California ISO

Greenhouse Gas Coordination

Working Group 11

July 29, 2024

Housekeeping reminders

- This call is being recorded for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO's permission.
- These collaborative working groups are intended to stimulate open dialogue and engage different perspectives.
- Please keep comments professional and respectful.

Instructions for raising your hand to ask a question

- If you are connected to audio through your computer or used the “call me” option, select the raise hand icon located on the bottom of your screen.
  Note: #2 only works if you dialed into the meeting.
  - Please remember to state your name and affiliation before making your comment.

- You may also send your question via chat to all panelists.

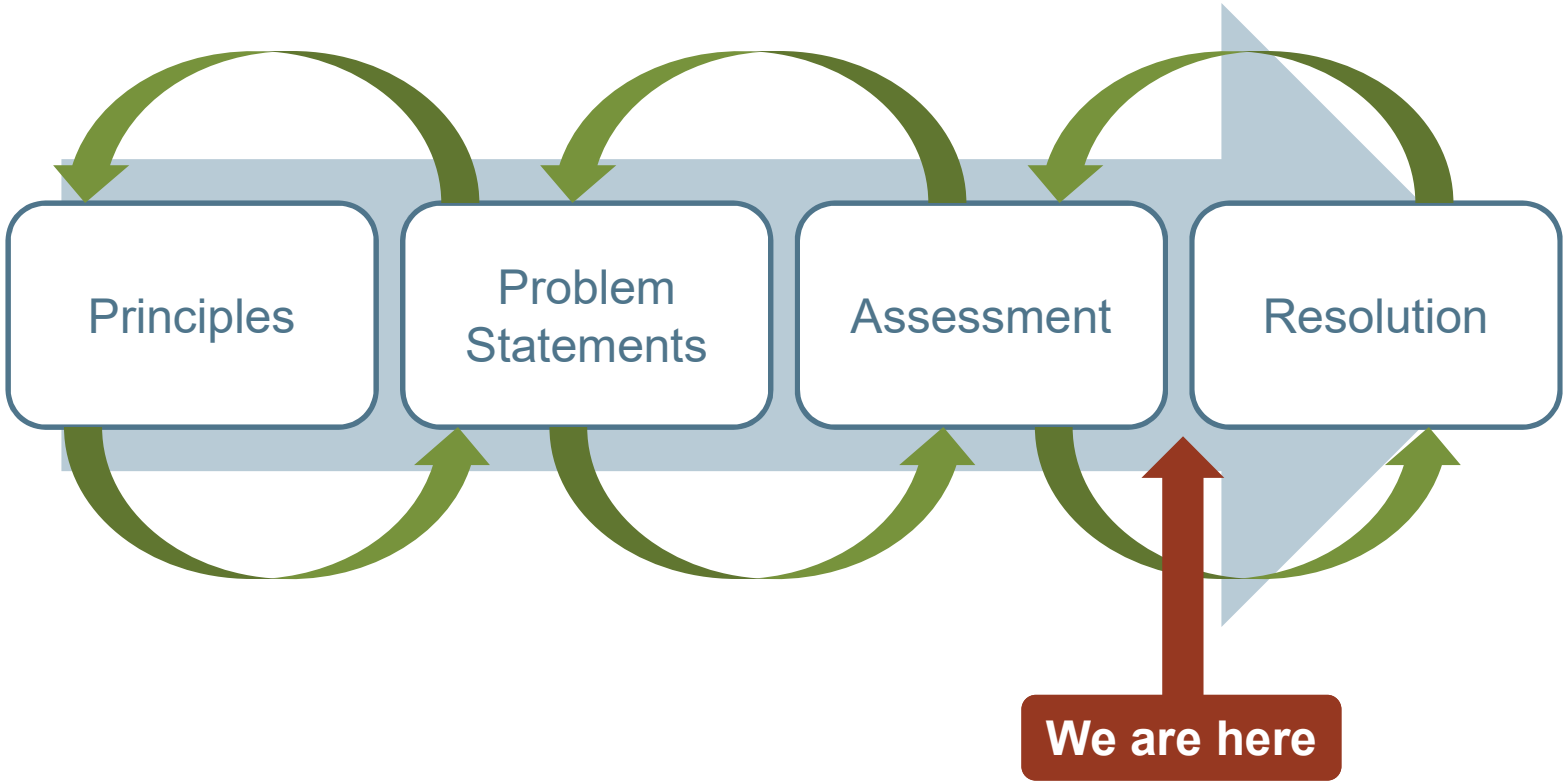
Notice to Participants

***Please be reminded**, Commissioners and advisors from state public utility commissions may be in attendance.*

Agenda

Time	Topic	Presenter(s)
1:00 – 1:10	Welcome and Goals	Isabella Nicosia
1:10 – 1:30	Summary of Stakeholder Feedback	Isabella Nicosia
1:30 – 2:30	Update on GHG Metrics Requests & EDAM GHG Go Live Monitoring	Sylvie Spewak Miheer Shah & Anja Gilbert
2:30 – 2:40	Break	
2:40 – 3:10	Regulatory Assistance Project: GHG Subgroup Initial Perspectives on Key Discussions in Energy Markets	Andrew Valainis, Carl Linvill & Commissioner Letha Tawney
3:10 – 3:40	Non-priced GHG Approach	Anja Gilbert
3:40 – 4:00	Next steps	Isabella Nicosia

