MW offer, and energy award



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Example from GHG Handbook

EX	GHG Contractual Capacity (MW)	GHG bid capacity (MWh)	GHG reference schedule (MW)	Attribution eligibility (MW)
1	100	100	N/A (0)	100
2	100	99	N/A (0)	99
3	100	1	N/A (0)	1
4	100	0	N/A (0)	0
5	49	100	*Will be limited to 0-51*	*Will be between 100 - 49*
6	0	100	100	0
7	0	100	99	1
8	0	100	1	99
9	0	100	0	100

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Key takeaway



GHG committed capacity represents capacity already obligated to serve load in a GHG area. SCs identify that capacity through registration and use the GHG bid to determine how much is offered for attribution each hour.

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Resource association to GHG areas



Updated guidance for

- Multi-state BAAs
- Resources with energy pseudo-tie agreements

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Default resource treatment

Now: Resources physically located in the state of WA can include GHG costs in reference levels recover GHG compliance costs in energy bids

Between now and June 1: GHG association depends on the BAA association

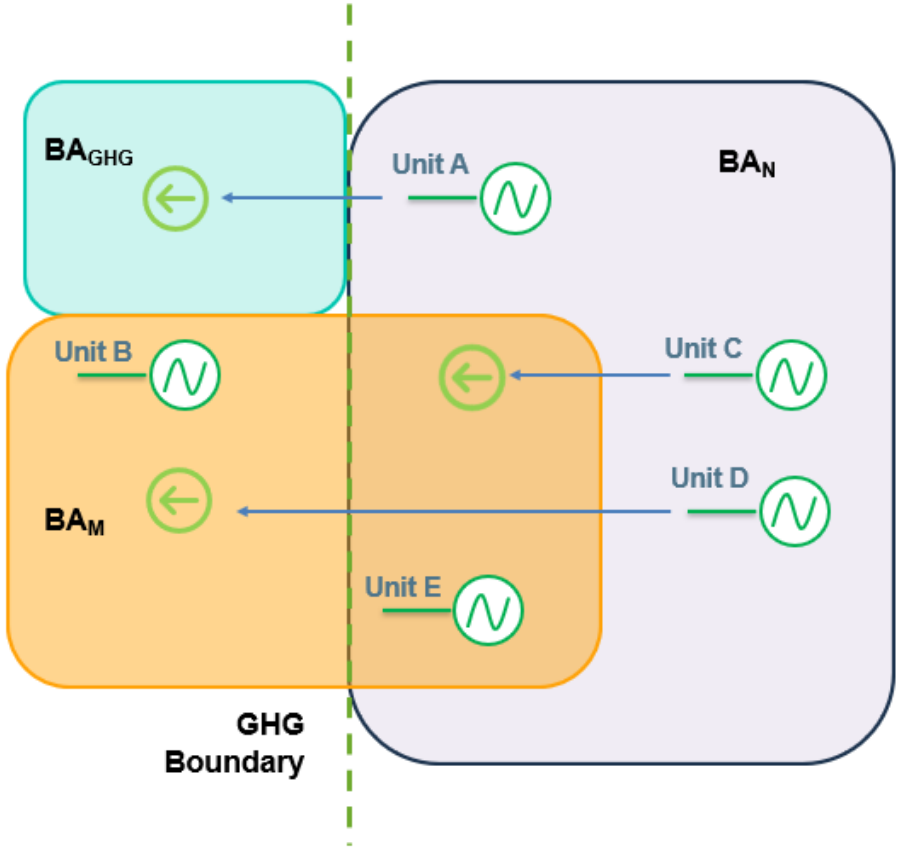
- BAAs fully outside a GHG area– resources are modeled as non-GHG area resources
- BAAs fully within the CA GHG area– resources are modeled as CA GHG regulated resources
- **Starting Jan 1** BAAs fully within the WA GHG area-- resources will be modeled as WA GHG regulated resources

After June 1: Multi-state BAAs can leverage enhanced geographic modeling to associate resources by state boundary

