



California ISO

**GHG Coordination Working Group  
Discussion Paper**  
September 12, 2023

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California Independent System Operator

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## Executive Summary

This paper provides stakeholders with an overview of the upcoming ISO-hosted and stakeholder-driven greenhouse gas (GHG) Coordination Working Group. Specifically, the paper discusses the background on the working group effort, offers a strawman for the structure of the GHG Coordination Working Group, and provides a synthesis of the GHG stakeholder survey results on the recommended topics the working group should consider. This paper is also a tool to assist the GHG Coordination Working Group in organizing discussions and a means of accelerating collaboration between stakeholders.

The GHG Coordination Working Group effort is a pre-initiative process. This is to follow up on the commitment the ISO made to continue working collaboratively with stakeholders and regulatory agencies to explore how GHG accounting functionality could evolve after the ISO implements and gains experience with the Extended Day Ahead Market (EDAM). A recommended output of this effort is a “GHG Action Plan”, containing recommendations to the ISO for a future GHG policy initiative to support GHG design(s) that are durable and can reflect an array of western climate policies.

The ISO anticipates the GHG Coordination Working Group can greatly enhance the quality of market policy design by giving stakeholders a more active role in informing proposal development. As a starting point, the working group could develop the logistics of how frequently the working group will meet, establish GHG principles and problem statements, determine topic prioritization, justify any proposals, and ultimately develop a GHG Action Plan for a future policy initiative.

Lastly, this document outlines proposed topics for the working group based on the results of the ISO’s GHG Coordination Working Group survey. The ISO issued this survey in June and requested feedback from stakeholders on GHG topics the working group should address as well as a recommended prioritization of those topics.<sup>1</sup> Survey results coalesced around four themes, including a need to: 1.) review the ISO market operations and GHG design 2.) coordinate with state air regulators on climate policies 3.) discuss data needs for emissions tracking and accounting and 4.) re-examine how the market could reflect climate policies that do not explicitly price carbon. These survey results do not preclude the discussion of other topics, but rather offer a starting point for working group discussion, collaboration, and continued refinement.

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<sup>1</sup> See the Appendix for a more detailed summary of the survey results.

# Introduction

## Background

In the ISO's EDAM initiative process, stakeholders focused on developing a market model that could accommodate the price-based GHG emissions policies of multiple states. In addition, stakeholders questioned how participation in ISO's market could support the objectives of non price-based climate related policies like renewable portfolio standards (RPS) and GHG emission reduction goals. The ISO committed to continue working collaboratively with stakeholders and regulatory agencies to explore how the ISO market's GHG accounting functionality could evolve after it implements the EDAM and gains operational experience.

To date, GHG market design has reflected price-based emissions policies, like those adopted by California and Washington. These policies increase the marginal cost of electricity from fossil-fueled resources. An objective of the market design in the WEIM, and now in the EDAM, is to account for GHG costs associated with day ahead and real time transfers consistent with state policy. However, climate policies are in place and developing that will not price carbon. The working group is an opportunity for stakeholders to discuss if the ISO's market should also account for non-price based policies, and if so, how. The ISO hopes the GHG Coordination working groups can focus on design(s) that are durable and can reflect an array of western climate policies.

The GHG Coordination working groups will enhance the quality of proposal development by offering diverse stakeholders opportunities for engagement and alignment. The working groups offer stakeholders new to the conversation an opportunity to gain a better understanding of current ISO market design and processes, and introduce new scope items for consideration. The ISO acknowledges the effort that stakeholders put into the EDAM process and envisions the working groups to be an opportunity to build on that momentum.

## GHG Coordination Working Group Process

The working group process reflects general stakeholder feedback and input early in an initiative process, which can lead to more alignment on the scope of an initiative and proposed design.