Working group progress to date



STAKEHOLDER FEEDBACK ON WORKING GROUP 10

Stakeholder Feedback: Oregon's Perspective on Emissions Tracking and Accounting

Entity	Comment
NVE	Appreciates the initial proposal for an in-market constraint but recommends prioritizing establishing a reporting framework and triggers first
PG&E	Appreciates Commissioner Tawney's perspective and acknowledges the long-term need for an in-market solution but does not prioritize it immediately
PacifiCorp	Supports the concept of an in-market constraint, but emphasizes the importance of preserving cost allocation for compliance accounting
PGE	Supports robust emissions data tracking for near-term compliance and anticipates the need for in-market dispatch solutions in the longer term
PGP	Supports exploring both tracking/reporting and dispatch solutions to meet Oregon's compliance needs and disagrees with the concern that transitioning to a dispatch regime from a tracking and reporting regime would be difficult
SRP	Supports tracking and reporting frameworks that accommodate both regulatory and voluntary commitments
Six Cities	Disagrees on the necessity of emission-constrained dispatch for EDAM compliance
WPTF	Challenges the necessity of an emission-constrained dispatch for Oregon's GHG targets, noting utility support for alternative proposals

Stakeholder Feedback: Mechanics and Examples of the Emission Constrained Dispatch Approach

Entity	Comment
NVE	Does not currently support an in-market dispatch solution but propose establishing metrics through stakeholder initiatives for future consideration
NVE	Raises concerns regarding potential market price increases without emission reduction benefits and the creation of market winners and losers
PG&E	Expresses concerns about the cost-effectiveness of the approach and suggests considering inter-temporal optimization to capture economic opportunities
PacifiCorp	Expresses concerns about the introduction of a GHG shadow price in a non-price based program
PacifiCorp	Raises practical issues regarding the complexity of quantifying and communicating emissions allowances within BAAs, especially in relation to load serving entities (LSEs)
PGE	Recognizes the necessity of an in-market solution for compliance with non-priced state policies driving emissions reductions
PGE	Directionally supportive of the emissions constrained dispatch approach but due to its complexity, PG&E suggests it should come after the development of the WPTF proposal
PGE	Seeks further discussion on implementation hurdles, costs, and potential impacts on EDAM market optimization
PGP	Supports further development and understanding of the emissions constrained dispatch approach
SRP	Raised concerns about FERC approval for BAAs in states without emission caps and potential cost shifts
SRP	Requests clarification on must-offer requirements and their integration with emissions constraints
Six Cities	Acknowledges potential benefits of emissions-constrained dispatch but seek more analysis on feasibility, costs, implementation challenges, and market efficiency impacts
WPTF	Expresses concern over added complexity and pricing implications of new GHG costs

Stakeholder Feedback: Moving discussed approaches for a non-price based state to policy development

Entity	Comment
PG&E, PGE, PGP, SRP, Six Cities, WPTF	Supports advancing the WPTF approach to the policy development phase
PG&E, PGP, SRP	Recommends delaying emissions constrained dispatch until an emission accounting system is established
PacifiCorp	Generally supports the working group moving to policy development for states with non-price based programs
PGE	Supports moving the WTPF approach to policy development Observes that the WPTF approach is complementary with the in-market approach
PGE	Supports exploring the emissions constrained dispatch proposal as a future initiative, acknowledges its foundational elements but stressed the need for further development
Six Cities	Recommend detailed feasibility analysis before advancing emissions-based dispatch to policy development

Stakeholder Feedback: ISO GHG Price Formation

Entity	Comment
PGP	Seeks further clarity on GHG price formation, particularly regarding internal GHG costs and their impact on emissions calculations
PGP	Supports exploring the interaction between GHG pricing and congestion
SRP	Suggests exploring alternatives to the current GHG pricing paradigm and understanding associated costs
WPTF	Raises additional questions and concerns about the current GHG pricing approach's implications and transparency
DMM	Supports the ISO's clarifications on the GHG component of LMPs and the distinction between secondary dispatch and leakage
DMM	Agrees with the ISO on the current interpretation serving its purpose in LMPs.
DMM	Does not recommend changing optimization constraints but suggests a separate metric or additional data for stakeholders regarding GHG costs

Stakeholder Feedback: ISO's EDAM GHG Regulation Model Examples

Entity	Comment
PGP	Encourages examples and discussion on GHG adders and their implications for future state program linkage
PGP	Emphasizes the importance of understanding market design considerations with and without linkage under EDAM
WPTF	Challenges the representation of marginal GHG costs and calls for expanded modeling to include all resources for better price formation discussions

Stakeholder Feedback: ISO's GHG Counterfactual

Entity	Comment
PG&E	Supports individual GHG reference passes for each balancing area for reasons including alignment with WEIM, equal access to economic supply, and accurate compensation
PGP	Highlights concerns about potential cost impacts on GHG regulation areas due to restricted non-emitting supply
SRP	Interested in understanding the mechanics behind GHG award limitations and secondary dispatch
SRP	Seeks clarification on discrepancies between eligible attribution and GHG awards in specific scenarios
Six Cities	Advocates for further evaluation of cost impacts from pooled non-GHG counterfactual design on GHG BAAs
Six Cities	Requests quantitative analysis on economic supply assignment impacts between non-GHG and GHG BAAs
WPTF	Criticizes limitations on transfers between GHG and non-GHG areas, citing unintended revenue shifts and inequitable access to surplus energy, urging further discussion on market efficiency
DMM	Supports ISO's clarification on the causes of secondary dispatch. Highlights that using base schedules as a counterfactual for leakage is problematic and observes the GHG reference pass in EDAM is a better counterfactual for analyzing leakage but involves trade-offs in market outcomes. Recommends ISO work with GHG regulators to understand trade-offs in GHG reference pass design.

