

Cap-and-Trade Program Workshop

OCTOBER 5, 2023
AFTERNOON SESSION



Workshop Logistics

- Workshop materials and comment docket available at Cap-and-Trade Meetings and Workshops webpage
 - <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/cap-and-trade-meetings-workshops>
- Written feedback may be submitted to comment docket open through October 26 at 11:59 p.m. Pacific Time
- Public comment after presentation
 1. Use the “Raise Hand” function in the toolbar at bottom of your screen
 2. When staff call your name, please “Unmute” and introduce yourself
 3. Commenters will be given 3 minutes. No ceding time to others



Agenda

- Electricity emissions
 - Electricity markets introduction
 - Imported electricity emissions accounting
 - Energy storage systems
 - Electricity imports from unlinked jurisdictions
 - RPS adjustment
 - Public comments
- Biogenic emissions exemptions
 - Public comments

Extended Day-Ahead and Western Energy Imbalance Markets



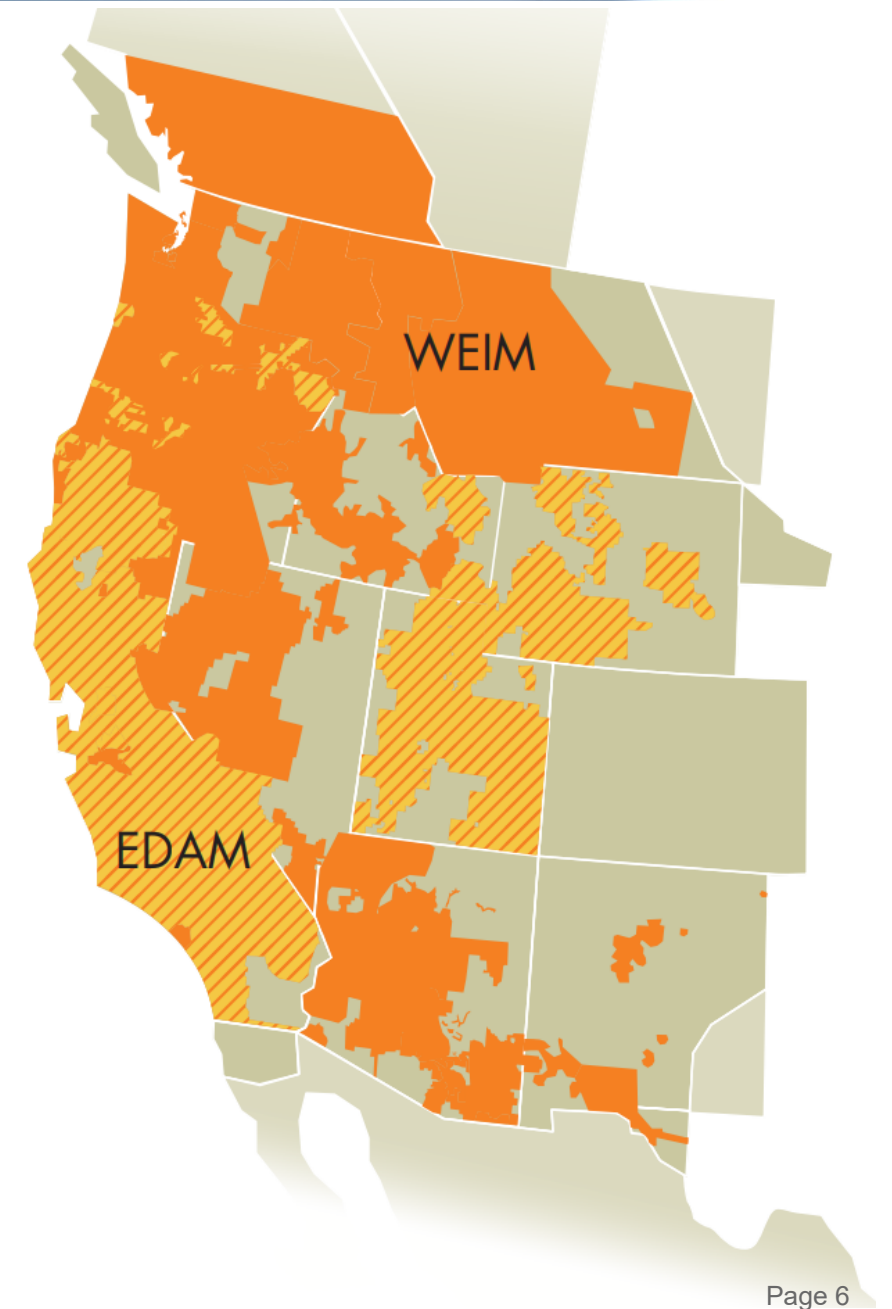
Western Energy Imbalance Market (WEIM)