The GHG Coordination working group will focus on possible future GHG accounting design(s) evolution including potential enhancements to the current EDAM design. However, the ISO will not immediately consider proposed alternatives to the GHG design approved by ISO Board of Governors and WEIM Governing Body for EDAM go-live. Doing so could conflict with, or impose delays on, planned implementation and concurrent state rulemakings.

During the working group process, the ISO expects stakeholders will focus on three essential components necessary for future proposal development:

1. **Problem Statements and Principles:** Establish principles and problem statements. The principles can be used to evaluate problem statements and any proposals developed.
2. **Prioritization:** Determine topic priorities timing for review in order to balance stakeholder bandwidth.
3. **Analysis:** Illustrate problem statements through review and assessment of current market solutions, data analysis, and/or agreed upon modeling.

In instances where the subject matter is complex and/or majority agreement or disagreement does not exist for a proposed approach, the ISO suggests hosting additional stakeholder working groups to discuss key elements of the proposal that need further development.

[1] Stakeholder feedback during the August 16<sup>th</sup> working group and on the associated discussion paper was generally supportive of the working group process. Stakeholder-suggested enhancements to the process include:

1. Engaging regional and state regulators in working group discussions
2. Dedicating sufficient time upfront for data analysis, with the flexibility to revisit principles and problem statements as new information becomes available
3. Implementation of a phased approach, with Phase 1 focusing on data collection, analysis, and identification of problem statements, and Phase 2 focusing on evaluation of the impacts of identified problems and the prioritization of efforts to develop solutions.

## Working group deliverables

This Discussion Paper will serve as a resource for stakeholders by tracking the decision making process. After each working group meeting, ISO facilitators and scribes will provide notes, key decisions, and action items identified by stakeholders. The ISO will post these notes for review between working group meetings.

[2] One stakeholder suggested the addition of a revision and action item log to the discussion paper as a way to track changes made to future iterations of the paper, and view the status of action items identified through the working group. In response, both a revision log and action item log have been added to the appendix of this discussion paper, and will be updated as revised discussion papers are published.

Stakeholder feedback also indicates that clarification is needed on how the ISO will measure and reflect consensus on issues in the discussion paper and eventual Action Plan. The purpose of the working group process is to identify and evaluate measurable market outcomes and trade-offs associated with problem statements. The ISO and stakeholders will work to provide quantitative measures of comparison where practical. However, consensus may not be reached on all topics discussed during the working groups. The discussion paper and Action Plan will note where items need further discussion or analysis to inform next steps, and will reflect how stakeholder input to date was accounted for. The ISO is dedicated to continuing discussions on issues and topics that are not included in the scope of the policy initiative resulting from this working group.

## GHG Action Plan

The intended end state of the Discussion Paper is a “GHG Action Plan” that reflects the outcome of stakeholder discussions during the working group process. The recommendations in the GHG Action Plan will bridge the working group and ISO initiative process.

[3] Stakeholder feedback received on the initial discussion paper indicates that clarification is needed on where the Action Plan fits into the joint governance structure. The GHG Action Plan does not require a decision from the ISO Board of Governors or WEIM Governing Body. The document is to be utilized as a resource in the scoping of the formal policy initiative that results from the working group effort.

One stakeholder also suggests including timelines and tangible targets for evaluation and implementation in the Action Plan.

## Discussion Paper Summary

### Working Group Topics

The topics proposed in this Discussion Paper synthesize stakeholder feedback from the GHG survey results, and written and verbal comments from working group meetings.

1. Review of ISO Market Operations and Existing GHG Market Design
2. State Coordination
3. Emissions Tracking and Accounting
4. Beyond GHG Pricing Policies
5. Other

[\[4\]](#) Stakeholders generally agree with the above list of proposed topics. There is general consensus that items 1 and 3 require additional review to facilitate common understanding of how GHG policies interact with market design. The ISO is exploring alternative ways to provide stakeholders with that information, such as pre-recorded webinars and models, to ensure time is being utilized efficiently during the working group meetings.