Stakeholder Feedback: Topics for future working groups or policy development phase

Entity	Comment
NVE	Supports initiating a stakeholder process to establish state-specific reports showing how the market impacts GHG goals
PG&E	Requests analysis of cost-benefit of secondary dispatch constraint on Cap & Trade affordability in collaboration with CARB
PGE	Operationalizing the WPTF proposal, including implementation by CAISO or other entities
PGE	Availability of emissions data to stakeholders
PGE	Allocation and management of implementation costs
PGE	Supports the emissions constrained dispatch proposal but emphasizes the need for significant design work before advancing
PGP	Calls for further development on GHG price formation and GHG counterfactual, including specific examples and key questions
SRP	Advocates for improvements that benefit entities with corporate GHG reduction objectives alongside state-mandated programs
Six Cities	Future topics and policy development should be informed by detailed analyses and stakeholder engagement, particularly focusing on emissions-based dispatch feasibility and counterfactual design impacts
WPTF	Proposes deferring GHG price formation and counterfactual issues until further evaluation and operational data are available post-EDAM go-live

UPDATE ON GHG METRICS REQUESTS

Summary of GHG Metrics Requests

Category	Problem Statement/ Use case	Approach
Accounting and reporting	- Double Counting - Unspecified rate for retail claims	- Residual emissions rate - Evolve the average emissions rate (AER) - Begin policy development for WPTF approach
Monitoring and assessment of existing GHG design	- Cost-benefit analysis on constraints to limit secondary dispatch - Initial steps for monitoring EDAM go-live	- ISO is vetting the feasibility of stakeholder requests - Next working group: discussion proposed methodologies
Program Specific Information	- Identification of the marginal units from WEIM transfers	- Stakeholders can engage directly with relevant state rule-makings
Evolving currently available data	- Situational awareness	- Requests can be made through CIDI

Average Emissions Rate progress tracker

Variables/Metrics	Included	Not included	Can include in future iterations
Monthly, hourly granularity	**Yes**		
Total attributed generation	**Yes**		
Imports/Exports into the WEIM area	**Yes**		
State/Zonal specific			**EDAM will facilitate with geographic modeling**
By injection point or node		**Limited use-cases, technical and legal limitations**	
Demand response			**Need use-case, develop a methodology**
Resource-specific attributions		**Available through CMRI**	
Relative to base-schedules			**Evolution toward a "residual emissions rate", develop a methodology**
Bilateral transfers (imports) between BAs		**No impact in a full market metric**	**Relevant to a BA-specific metric**

METRICS FOR MONITORING AND REPORTING

Updates to current GHG metrics published by CAISO

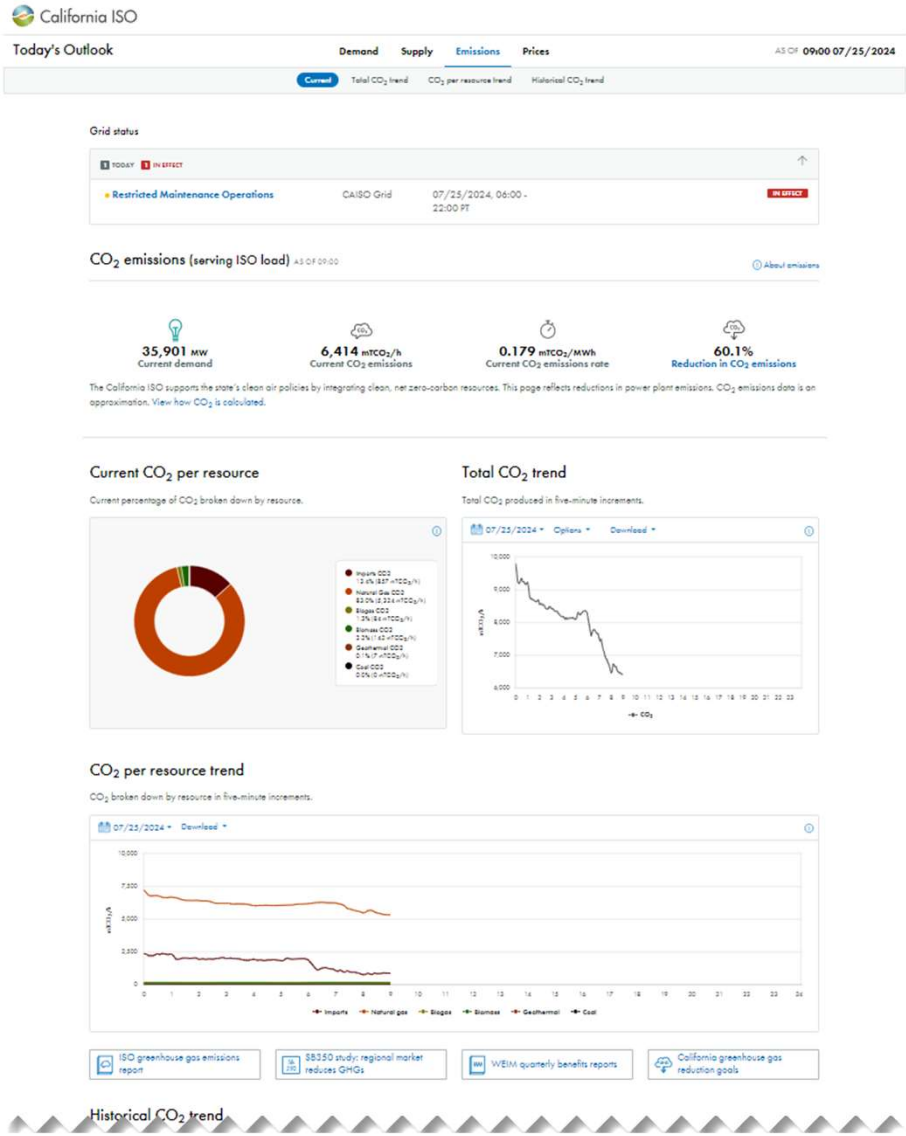
1) Public
   a) Average Emissions Rate Report
   b) CAISO Daily Outlook
   c) GHG Emission Tracking Report
   d) GHG Attributions by Fuel Type
   e) GHG Allowance Index Price
   f) EIM GHG Shadow Prices
2) Non-public
   a) WEIM GHG attributions through the Customer Market Results Interface (CMRI)