- A real-time wholesale energy trading market that enables participants to buy and sell energy.
- Since its launch in 2014, the WEIM has enhanced grid reliability, generated billions of dollars in benefits for participants, and improved the integration of renewable energy resources.



Extension of the Day Ahead Market (EDAM)

- An extension of the day ahead market across the West allows for optimized commitment of generation in the day ahead timeframe.
- EDAM entities continue to retain key responsibilities: resource planning, transmission planning, and reliability operation functions.
- **PacifiCorp (PAC)** and the **Balancing Authority of Northern California (BANC)** have indicated their intent to join the EDAM.
- Timing: 2026 “go-live”, coordinated with participants



GHG Accounting in the WEIM and EDAM

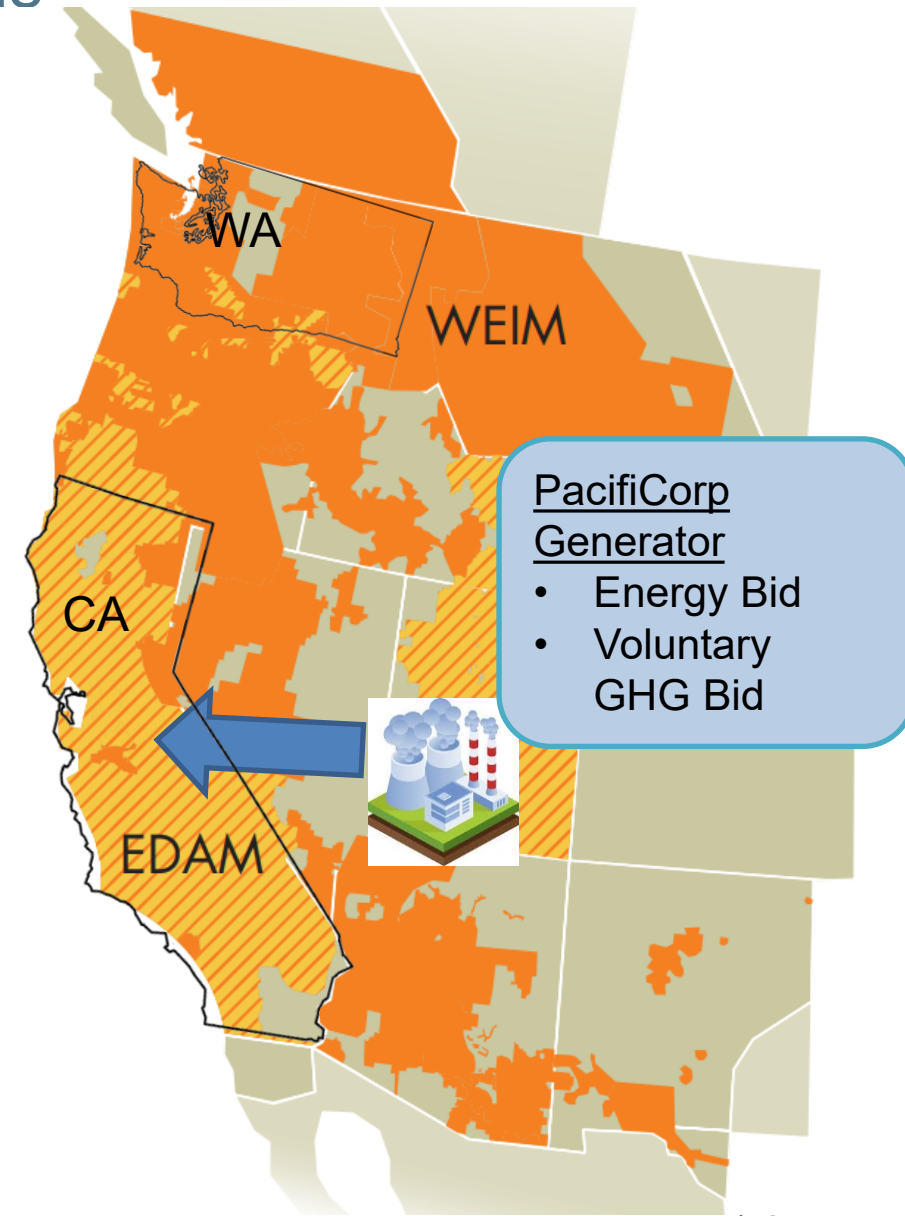
- Reflects state cap-and-trade/cap-and-invest programs
- Allows generators that are subject to a GHG cost of compliance to reflect the cost in their bid:
 - Specified resources responsible for their specific emission rate
 - Unspecified resources responsible for GHG compliance based on default emission rate set by the state
 - Asset Controlling Supplier (ACS) responsible for GHG compliance based on their area's average emission rate
- CAISO optimizes transfers to a GHG area based on a voluntary GHG bid adder and the energy bid