Following the review of items 1 and 3, stakeholder feedback indicates that data analysis related to Emissions Tracking and Accounting is of high priority, as well as discussion surrounding Beyond GHG Pricing Policies.

Stakeholders have also suggested additional topics to be discussed during the working group, which are listed in the Proposed Discussion Topics and Related Concepts section of this document.

### Principles

The following principles reflect a starting point for the GHG working group discussion. Throughout the working group process, stakeholders will consider how problem statements relate to principles to facilitate assessment of prioritization and potential trade-offs. The ISO encourages feedback on these principle topics:

1. Efficiency
2. Simplicity
  - [\[5\]](#) Stakeholder feedback indicates that this principle may not be needed or should be folded into the feasibility principle, noting that complexity should be considered as an element of feasibility.
3. Transparency
4. Non-discrimination
  - [\[6\]](#) One stakeholder suggests renaming this principle to “competitive participation of resources inside and outside a GHG zone”
5. Jurisdictional roles and responsibilities

- [7] One stakeholder suggests renaming this principle to “congruency with state policy”

6. Feasibility

As background, the EDAM GHG Working Group developed the following GHG Design Objectives which could serve as a springboard for future principle discussions:

1. No inappropriate or unacceptable GHG impact in non-GHG zone.
2. Leakage should be minimized.
3. Enable similarly situated/similar technology resources in non-GHG zone to compete on a level playing field with resources inside GHG zone and vice versa (objective not fully finalized).
4. Do not inadvertently undermine RPS and CES policies.
5. Allow for market efficiency by accurately reflecting relevant including GHG compliance costs.
6. Seeking simple solutions where possible while balancing precision and implementation feasibility to support state policy objectives.
7. Durable market design including but not limited to allowing for future policy designs and potential linkage

[8] The August 16th GHG Coordination working group meeting discussed these principles in-depth. The community, through verbal comments during the meeting and written comments on the first discussion paper, largely agree with these principles and believe they adequately incorporate the foundational principles that the GHG Coordination working group should keep in mind while it works through the definition of problem statements.

Proposed descriptions of each principle, based on working group discussion and written comments, are provided in the below table.

Principle	Description
Efficiency	Optimizing dispatch to minimize production cost
Simplicity	<ul style="list-style-type: none"> <li>• Design should be broadly applicable, scalable, and accommodate many participants</li> <li>• Design should use existing systems and instruments for tracking generation and emissions where available</li> </ul>
Transparency	<ul style="list-style-type: none"> <li>• Sufficient information exists in order to:                             <ul style="list-style-type: none"> <li>○ Make sufficient bidding and procurement decisions</li> <li>○ Maintain market compliance with state GHG regulations and programs</li> <li>○ Accurately perform GHG accounting and reporting</li> <li>○ Distinguish between available resources and resources that have been scheduled and accounted for</li> </ul> </li> <li>• Market prices, design, and performance are transparent and known to participants</li> </ul>



	<ul style="list-style-type: none"> <li>Costs to market participants beyond the GHG price required for importing electricity into states with price-based programs are transparent and known to participants</li> </ul>
Non-discrimination	<ul style="list-style-type: none"> <li>No inappropriate or unacceptable GHG or cost impact on a non-GHG regulation area or resource</li> <li>No penalty under a GHG pricing requirement through unreasonable uplift charges or any dispatch decision that unreasonably increases costs to customers in states with price-based programs</li> <li>All resources can compete on a level playing field</li> <li>Participants within GHG and non-GHG areas should have equal access to residual supply</li> <li>Non-prohibitive; states selling output of GHG pricing to those without GHG costs should not be hindered</li> </ul>
Jurisdictional roles and responsibilities	<ul style="list-style-type: none"> <li>Market design should support or align with state greenhouse gas regulation policies, to the extent practicable</li> <li>Coordination with state regulators and stakeholders to identify design and reporting needs required to support state policies and programs</li> </ul>
Feasibility	<ul style="list-style-type: none"> <li>Operationally feasible; the market can solve within prescribed timelines</li> <li>Feasible implementation</li> <li>Feasible timelines; must consider short and long-term prioritizations</li> <li>Feasibility should be evaluated through coordination between the ISO and the DMM on the workability of proposed solutions, including modeling and example scenarios where applicable.</li> </ul>