Average Emissions Rate Report

	A	B	C	D	E	F	G	H	I	J	K	L
1	TRADE_DT	TRADE_HR	GEN_MWH	IMP_MWH	EXP_MWH	GEN_GHG	IMP_GHG	EXP_GHG	AVG_EM_RATE	ATTR_MWH	ATTR_GHG	ATTR_AVG_EM_RATE
2	4/1/2024	1	60899	12538	-10289	16314	5366	-4404	0.274	570	0	0.000
3	4/1/2024	2	59953	12783	-10495	16294	5471	-4492	0.278	547	91	0.166
4	4/1/2024	3	59407	12069	-9730	16535	5165	-4164	0.284	618	111	0.180
5	4/1/2024	4	60285	11893	-9851	16825	5090	-4216	0.284	403	39	0.097
6	4/1/2024	5	62865	12322	-10469	17197	5274	-4481	0.278	393	14	0.036
7	4/1/2024	6	67330	13349	-11275	17801	5713	-4826	0.269	347	0	0.000
8	4/1/2024	7	72706	13756	-11282	18219	5888	-4829	0.256	470	1	0.002
9	4/1/2024	8	75922	12697	-10546	17735	5434	-4514	0.239	495	8	0.016
10	4/1/2024	9	74537	10413	-9010	15297	4457	-3856	0.209	272	0	0.000
11	4/1/2024	10	71372	10303	-9317	12788	4410	-3988	0.183	0	0	0.000
12	4/1/2024	11	68091	10185	-9710	11571	4359	-4156	0.172	0	0	0.000
13	4/1/2024	12	65868	10157	-9896	10660	4347	-4236	0.163	0	0	0.000
14	4/1/2024	13	64650	10425	-10345	10780	4462	-4428	0.167	0	0	0.000
15	4/1/2024	14	42164	7268	-7117	7082	3111	-3046	0.169	0	0	0.000
16	4/1/2024	15	63481	10566	-10343	10704	4522	-4427	0.170	0	0	0.000
17	4/1/2024	16	63896	10402	-10099	10935	4452	-4323	0.172	0	0	0.000
18	4/1/2024	17	65045	9849	-9154	11499	4215	-3918	0.179	0	0	0.000
19	4/1/2024	18	68288	9427	-8296	12876	4035	-3551	0.192	0	0	0.000
20	4/1/2024	19	72165	11430	-9977	15836	4892	-4270	0.224	0	0	0.000
21	4/1/2024	20	75915	12990	-11242	17170	5560	-4811	0.231	0	0	0.000

- Reports the average emissions rate for generation in WEIM (including CAISO)
- Reports the average emissions rate for generation attributed to California
- Monthly report, data provided at hourly granularity
- More details about calculation provided in each report
- Link: https://www.caiso.com/library/average-emissions-rate-reports

CAISO Daily Outlook



Reports the emissions associated with the energy serving load in the CAISO BAA, using metered energy