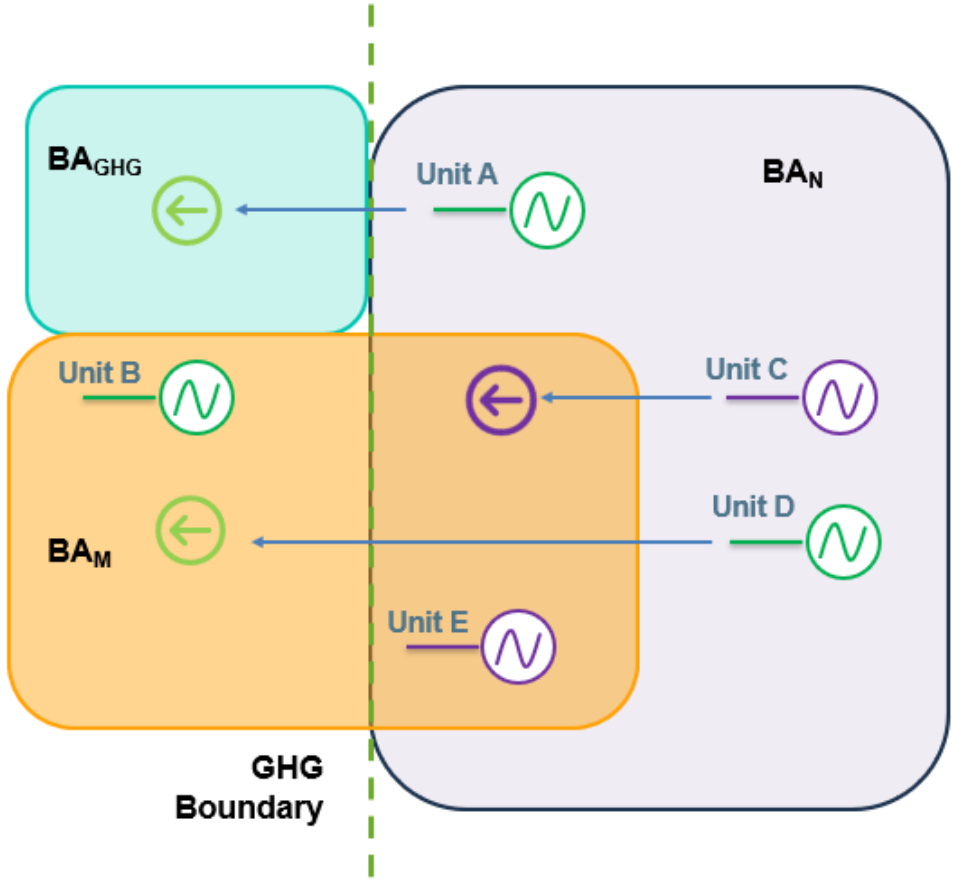
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Default treatment for energy pseudo-ties

GHG pseudo-tie association will be consistent with SP association



Before geographic modeling enhancements



After geographic modeling enhancements

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		Non-GHG area resource	GHG regulated resource
Reference level calculations	DEBs, commitment costs	**Not eligible for a GHG cost adder**	Certain eligible reference level types include a GHG cost adder-- Variable cost and negotiated cost DEB options, and proxy commitment cost calculations
	Max GHG bid cap	Market calculates two max GHG bid caps, one for each GHG area, using resource-specific emissions rate registered for the GHG area in the Master File	**No GHG bid cap; GHG bidding unavailable.** Market calculates a max GHG bid cap for only for the GHG area different from the resource's registered GHG area association
Bidding Rules	Energy	Energy should not include GHG compliance costs	**Energy offer carries GHG compliance costs**
	GHG bidding	**Resource can register committed capacity and submit GHG bids to either or both GHG areas.**	GHG bidding is not available for the associated GHG area. Resource can submit GHG bids for a separate GHG area.
Modeling	GHG Model	Energy can be **attributed as a GHG transfer (T_{GHG})** if economic, subject to GHG bidding constraints.	Energy is **accounted for as internal energy (EN)** in the GHG attribution constraint.
	Pricing and settlement	Pricing node has a 0 MC-GHG component. • If awarded energy only, settled at BAA MEC. • If attributed, settled at BAA MEC plus the MC-GHG.	Pricing node reflects the MC-GHG component. • If awarded energy, settled at BAA MEC plus the MC-GHG
Compliance and reporting	GHG Obligation	MWhs attributed subject to compliance and reporting	All energy dispatched subject to compliance and reporting

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New guidance to designate resources as GHG area resources

GRDT will have a read-only field identifying a resource's GHG area association– CA, WA, or null

Entities can request modifications to GHG area association through CIDI

- Expectations:
  - Functionality is intended for multi-state BAAs and exceptional circumstances
  - The ISO expects a market participant to receive special provisions from their relevant state air regulator if they request GHG modeling that does not align with state boundaries.
  - SCs should make sure that GHG area association does not conflict with or pose problems for contractual arrangements including energy pseudo-tie agreements.