**[9]** Stakeholders also suggested the addition of the following 4 principles:

1. Accuracy
2. Environmental justice
3. Minimizing leakage
4. Durability

### **Problem Statements**

Identified problem statements should offer a clear path toward analysis and proposal development. These will be developed in the working groups.

## Proposed Discussion Topics and Related Concepts

As part of ISO's role facilitating these discussions, the ISO gathered proposed discussion topics through a survey sent out in June. This section synthesizes those survey results into four themes, and incorporates additional stakeholder feedback received through written comments and working group discussions.

### 1. Review of ISO Market Operations and GHG Design

This topic reflects stakeholder feedback expressing the importance of a common understanding of ISO market operations and GHG design. Stakeholders requested more transparency and comprehension of the current and planned GHG design to prepare for EDAM go-live, to inform ongoing state rulemaking processes, and to facilitate deeper engagement with future proposal development. Stakeholders expressed concern that conflicting processes and concurrent opportunities would put a strain on resources and limit participation in ISO discussions.

This topic offers an opportunity for alignment over the current and planned GHG market design to inform analysis and create a benchmark for comparison for future proposal development. The ISO intends to meet stakeholders where they are by offering a venue for stakeholders to decide what opportunities for review would best suit their needs (e.g., presentations from the ISO), at what cadence, and with input from appropriate subject matter experts.

Stakeholders suggested the following scope items be considered for problem statement formation:

1. A deeper understanding of:
  - a. The optimized attribution process to assess how the results (price and emissions impacts) reflect state policy goals.
  - b. Market GHG price signals, and how GHG marginal revenue allocation settles the intended cost and benefits of GHG policy.
  - c. The GHG counterfactual, and the impact of attributing resource capacity below that resource's counterfactual
2. Further consideration of the scalability of the planned GHG market design with multiple distinct GHG areas and prices.
3. Further discussion of the possible reliability and price impacts under scarce or insufficient GHG bids.
4. Development of GHG rules to account for dispatch from storage resources

[\[10\]](#) Comments received on the August 16<sup>th</sup> working group and associated discussion paper identify this topic as a high-priority item, specifically focusing on market efficiency and the topics outlined under item #1. In addition, stakeholders request discussion on the benefits and drawbacks of the ISO's current GHG

emissions counterfactual method, and alternatives considered during the initial EDAM market design process.

## 2. State Coordination

This topic reflects stakeholder feedback related to state agency decisions, rules, and processes. Stakeholders expressed a need for greater consistency and coordination across state GHG program administrators. Stakeholders requested more ISO leadership in ensuring program rules align with market processes and functionality.

While the working group process is intended to expand, not limit, the scope of discussion, the ISO is cognizant that its markets operate across multiple states who have authority over GHG emission policies. The working group process is a mechanism to support but not intrude on that state authority.

Stakeholders suggested the following concepts and scope items be considered for problem statement formation. The ISO highlights these here, but recognizes these issues will be addressed in the other topic areas for working group consideration:

1. The role of the ISO in fostering consistency for GHG reporting programs, and reducing the administrative burden for market participants
2. The role of the ISO in addressing the double counting of emissions between state programs
3. The market's ability to accommodate linkage between state GHG programs, and consideration of the prospective impacts of linkage
4. The role of the ISO in facilitating and informing state processes, including the calculation of metrics for reporting

[\[11\]](#) In written comments submitted on August 30<sup>th</sup>, one stakeholder suggests removing this topic, and instead incorporating an action item within each of the other topics to identify the level of state coordination necessary. Stakeholders have emphasized that coordination between the ISO and regional and state GHG regulators is key in developing market designs that support or are in alignment with state policy.