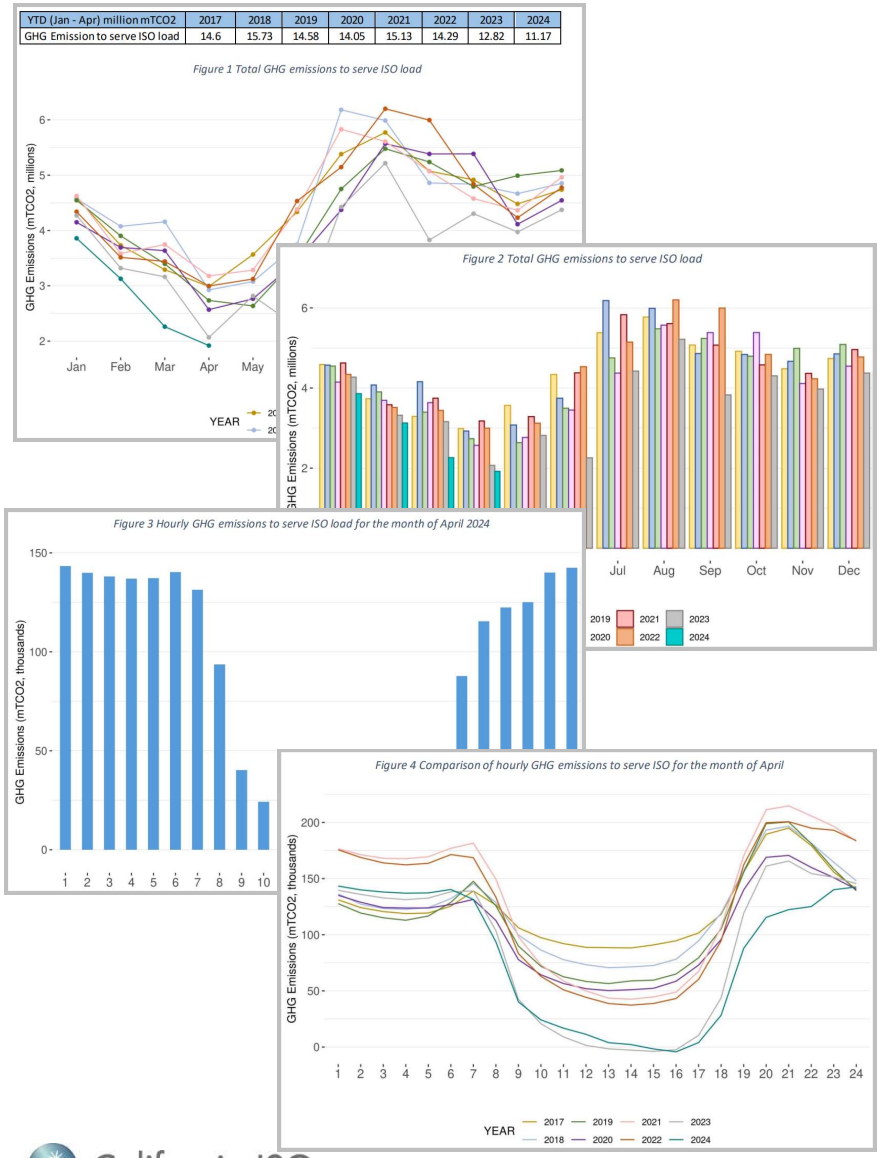
Assumptions:

- Uses pre-defined emissions rates by fuel type (i.e. not resource-specific as registered in Master File)
- Assigns emissions to imports based on unspecified rate of 0.428 MTCO2e/MWh

Link: https://www.caiso.com/todays-outlook/emissions

GHG Emission Tracking Report

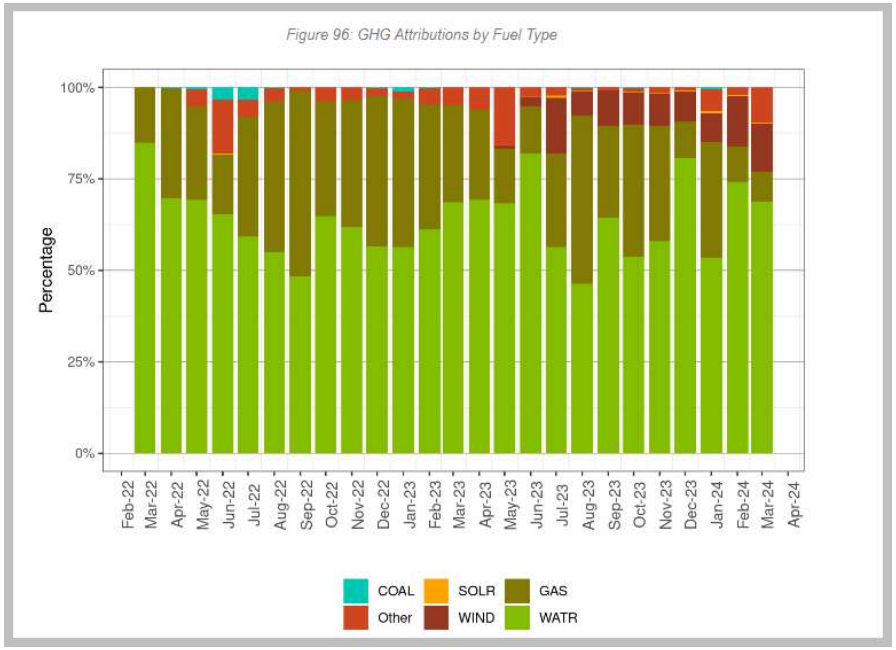
YTD (Jan - Apr) million mTCO2	2017	2018	2019	2020	2021	2022	2023	2024
GHG Emission to serve ISO load	14.6	15.73	14.58	14.05	15.13	14.29	12.82	11.17



- Reports the emissions associated with the energy serving load in the CAISO BAA using 5-minute market awards
- Assumptions:
  - Uses resource-specific emissions rates as registered in Master File, where possible
  - Assigns emissions to imports based on unspecified rate of 0.428 MTCO2e/MWh
- Link: https://www.caiso.com/market/Pages/ReportsBulletins/Default.aspx