Elements of GHG Accounting Design

Element	Purpose	Why it Matters
Geographic Boundary	Identifies regulated resources independently of BAA boundaries	<ul style="list-style-type: none"> - Supports accurate accounting - Ensures that the cost of GHG only applies to areas with a cost of carbon - Gives regulators flexibility to determine covered resources in their jurisdiction
Bid Adder	Allows resources to reflect their cost of state GHG compliance	<ul style="list-style-type: none"> - Ensures efficient dispatch by reflecting participant costs for separately priced jurisdictions
Counterfactual	Approximates how load outside a GHG area would be served without GHG transfers	<ul style="list-style-type: none"> - Identifies surplus generation for attribution - Helps identify and mitigate the potential for secondary dispatch
Attribution	Determines what resources are economic to serve GHG Regulation Area load	<ul style="list-style-type: none"> - Determines which resources receive a GHG award - Impacts state climate policy
Market Constraints	Constrains which resources can be attributed to serve load in a GHG Regulation Area	<ul style="list-style-type: none"> - Decreases secondary dispatch by limiting attribution - Can increase costs by limiting attribution

Example: How EDAM Accounts for GHG Emissions

Step	Action
Bidding	PacifiCorp generator submits a voluntary GHG bid to serve CA load, reflecting the cost of compliance of serving CA load
Counterfactual	Surplus generation is identified from PacifiCorp
Attribution	PacifiCorp is attributed X MW to serve CA load
GHG Settlement	PacifiCorp is paid for their attributed MW <ul style="list-style-type: none">• ISO collects \$ to cover the cost of GHG from CA load to pay the PacifiCorp generator for its GHG costs



WEIM and EDAM GHG Design

	WEIM Today	WEIM +EDAM Tomorrow*	WEIM only Tomorrow*
Geographic Modeling	No	Yes	Yes
Bid Adders	For California	For multiple GHG Areas (CA and WA)	For multiple GHG Areas (CA and WA)
Limits to attribution and secondary dispatch			
Counterfactual	Base Schedules	Day Ahead: Optimized GHG Reference Pass Real Time: DA Energy Schedule - DA GHG Award	Base Schedules
Bidding Constraints	Yes	Yes	Yes
Net Export Constraint	No	Yes	Yes