## 3. Emissions Tracking and Accounting

This topic reflects stakeholder interest in considering issues related to how emissions are tracked and monitored, accounted for, and reported to various entities. Stakeholders expressed concern over leakage, resource shuffling, and secondary dispatch. Stakeholders also expressed a need to illustrate and verify these impacts with data prior to the consideration of enhancements or alternative approaches.

This topic allows stakeholders to align on common definitions and expected impacts of identified issues. It can also promote discussion on how the current market functionality intends to address these issues, explore what data the ISO can provide to inform an assessment of these issues, and receive consensus on the appropriate metrics or methodology for analysis moving forward.

Stakeholders suggested the working group consider the following concepts and scope items to identify problem statements:

1. The emissions related data the ISO has access to and could provide, including emissions attributes of system capacity
2. A methodology to more accurately track the emissions from generating resources dispatched both to serve a GHG and non-GHG areas
3. Consideration of possible technical or legal constraints involved with reporting emissions beyond what is available for the purpose of reporting and compliance with state regulations
4. The role of contracts as it relates to the wholesale market (e.g., renewable energy certificates, resource adequacy, etc.)

[\[12\]](#) Comments received on the August 16<sup>th</sup> working group and associated discussion paper identify this topic as a high-priority item.

Stakeholder-suggested concepts to consider within this topic:

- Development of a more robust tracking and accounting framework that includes granular emissions related data necessary for compliance with state laws and regulations, increased transparency, and GHG accounting among western market participants
- Consideration of various states' clean energy and emissions programs in which Western market participants must comply
- Consideration of how resources may be attributed to serving load in and out of a GHG zone and how GHG transfers are settled
- Review of look-ahead data regarding resources that are already committed vs. data about residual supply in the market
- Consideration of the potential benefits of and development of hourly marginal and average emissions rate data

## 4. Beyond GHG Pricing Policies

This topic reflects stakeholder interest in considering concepts related to policy frameworks other than GHG policies that assign an explicit cost to carbon (i.e., Cap-and-Trade or cap-and-invest). Stakeholders with obligations under these non-priced programs expressed concern that participation in ISO's markets would put them at a disadvantage or prevent compliance. Stakeholders also requested consideration of metrics, monitoring and reporting methods to accommodate a broad range of GHG policies.

This topic allows stakeholders to consider if, how, and when distinct policies can be reflected by the ISO's markets. This could also be a venue to discuss what data or metrics the ISO can produce to facilitate reporting and compliance with these policies.

Stakeholders suggested the following concepts and scope items be considered for problem statement formation:

1. Meeting targets for GHG policies that set an emissions budget with no explicit cost obligation
2. Current 'Unspecified' rates may not accurately reflect the average emissions rate of the system
3. Reporting and determining compliance with load-based GHG policies require tracking flows of power with more granularity than net imbalance transfers allow for
4. Some stakeholders have compliance obligations with GHG policies that require tracking of attributes, like Renewable Portfolio Standards, RECs, and Clean Energy Standards

**[13]** Comments received on the August 16<sup>th</sup> working group and associated discussion paper identify this topic as a high-priority item, specifically, coordinating with state regulators and prioritizing methods to incorporate the needs of states with non-price based GHG reduction policies.

In addition, stakeholders suggest that this topic could instead be categorized under Emissions Tracking and Accounting.

## 5. Other

**[14]** Stakeholders propose the following topics be discussed during a future working group and in the development of problem statements:

1. Complexity of bringing renewables online and impacts associated with compliance obligations and current GHG pricing policies
2. Los Angeles Department of Water and Power's (LADWP) load-based accounting proposal
3. Affordability of electricity in the market
4. Eliminating leakage associated with electricity transfers from a non-GHG zone into a GHG zone
5. Environmental attributes and renewable energy credits
6. Data requests

## **Next Steps**

The ISO will host a public working group meeting on Sept. 13, 2023, which will focus on a review of emissions tracking and accounting, and problem statement formation. Written comments on the working group meeting and discussion paper are due by end of day September 27.