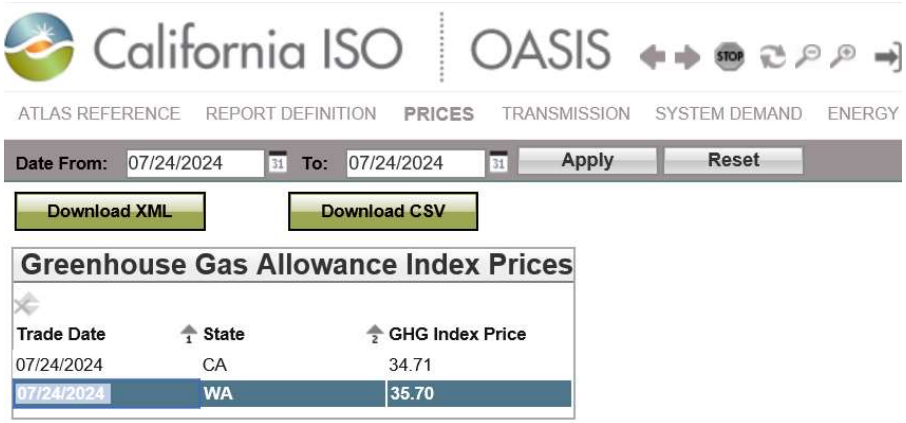
California ISO

GHG Attributions by Fuel Type



- Reports only the percentage of MWh transfers of GHG attributions into California BAAs, grouped by fuel type
- Link (Market Performance Reports > Monthly market performance reports > Sect. 8): https://www.caiso.com/market/Pages/ReportsBulletins/Default.aspx

GHG Allowance Index Price (OASIS)



- Reports GHG allowance index prices for CA and WA
- Link (OASIS > Prices > Index Prices > Greenhouse Gas Allowance Index Prices): http://oasis.caiso.com/mrioasis/logon.do

EIM GHG Shadow Price (OASIS)

California ISO | OASIS

ATLAS REFERENCE | REPORT DEFINITION | PRICES | TRANSMISSION | SYSTEM DEMAND | ENERGY | ANCILLARY SERVICES | CONGESTION REVENUE RIGHTS | PUBLIC BIDS | RESOURCE ADEQUACY

Date From: 07/24/2024 To: 07/24/2024 Market/Process: RTD Apply Reset

Download XML Download CSV

EIM Green House Gas (GHG) Shadow Prices

Market	Opr Date	Opr Interval	HE01	HE02	HE03	HE04	HE05	HE06	HE07	HE08	HE09	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
RTD	07/24/2024	1	0.00	-7.87	-5.33	0.00	0.00	0.00	-13.81	-23.36	-15.77	-15.10	-13.81	-8.77	-1.39	-13.81	-14.13	-15.77	-29.92	-15.73	0.00	0.00	0.00	0.00	-11.06	-13.80
RTD	07/24/2024	2	-0.04	-7.30	-4.51	-0.41	0.00	0.00	-15.61	-23.36	-15.74	-15.10	-12.71	-9.55	0.00	-13.81	-18.34	-17.24	-22.25	-15.86	0.00	0.00	0.00	0.00	-11.06	-13.80
RTD	07/24/2024	3	0.00	-4.65	-0.65	0.00	0.00	0.00	-17.80	-20.44	-15.38	-14.13	-12.07	-6.89	-0.01	-13.81	-18.97	-17.24	-16.07	-15.86	0.00	0.00	0.00	0.00	-11.06	-11.17
RTD	07/24/2024	4	-12.41	-9.19	-2.34	0.00	0.00	0.00	-18.08	-22.04	-15.38	-14.13	-11.95	-2.30	-8.52	-13.81	-17.24	-17.24	-15.77	-15.77	0.00	0.00	0.00	0.00	0.00	-11.17
RTD	07/24/2024	5	0.00	0.00	-2.34	0.00	0.00	0.00	-19.64	-18.50	-15.10	-13.81	-8.32	0.00	-10.45	-11.95	-16.27	-17.24	-15.38	-15.77	0.00	0.00	0.00	0.00	0.00	-13.80
RTD	07/24/2024	6	0.00	-5.00	-2.28	0.00	0.00	0.00	-19.64	-22.03	-14.71	-13.81	-1.57	0.00	-10.85	-1.86	-14.13	-16.57	-16.07	-17.28	0.00	0.00	0.00	0.00	0.00	-15.21
RTD	07/24/2024	7	-15.61	-5.44	-2.12	0.00	0.00	0.00	-18.29	-20.80	-14.45	-13.04	-0.42	-0.99	-11.17	-10.45	-16.00	-17.49	-15.73	-17.28	0.00	0.00	0.00	0.00	0.00	-15.77
RTD	07/24/2024	8	-15.77	-4.83	-4.94	0.00	0.00	0.00	-18.29	-15.86	-14.13	-11.42	-0.56	-3.95	-11.17	-9.37	-11.02	-20.65	-15.38	-17.28	0.00	0.00	0.00	0.00	0.00	-17.78
RTD	07/24/2024	9	-15.77	-8.19	-4.99	0.00	0.00	0.00	-17.24	-15.86	-14.13	-9.95	-0.56	-4.32	-11.95	-10.45	-12.86	-28.70	-15.73	-15.77	0.00	0.00	0.00	0.00	-12.70	-18.21
RTD	07/24/2024	10	-15.61	-7.21	-3.65	0.00	0.00	0.00	-17.78	-15.38	-12.64	-5.75	-0.56	0.00	0.00	0.00	-16.00	-26.73	-16.07	-16.29	0.00	0.00	0.00	-15.74	-15.77	-18.17
RTD	07/24/2024	11	-13.77	-8.08	-3.77	0.00	0.00	0.00	-18.02	-15.38	-11.17	-7.75	-0.56	-2.19	0.00	-10.45	-16.29	-24.57	-16.49	-15.73	0.00	0.00	0.00	-11.17	-17.24	-17.78
RTD	07/24/2024	12	-13.81	-7.21	-3.28	0.00	0.00	-11.45	-18.44	-15.38	-12.49	-10.45	-1.96	-2.79	-9.74	-2.37	-18.60	-25.98	-15.38	0.00	0.00	0.00	0.00	-11.06	-17.28	-18.75