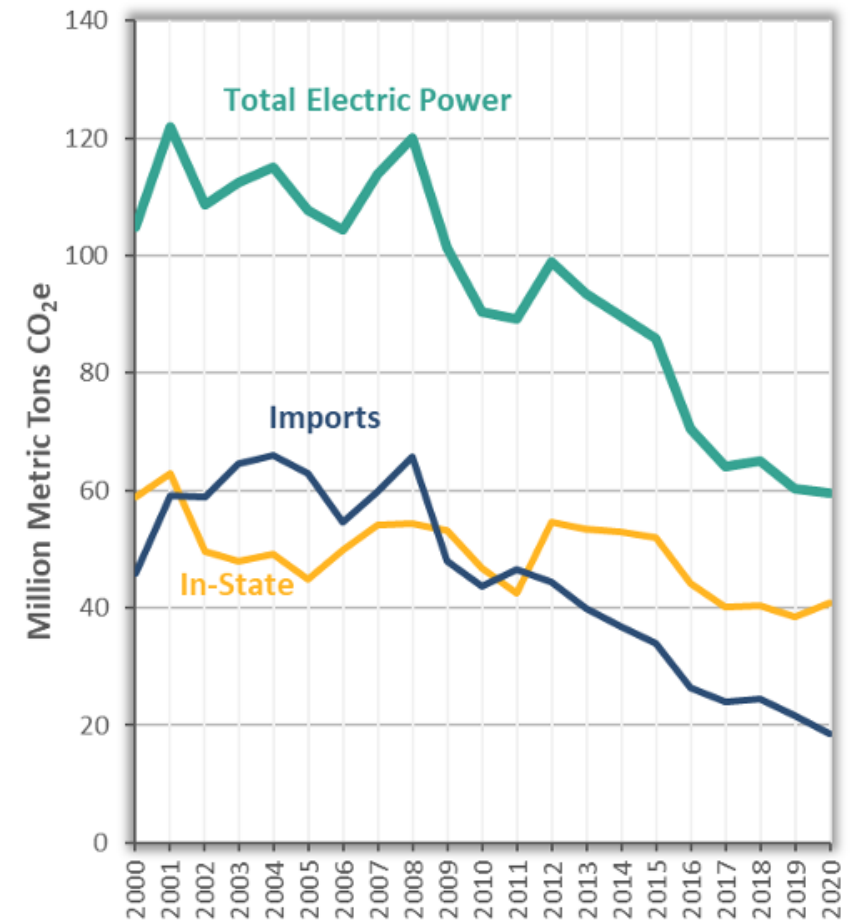
**Implementation in 2026*

Topics

- Background
- Imported Electricity Reporting and Compliance Requirements
- Emissions Leakage
- Accounting for GHG Emissions from WEIM Imports
- Potential Changes
- Considerations and Feedback

Background: Electricity Imports

- California
 - is part of the western interconnection electricity grid
 - imports electricity through bilateral agreements and electricity markets
 - is a net importer of electricity
- Under AB 32, CARB must account for all GHG emissions from the generation of electricity delivered to and consumed in California, whether that electricity is generated in-state or imported



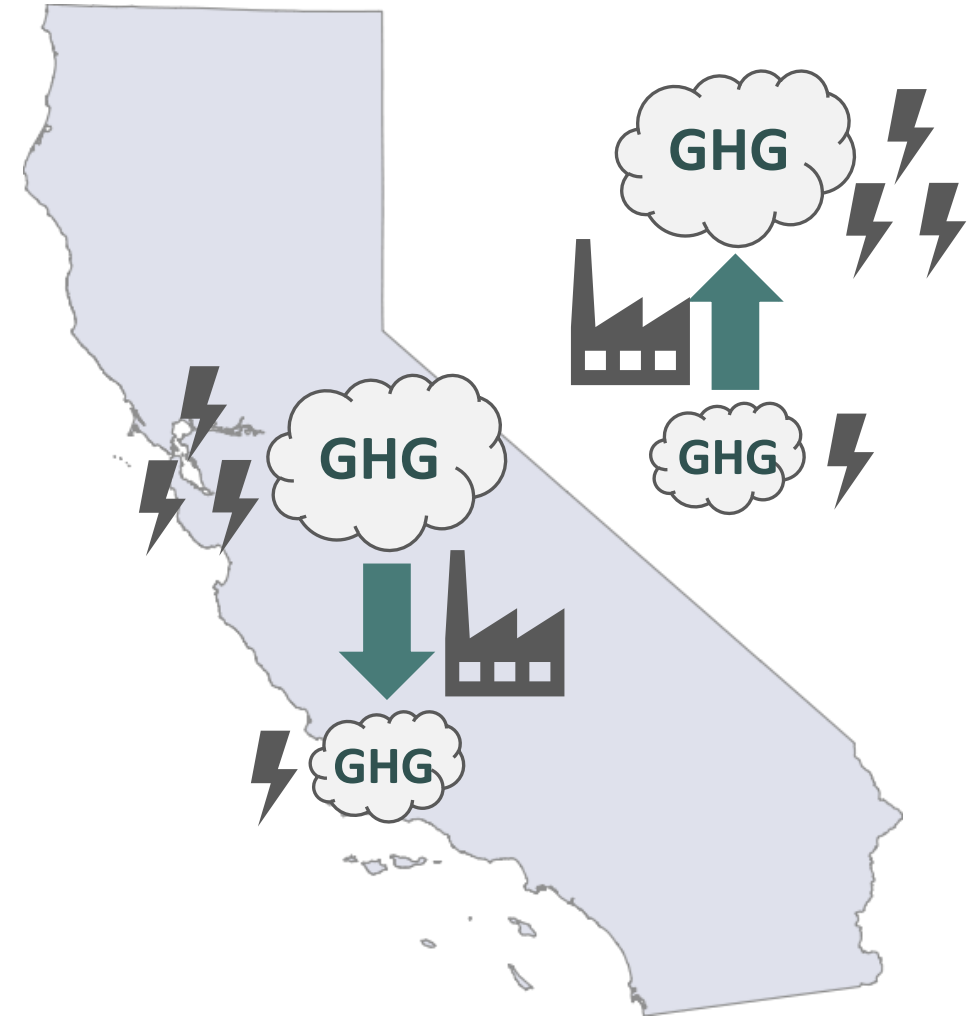
[California GHG Emissions 2000-2020 Trends Report](#)