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Key takeaway



A resource's GHG area association determines its GHG market treatment, including bidding, attribution, pricing, and compliance. Enhanced geographic modeling provides more precise resource association, particularly for multi-state BAAs.

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Bidding Opportunities



Based on timelines

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GHG areas and bidding opportunities between Jan 1 and June 1

	Day-ahead Market	Real-time Market	
What's in the **CA GHG area?**	DA participating BAAs fully within CA State including the CAISO BA	DA GHG area + RTM participating BAAs fully within CA State	CA GHG area resources can submit GHG bids for WA
What's in the **WA GHG area?**	*Null: No day-ahead participating BAAs fully within the GHG area*	RTM only participating BAAs fully within WA State	WA GHG area resources can submit GHG bids for CA
	DAM will only clear GHG bids for the CA GHG area	RTM will clear GHG bids for both the WA and CA GHG areas	

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GHG areas and bidding opportunities after June 1

	Day-ahead Market	Real-time Market	
What's in the **CA GHG area?**	DA participating resources within CA State boundaries	DA GHG area + RTM participating resources within WA state boundaries	CA GHG area resources can submit GHG bids for WA
What's in the **WA GHG area?**	*DA participating resources and load in multi-state BAAs*	DA GHG area + RTM only participating resources within WA state boundaries	WA GHG area resources can submit GHG bids for CA
	DAM will clear GHG bids for both the WA and CA GHG areas	RTM will clear GHG bids for both the WA and CA GHG areas	

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Key takeaway



GHG bidding opportunities depend on the resource's GHG area association and the market in which it participates. After June 1, both the day-ahead and real-time markets can clear GHG bids for the California and Washington GHG areas.

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Settlements



Impacted Charge Codes

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Settlement impacts to validate during Market Simulation

- **CC 8411 – Day-Ahead Energy Transfer Revenue Settlement:** Validate transfer revenue and applicable congestion-related bill determinants.
- **CC 6011:** Validate the applicable configuration and participant-specific settlement impacts.
- Review settlement statements and bill determinants to confirm GHG-related market outcomes are reflected as expected.
- Where applicable, validate OATT financial hedge treatment and the resulting congestion revenue available for CRR1B distribution.

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Summary, Participant Actions & Q&A



Section Focus

- What's next?

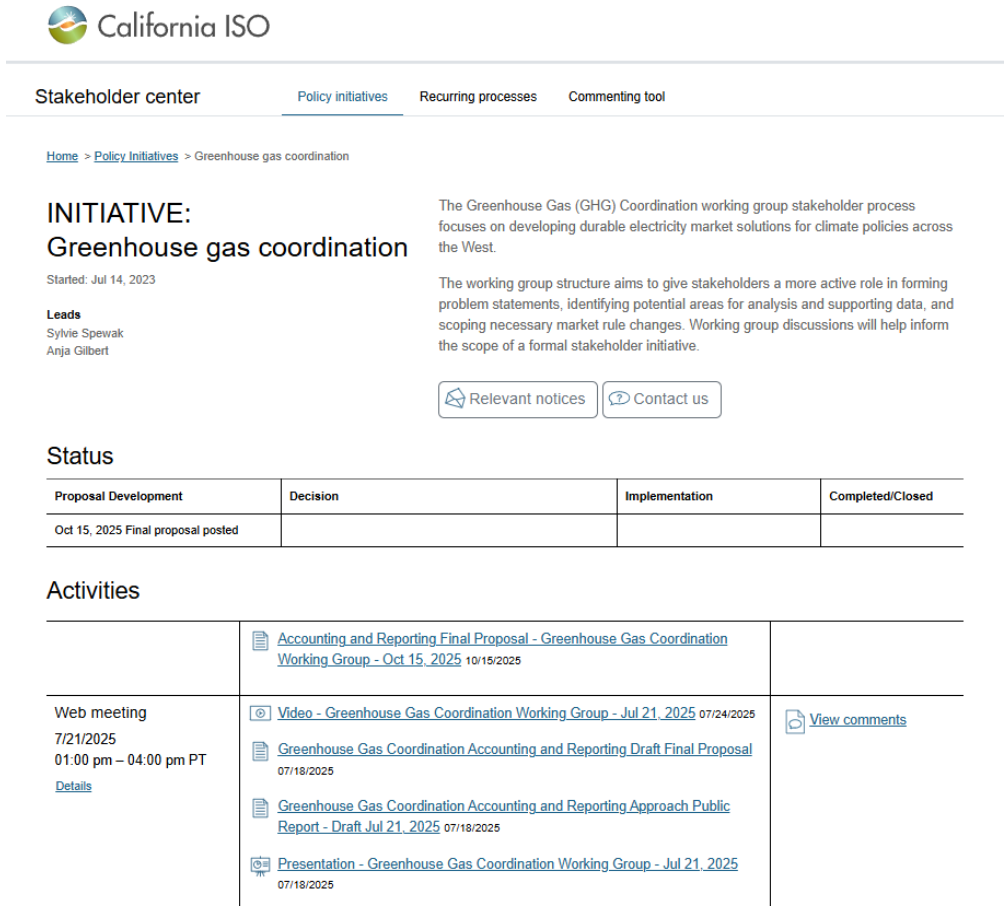
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What next?