- Reports GHG shadow prices for EIM for RTD and RTPD
- GHG shadow price reflects the GHG component of LMP for the EIM footprint
- Link (OASIS > Prices > Shadow Prices > EIM Green House Gas (GHG) Shadow Prices): http://oasis.caiso.com/mrioasis/logon.do

WEIM GHG attributions (CMRI)

California ISO | Customer Market Results Interface

Day-Ahead | **Real-Time** | Post-Market | Default Bids | Convergence Bidding | Forecast | Transmission Constraints | Reference | LSE | Energy Imbalance Market | Phase Shifter | Gas Burn | Reliability Coordination

Trade Date: 07/24/2024 Entity: [ALL] Resource: Binding: [ALL]
Product: CA Export Allocation Schedule Type: [ALL] Hour: 1

Fifteen-Minute Market (FMM) Schedules

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Trade Date	SC ID	Resource	Configuration	Effective Intertie	Product	Schedule Type	Binding	Hour Ending	Interval IE:15 [MW]	Interval IE:30 [M
07/24/2024	[redacted]				CA Export Allocation	Cleared	Yes	1	0.00	0.0
07/24/2024					CA Export Allocation	Market	Yes	1	0.00	0.00
07/24/2024					CA Export Allocation	Self	Yes	1	0.00	0.00
07/24/2024					CA Export Allocation	Cleared	Yes	1	5.71	5.7
07/24/2024					CA Export Allocation	Market	Yes	1	5.71	5.

Trade Date: 07/24/2024 Entity: [redacted] Resource: [ALL] Binding: [ALL]
Product: CA Export Allocation Schedule Type: [ALL] Hour: 1

Real-Time Dispatch (RTD) Schedules

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Trade Date	SC ID	Resource	Configuration	Effective Intertie	Product	Schedule Type	Binding	Hour Ending	Interval IE:05 [MW]	Interval IE:10 [MW]	Interval IE:1 [MW]
07/24/2024	[redacted]				CA Export Allocation	Cleared	Yes	1	0.00	0.00	0.
07/24/2024					CA Export Allocation	Market	Yes	1	0.00	0.00	0
07/24/2024					CA Export Allocation	Self	Yes	1	0.00	0.00	0.0
07/24/2024					CA Export Allocation	Cleared	Yes	1	0.00	0.00	0.0
07/24/2024					CA Export Allocation	Market	Yes	1	0.00	0.00	0

- Reports the resource-specific GHG attributions for the 15-minute and 5-minute market
- Results are only available to the WEIM Participating Resource Scheduling Coordinator
- 5-minute market results form the basis of what is reported to CARB for compliance with their programs related to the WEIM

Planned updates to GHG metrics

- Average emissions rate (AER)
  - The CAISO is exploring breaking down and reporting the average emissions rate by fuel type (e.g. Gas, Hydro, Storage, Solar, etc)

- Marginal emissions rate
  - The CAISO is exploring a methodology and its implications and will report on that assessment in a future session of the working group

GO LIVE MONITORING

Suggested Metrics for EDAM GHG Go-Live Monitoring

Topic	Metric
Secondary Dispatch	The percentage of transfers serving CA and WA load that could be potential secondary dispatch
GHG Net Export Constraint	The number of intervals the GHG net export constraint binds, which limits the ability to attribute
	The number of hours the net export constraint is turned off due to an RSE failure for a BAA that overlaps with a GHG regulation area
	The percentage of intervals when there was a GHG bid lower than what was attributed when the net export constraint was active

Are there any additional metrics would be beneficial for go-live monitoring?

BREAK

REGULATORY ASSISTANCE PROJECT: STATE GHG SURVEY

California ISO

July 29, 2024

Initial Perspectives from the GHG Subgroup on Key Discussions in Energy Markets

CAISO GHG Coordination Working Group

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Associate

These are initial perspectives.

*The GHG Subgroup consists of selected commissioners and staff from California, Colorado, Nevada, New Mexico, Oregon, and Washington. These states' utility commissions have jointly agreed to collaborate and assist in developing multi-state solutions for their respective clean energy programs. *The information included herein should not be considered to reflect the perspectives from California or Nevada, who did not have input at this time. Nevada, specifically, is currently working through proceedings addressing these questions. Other state perspectives in this document should be understood as initial perspectives as discussions are ongoing.*

Double Counting of Emissions

- Double counting of emissions should be minimized to the greatest extent practical.
- This is driving the interest in States for uniformity in how emissions are tracked and reported through western energy markets.
- Acknowledge that statutory definitions and limitations may make complete uniformity challenging.