Imported Electricity Requirements

- Under the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR), electricity importers, or first jurisdictional deliverers (FJD), report imports based on physical delivery of electricity by source
 - An FJD is the entity responsible for first placing power onto the California grid at the state border and has MRR reporting and Cap-and-Trade compliance requirements
- The FJD approach reflects practical, administrative, constitutional, and regulatory constraints
- GHG accounting for electricity imports is carefully constructed to support CARB programs, including Cap-and-Trade and the statewide GHG inventory

Emissions Leakage

- Per AB 32, CARB designed MRR and the Cap-and-Trade Program to minimize the potential for emissions leakage
- Emissions leakage is a decrease in GHG emissions in-state that has a corresponding increase in out-of-state GHG emissions as a result of the Program



Accounting for GHG Emissions for Electricity Imported by WEIM

- WEIM imports to California are attributed to specified generation sources via “attribution” (“deeming”) process at CAISO
- Reporters of these imports receive attributed WEIM import values from CAISO to support annual reporting to MRR
- These imports are reported to MRR based on specified source emission factor for the attributed resource

Addressing Emissions Leakage in the WEIM

- In 2016, CAISO and CARB identified that the design of WEIM did not account for the full GHG emissions experienced by the atmosphere from electricity imported to California under WEIM, and results in emissions leakage
- CAISO has implemented changes to support greater GHG accounting accuracy
- CARB adopted provisions to ensure any WEIM emissions leakage is fully accounted for and addressed through the EIM Outstanding Emissions and EIM Purchaser provisions

EIM Outstanding Emissions Calculation

- MRR §95111(h)(1): Outstanding Emissions (OE) = **Total California EIM Emissions** – **Deemed Delivered EIM Emissions**
- **Total California EIM Emissions** = Reported EIM MWh × Unspecified emission factor × Transmission loss factor
- **Deemed Delivered EIM Emissions** = Sum of EIM emissions reported to MRR

EIM Purchaser Requirements

- EIM Purchaser requirements place the responsibility for EIM Outstanding Emissions on entities purchasing WEIM electricity
 - EIM Purchasers are California utilities that receive freely allocated allowances and purchase WEIM electricity to serve California load
 - Out-of-state WEIM load and generation do not incur obligations for WEIM Outstanding Emissions
- EIM Purchasers collectively address Outstanding Emissions through the direct retirement of a portion of freely allocated allowances
 - Outstanding Emissions are apportioned to EIM Purchasers on retail sales share basis
 - Ensures the environmental integrity of the Cap-and-Trade Program