- Participants should begin by:
  - Determining whether their BAA, load, resources, or interties are affected by CA or WA GHG-area modeling.
  - Confirming resource GHG-area associations.
  - Reviewing required geographic/modeling information.
  - Reviewing Master File GHG data.
  - Identifying resources expected to offer GHG capacity.
  - Reviewing SIBR/API changes with bidding and technical teams.
  - Understanding reporting and compliance responsibilities associated with GHG attribution.
  - Monitoring updates to the GHG Readiness Handbook and related ISO readiness communications.

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Participate in the Greenhouse Gas Coordination initiative



California ISO

Stakeholder center | Policy initiatives | Recurring processes | Commenting tool

Home > Policy Initiatives > Greenhouse gas coordination

INITIATIVE:
Greenhouse gas coordination

Started: Jul 14, 2023

Leads
Sylvie Spewak
Anja Gilbert

The Greenhouse Gas (GHG) Coordination working group stakeholder process focuses on developing durable electricity market solutions for climate policies across the West.

The working group structure aims to give stakeholders a more active role in forming problem statements, identifying potential areas for analysis and supporting data, and scoping necessary market rule changes. Working group discussions will help inform the scope of a formal stakeholder initiative.

Relevant notices | Contact us

Status

Proposal Development	Decision	Implementation	Completed/Closed
Oct 15, 2025 Final proposal posted			

Activities

	Accounting and Reporting Final Proposal - Greenhouse Gas Coordination Working Group - Oct 15, 2025 10/15/2025	
Web meeting 7/21/2025 01:00 pm – 04:00 pm PT Details	Video - Greenhouse Gas Coordination Working Group - Jul 21, 2025 07/24/2025 Greenhouse Gas Coordination Accounting and Reporting Draft Final Proposal 07/18/2025 Greenhouse Gas Coordination Accounting and Reporting Approach Public Report - Draft Jul 21, 2025 07/18/2025 Presentation - Greenhouse Gas Coordination Working Group - Jul 21, 2025 07/18/2025	View comments

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Fall 2026 – EDAM Enhancements 2026 Manage Multiple GHG areas

Project Information	Details
Scope Item	Manage Multiple GHG areas
Description	All **Core** BRQs in this section related to Multiple GHG Areas have been moved out of the EDAM BRS and into this BRS for the EDAM Enhancements 2026. Development will be required for these BRQs. • Define GHG regulation area and network branch association in SGEM • NA loss shall be calculated for each GHG area • Define CLAP for load in each GHG Regulation Area and load outside of all GHG Regulation Areas for both EDAM and WEIM BAA • GHG Bid submission and validation for GHG areas • Calculate base load for WEIM BAA CLAPs using ELAP LDF data in RTBS • Include BAA PBC slack in GHG area import allocation, using LDF for split BAAs • Calculate/Publish ELAP LDFs for WEIM BAAs at LAP level in RTBS. • Consume and publish all EDAM BAA LDFs to EDAM Entities
Impacted Systems	BAAOP
BRS	**Version 1.1 – planned 10/8/2026** **Version 1.0 – 08/17/26** **Version 0.6 – 6/30/2026**
Tech Spec	**TBD**
External Training	**GHG Overview – GHG Readiness Handbook 09/29/2026** **Late-October (TBD)**
Market Simulation	**November 2026**
Production	**December 2026**
BPM	**TBD**
Release Notes	**December 2026**