Non-Priced Program Tracking and Accounting

- No strong opposition to the WPTF proposal for Tracking & Reporting (T&R).
- CO and NM: T&R only solution likely sufficient.
- OR: T&R only solution may be sufficient in the near term, but in the medium- or long-term (e.g., 2030, 2045) will likely need an emissions-constrained dispatch solution.
- WA: Though currently a priced state, passage of WA Initiative 2117 would repeal the Climate Commitment Act and bar state agencies from implementing cap and trade programs.

RPS Programs, RECs, Null Power

- CO: statute specifically requires RECs be retired for compliance with GHG program.
- OR: statute interpreted as specifically restricting the PUC from requiring RECs be retired for compliance with GHG program.
- WA: CCA – energy bears underlying generator's characteristics, regardless of REC status. CETA – primary compliance requires RECs be retired; unbundled RECs allowed but only as an "alternative compliance obligation" and only until 2045 when that option expires.

Given the disparate statutes and approaches, group is still discussing how the treatment of RECs and null power (or an equivalent term) affect GHG program compliance.

Energy Storage

- The WPTF proposal seems reasonable.
- Questions:
  - How will the timing of charging be determined?
  - How will the resources used for charging be determined?
  - Who will make those determinations?

Summary of Non-Priced State GHG Programs (Plus Washington)

State	Goal/Target
Colorado	For energy serving retail sales of electricity: 80% reduction by 2030 and 100% reduction by 2050 (2005 baseline).
Nevada	For electricity serving NV customers: 100% carbon-free by 2050.
New Mexico	For energy serving retail sales of electricity and generation and power purchase agreements: 50% RPS by 2030 and no later than Jan. 1, 2045, zero carbon resources shall supply 100% of all retail sales of electricity. In addition, and effectively appliable to PNM only, average emissions of generation and power-purchase agreements with a term of twenty-four months or longer shall emit no more than 400 lbs CO2/MWh by Jan. 1, 2023 and no more than 200 lbs CO2/MWh by Jan. 1, 2032.
Oregon	For retail electricity sales as reported under ORS 468A.280: 80% reduction by 2030; 90% by 2035; and 100% by 2040. Based on utility-specific baseline average of emissions from 2010-2012 retail electricity sales (*only applies to PGE, PacifiCorp, and Electricity Service Suppliers).
Washington (*currently a Priced state)	For electricity sales to WA customers: by 2030, GHG-neutral power using non-emitting and renewable generation (with allowance of up to 20% alternative compliance options); by 2045 provide 100% renewable and non-emitting power to meet retail load.

A PATH FORWARD: NON-PRICED GHG APPROACH

Discussion

- What are we trying to solve?
- What data do we have to support the problem statement?
- What are suggested next steps?

What are we trying to solve?

Problem Statement: The market lacks a mechanism that enables Load-Serving Entities and Energy Users to accurately account for energy and associated emissions used to serve load under regulatory and voluntary GHG Reduction and Clean Energy goals.

a.) There is not a market mechanism in states with a declining cap on emissions for utilities to ensure load is served by generation and wholesale market transfers that meet those emission reduction targets

b.)There is currently not a way to optimize a portfolio of resources at the EDAM Entity/ WEIM Entity/BAA/LSE level annually from a pre-market, in-market, or post-market perspective over the course of the year to adhere to state emission targets.

c. There is not a market mechanism in states with a declining cap on emissions to reflect both the declining cap and a price on carbon in the market for states that have both requirements

What are we trying to solve?

This problem statement is unique in that it is:

1. Forward looking;
2. Not data driven – instead it is focused on both regulatory and voluntary objectives;
3. Includes solutions; and
4. Relies on state, stakeholder, and ISO coordination on solutions.

What data do we have to support the problem statement?

- No data; the ISO has state and compliance entity feedback.
- We heard potential solutions including an “in market” Emission Constrained Dispatch approach and an “out of market” Accounting and Reporting approach.
- Current state GHG climate policies are largely still under development and do not dictate a solution.
  - Oregon’s Commissioner Tawney shared her perspective that an “in market” solution will be needed to meet 2030 goals.
- The ISO has received “compliance entities” broad support with pursuing the Accounting and Reporting approach and limited support for further exploration of the Emission Constrained Dispatch approach.

What are suggested next steps?

- Near term: Move the Accounting and Reporting approach to policy/implementation.
- Long term: Due to the available lead time and need for additional analysis the ISO plans to allow regulation to further develop prior to beginning the policy phase for an in-market solution.

Issues to Address in Accounting and Reporting Workshops

- Policy:
  - Confirmation of reporting structure
  - Flexibility of:
    - Changing attributes per state/reporting entity
    - Approach for LSE emissions residual rate
    - Approach for null power
  - LSE framework subject to state regulation
- ISO Systems/IT:
  - Associating LSE with generation
  - Associating load for reporting
- Confidentiality:
  - Access

Applicability of the Accounting and Reporting Approach

- The Accounting and Reporting approach is intended for states with climate policies not based on price as well as to support voluntary program and corporate reporting programs.
- It will not be available where there are already state GHG reporting frameworks, unless requested by that state. For example, it will not be available for California LSEs as they are already subject to CEC GHG reporting and may have additional GHG reporting requirements through SB 253 and SB 261.

Draft Timeline

NEXT STEPS

Next steps

- Comments due by end of day August 12.
  - Submit using the template provided on the working group webpage
- Next working group in September 2024
- Submit requests to present to ISOStakeholderAffairs@caiso.com
- Relevant information: https://stakeholdercenter.caiso.com/StakeholderInitiatives/Greenhouse-gas-coordination-working-group