Potential Changes: Background

- CARB is evaluating potential amendments to reflect CAISO's EDAM tariff that has been filed with FERC to ensure:
 - EDAM transactions are accurately covered by MRR and Cap-and-Trade
 - CARB's regulations appropriately address and minimize the potential for emissions leakage
- Any changes to CARB's GHG accounting for electricity imports must meet state and federal requirements and support implementation of CARB's programs
- CARB is not considering fundamental changes to how electricity imports are regulated

CAISO's EDAM/WEIM Changes

CAISO's EDAM tariff includes several changes relevant to CARB programs, including:

- GHG regulation area reflect state borders instead of Balancing Area Authority (BAA) boundaries
- EDAM: new day-ahead and real-time GHG counterfactual for EDAM participants
 - Counterfactual identifies surplus generation to serve CA demand
 - WEIM-only participants: the counterfactual will continue to be base schedules
- Attribution to California will be limited to BAAs that are net exporters
 - A generator in a BAA that is a net importer of electricity won't be attributed to California
 - External generators with "committed" capacity to serve California load will be able to have the full capacity attributed
- Electricity transacted in EDAM will be settled in WEIM

Potential CARB Changes

- CARB is evaluating amending the Outstanding Emissions calculation to limit coverage to attributed generation below a resource's base schedule (WEIM-only) and to attributed generation below the difference between the DA energy schedule and DA GHG award (EDAM)
 - All electricity transacted in EDAM will be settled in the WEIM
 - MWh attributed below the counterfactual are more likely to result in emissions leakage
- Definition changes/additions are needed to accommodate EDAM and reflect updates to WEIM
- All imported electricity would continue to be covered by Cap-and-Trade and MRR

Potential CARB Changes: Outstanding Emissions Calculation

Current Outstanding Emissions (OE) = Total California EIM Emissions – Deemed Delivered EIM Emissions

- Total California EIM Emissions = Reported EIM MWh \times Unspecified Emissions Factor ($EF_{unspecified}$) \times Transmission loss factor (TLF)

Potential change: Revise Total California EIM Emissions part of equation:

- **EDAM:** Reported MWh limited to the annual generation attributed below the difference between the Day Ahead (DA) energy schedule and DA GHG award
 - $CO_2e_{EDAM} = MWh_{below (DA \text{ energy schedule} - DA \text{ GHG award})} \times EF_{unspecified} \times TLF$
- **WEIM only:** Reported MWh limited to the annual generation attributed below the base schedule
 - $CO_2e_{WEIM} = MWh_{below \text{ base schedule}} \times EF_{unspecified} \times TLF$

Considerations and Feedback

Considerations

- Goal is to calibrate the Outstanding Emissions calculation to reflect CAISO's changes and minimize emissions leakage
- Must meet CARB's state and federal requirements and support implementation of CARB's programs
- Must work with existing point of regulation

Feedback

- Are there other approaches CARB should consider to address emissions leakage from electricity markets?
- Are other refinements to regulations needed to address EDAM transactions?
- How should transactions in EDAM/WEIM that are committed to CA be treated in the Outstanding Emissions calculation?

Energy Storage Systems

Energy Storage Systems (ESS)

- There is growing energy storage capacity in the WECC
 - 1 GW currently in WEIM
 - 5 GW in CAISO BAA with 17.7 GWh of max delivery*
 - Additional 40 GW needed to meet CA 2045 carbon neutrality goals**
- Electricity importers have requested guidance on how to report imports from ESS. Staff is evaluating the need for regulatory changes to incorporate:
 - Definition of ESS as a specified source
 - Calculation of ESS emission factor
 - Point of regulation for ESS emission factor reporting

*[CAISO July 2023 Special Report on Batter Storage](#)

**[CARB 2022 Scoping Plan Update](#)

Potential ESS Definition

- Considerations
 - Definition will only apply to imported electricity
 - Needs to capture all types of energy storage and the potential for where multiple generation sources (or grid electricity) contribute to stored electricity
- “Energy storage system” (ESS) means a device or structure designed and used to store electric potential from electric power generated at another source at one time for discharge at a later time. Energy storage systems can be stand-alone or part of an electricity generation facility.