# Appendix

## Revision Tracking

[15](#) The table below summarizes the changes made to this document based on working group discussions and written comments.

<b>Working Group 1 – August 16, 2023</b>		
<b>Revision #</b>	<b>Category</b>	<b>Revision summary</b>
1	Process	Initial stakeholder feedback on the GHG Coordination working group process
2	Deliverables	Initial stakeholder feedback on the process for revising the GHG Coordination working group Discussion Paper, and how the ISO will measure and reflect consensus on issues discussed during the working group.
3	Action Plan	Initial stakeholder feedback on items to be included in the Action Plan, and clarification on how the document fits into the ISO’s joint governance structure.
4	Topics	Summary of initial stakeholder feedback received on the prioritization of working group discussion topics.
5	Principles	Stakeholder feedback on the “simplicity” principle, and how it may fit within the “feasibility” principle.
6	Principles	Suggestion to rename the “non-discrimination” principle to “competitive participation of resources inside and outside a GHG zone”
7	Principles	Suggestion to rename the “jurisdictional roles and responsibilities” principle to “congruency with state policy”
8	Principles	Addition of the principle descriptions discussed during the 8/16 WG meeting and through written comments received on 8/30.
9	Principles	Additional principles requested through written comments received on 8/30.
10	Topics	Stakeholder feedback on the Review of ISO Market Operations and GHG Design topic.
11	Topics	Stakeholder suggestion to remove State Coordination topic from the scope of the working group, and include it as an action item for each topic instead.
12	Topics	Additional concepts to be considered within the Emissions Tracking and Accounting topic.
13	Topics	Stakeholder feedback on the Beyond GHG Pricing Policies discussion topic.
14	Topics	Additional topics stakeholders have requested to discuss as part of the GHG Coordination Working Group.
15	Appendix	Addition of the revision log
16	Appendix	Addition of the action items log

## Action Items

[16] The table below reflects action items resulting from working group discussions and written comments.

Working Group 1 – August 16, 2023		
Action item	Assigned party	Resolution Date/Process
Vistra requested the ISO complete the data request they submitted as a part of the February 2023 EDAM Board Meeting	The ISO	TBD: The ISO suggests that all data analysis be tied to problem statements. Any data analysis will be comprehensively addressed through the problem statement and supporting analysis discussion.

## Topic Log

The table below categorizes the sub-topics within the four themes described in this paper. In some cases a topic may appear in multiple areas due to the cross-cutting nature of topics.

Topic	Count of Comments
<b>Beyond GHG Pricing Policies</b>	
Average Emissions Factor	4
Certificate Tracking	4
Load-based Accounting	4
Non Price-based Emissions Reduction Policy	19
RPS	4
Voluntary Emissions Reduction	1
<b>Emissions Tracking and Accounting</b>	
Accuracy	4
Average Emissions Factor	7
Capacity Attribution Tracking	3
California	2
Consistent Reporting	4
Leakage	3
Load-based Accounting	3
Public Emissions Reporting	8
Secondary Dispatch	4
<b>Review of ISO Market Operations</b>	
Attribution	4
Dynamic Transfers	1
Efficiency	2
GHG Reference Pass	4
Monitoring	4
Multijurisdictional BAAs	1
Non-discrimination	2
Secondary Dispatch	3



Storage Operations	2
<b>State Coordination</b>	
California	4
Compliance and Reporting	4
Data	2
Double Counting	4
Free Allowances	1
Linkage	4
Regional Coordination	5
Reporting and Compliance	4
Seams	5
Unspecified Rate	4
Washington	5
<b>Uncategorized</b>	<b>5</b>