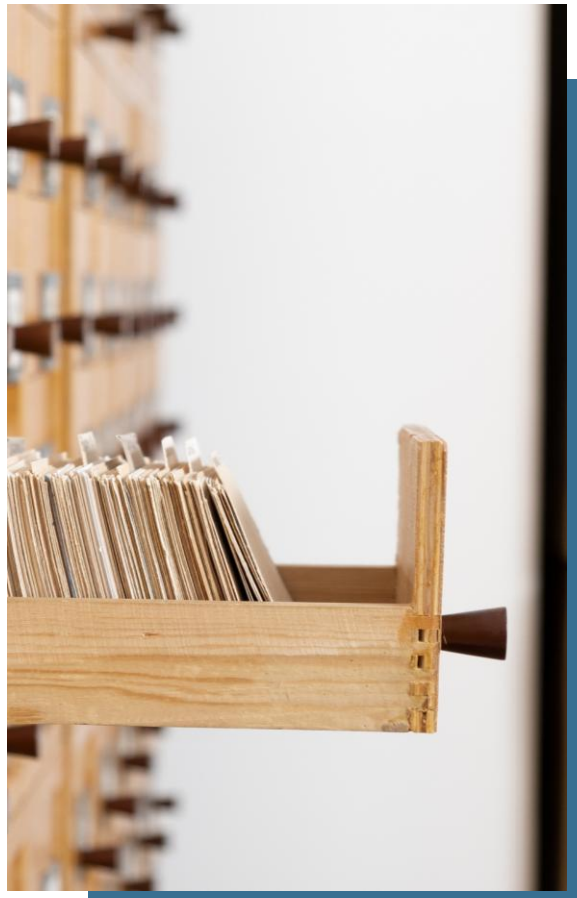
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Q&A With Subject Matter Experts



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Reference Links



GHG Readiness Handbook

California ISO Tariff

Business Requirements Specification v1.7 Redline – Extended Day-Ahead Market

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

Evergreen training: Greenhouse Gas Coordination - GHG Price Formation

- Chapter 1
- Chapter 2
- Chapter 3
- Chapter 4

Extended Day-Ahead Market Initiatives Page

Extended Day-Ahead Market Technical Description document

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

EDAM Greenhouse Gas Regulation Obligations computer-based training

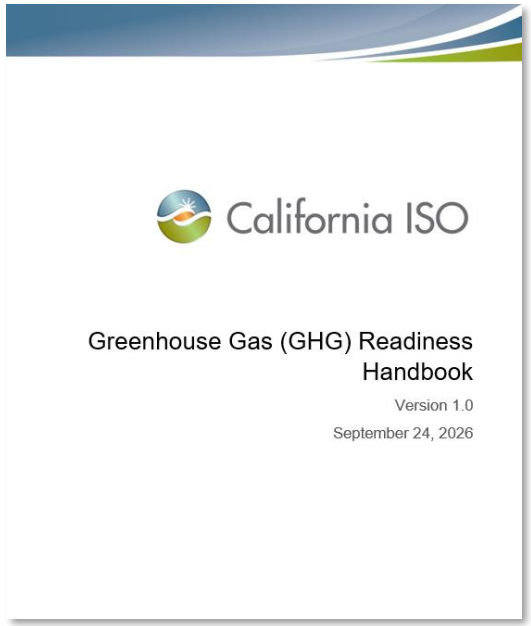
EDAM FAQ Guide

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Helpful resource with more updates coming soon!

GHG Readiness Handbook

Initial draft



1. One-stop reference for key GHG tariff, policy, and BPM materials.
2. Living resource updated as questions, feedback, and experience evolve.
3. Submit questions or feedback via CIDI or Contact Us.

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Greenhouse Gas Initiative: BRS Version 1.6 Now Available

California ISO posted BRS Version 1.6, with a redline of the latest updates:

- Multiple GHG Regions: requirements for January 1, 2027 are now distinguished from the full solution planned for Q2 2027
- Priority 10-11 reporting adds charge code bill determinants
- Find both documents on CAISO.com: Release Planning page > Fall 2026 > EDAM Enhancements 2026
- References: Greenhouse Gas Overview training (Training Center) and the GHG Readiness Handbook

Please review in prep for November 11 Market Sim!