Specified Emission Factor Calculation

- Under MRR, specified source emission factors (EF) are calculated using annual generation and emissions data from reporting to U.S. EPA or Energy Information Administration (EIA)
- ESS can be charged from a single specified source, multiple specified sources, and/or unspecified sources
- An existing EF can be assigned to a simple ESS where:
 - ESS is charged from a single specific source
 - ESS is only charged with unspecified grid power
- Calculating an EF for an ESS with complex charging needs:
 - Information about the ESS unit's source of charging electricity and charge/discharge activity and performing a more in-depth EF calculation to capture that information

Potential Emission Factor Calculation for ESS

The annual emission factor for an ESS is equal to the emissions used to generate the electric potential stored divided by either (1) the net electric power discharged (MWh), or (2) the gross electric power input less the estimated system loss:

$$EF_{ESS} = \frac{\sum(EF_i \times MWh_i)}{MWh_{ESS}}$$

Where:

- i = source(s) of electricity input into the battery
- MWh_{ESS} = the MWh delivered from the battery measured at the source equal to:
 - The metered output of the ESS, or
 - If output of the ESS is not metered: $\sum(MWh_i) \times (1 - ELF)$

where " ELF " is the ESS Loss Factor, which is equal to the loss factor provided by the manufacturer for batteries, and equal to a Default ELF if there is no loss factor provided

Potential ESS Reporting Structure

- Proposed reporting workbook (FIVE) is designed to calculate EFs for any ESS with multiple source inputs using the existing MRR structure for specified and unspecified reporting for inputs
- Structure similar to ONE workbook for electricity importers

EPE and ESS Unit Information:

	Entity Name
	ARB ID#

	ESS Unit Name
2022	Emission Year
	ESS Unit Total Annual Output, MWh
	ESS Loss Factor (ELF) Enter the ESS unit manufacturer's loss factor if the output power is measured off the battery directly. Enter 1 if the power is measured off a meter on the transmission line right after the battery.

Potential FIVE Workbook for ESS EF Calculation

SPECIFIED POWER INPUTS TO ESS UNIT:

Sum of MT CO2e Total Specified =	0
Sum of MT CO2e Specified Covered =	0
Sum of MT CO2e Specified Exempt =	0
Sum of MT CO2e Covered & Linked =	0
Sum of Specified MWh =	0

UNSPECIFIED POWER INPUT TO ESS:

Sum of MT CO2e Total Unspecified =	0
Sum of MT CO2e Linked =	0
Sum of Unspecified MWh =	0

Physical Transaction Attributes -- Specified Inputs to ESS Unit

Generation Source Facility and Unit ID Name <small>Select from dropdown; if unlisted contact CARB</small> <small>Searchable List</small> <small>Enter "" for full list, or start typing to search</small>	ARB ID#	Generation Source Jurisdiction	Megawatt-hours of specified electricity deliveries from each generation source identified (MWh) <small>\$95111(b)(2)</small>	Transmission Loss Factor <small>\$95111(b)(2)</small>
Facility_Unit_Name	Facility_ID	Generation_Jurisdiction	MWh_Electricity	Loss_Correction_Factor
Residual power				

Physical Transaction Attributes -- Unspecified Inputs to ESS Unit

First Point of Receipt (POR) Transmission Service Provider (TSP) <small>Select from dropdown; if unlisted contact CARB</small> <small>Searchable List</small> <small>Enter "" for full list, or start typing to search</small>	Megawatt-hours of unspecified electricity deliveries at each point of receipt identified (MWh) <small>\$95111(a)(3)(B)</small>	Transmission Loss Factor <small>\$95111(b)(2)</small>
First_POR_TSP	MWh_Electricity	Loss_Correction_Factor

Who Should Report and Calculate the ESS EF?

- Question
 - Which entity should be responsible for calculating the annual ESS EF?
 - Reporting is done on annual basis. Is there a need to account for power in storage at beginning/end of year?
- Considerations
 - All entities reporting imports from the same ESS will need to use the same emissions factor
 - ESS owners may not be electricity importers required to report to CARB
 - Entities reporting in FIVE will need to have all the meter data into and out of the ESS to support calculation of the EF
 - ESS EF calculations will need to be verified

When Should ESS EF Be Calculated?