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GHG Modeling Enhancement Phases

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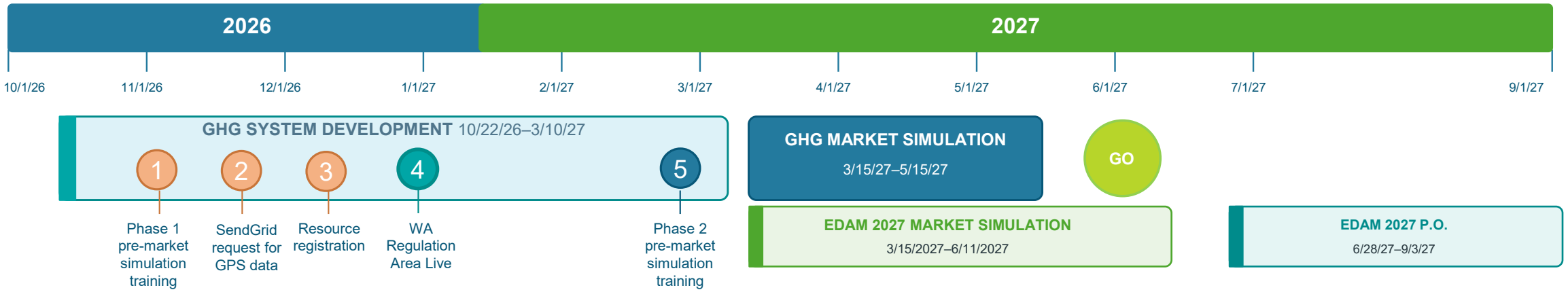
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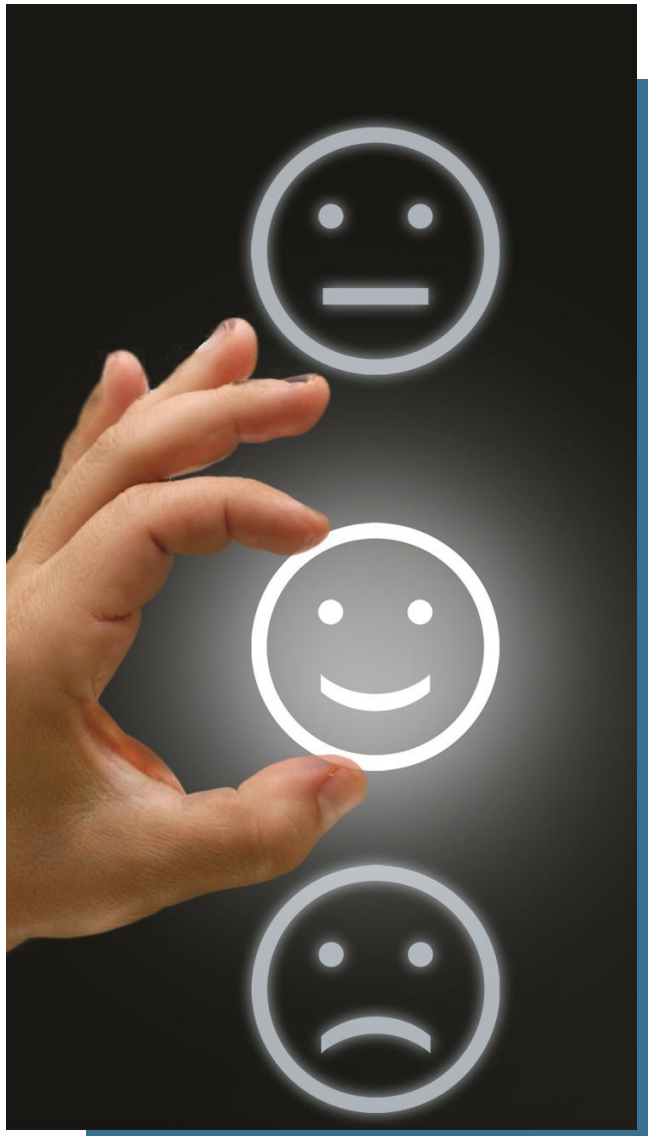
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