- Question
 - **Can ESS EFs be calculated and verified the year prior to its use by electricity importers?**
- Example
 - ESS imports first occur in 2024
 - By Feb 1, 2025, upstream ESS charging sources are registered with CARB. CARB publishes their EFs in March 2025 for use in 2024 data year reporting
 - By Aug 10, 2025, FIVE workbook is reported and verified. CARB publishes The resulting ESS EF (based on 2024 data EFs) in March 2026 for use in 2025 data year reporting
- Considerations
 - What EF should be used for reportable ESS transactions before the EF is available for use by electricity importers?
 - What ESS EF should importers use in ONE for 2024 imports reported in 2025?

How Should Imports from ESS Be Reported?

- Questions
 - What information will be available from the market to track/tag ESS power?
 - How should the specified source reporting requirements be applied to ESS imports?
 - Should the lesser of analysis be applied to inputs to or outputs from the ESS?

Electricity Imports from Unlinked Jurisdictions with Carbon Pricing

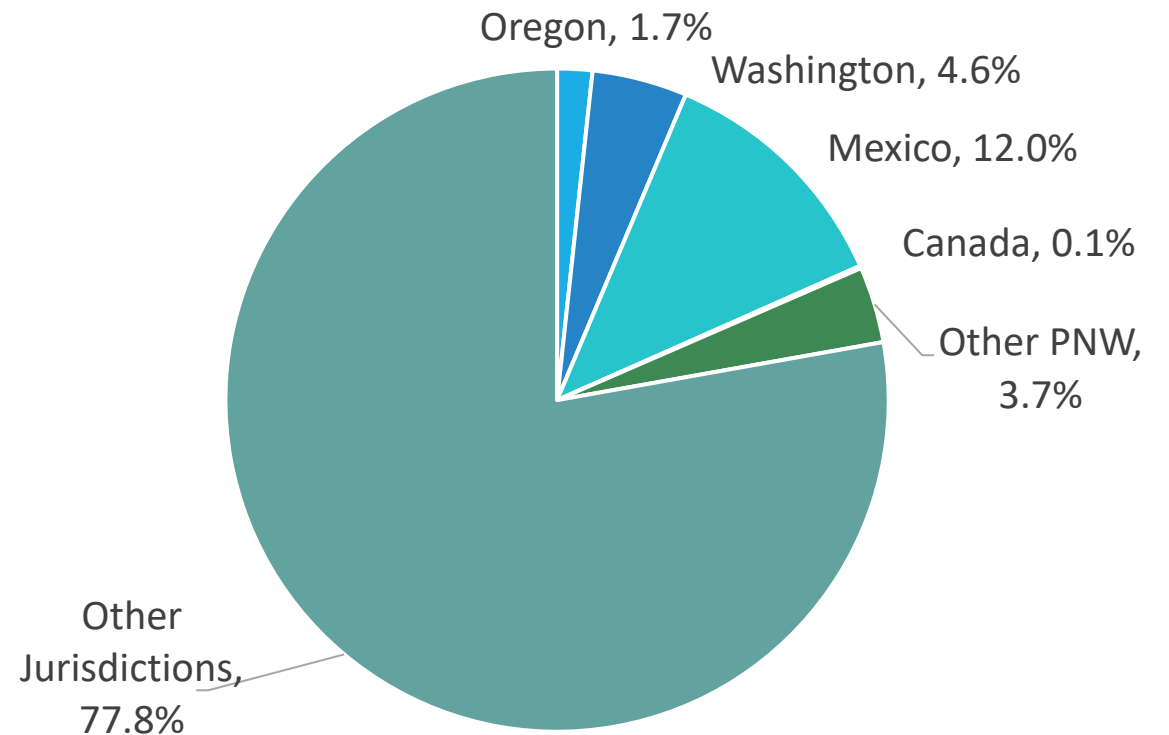
Electricity Imports from Unlinked Jurisdictions with Carbon Pricing: Background

- Multiple carbon pricing approaches are emerging in jurisdictions served by the Western Interconnection (e.g., in Canada, Mexico, Oregon, Washington)
- Electricity generators covered in another jurisdiction's carbon pricing program that import electricity to California may face dual carbon costs
- Regulatory amendments may be needed for the Cap-and-Trade Program to recognize a carbon price applied by another jurisdiction on electricity imported into California

Electricity Imports from Unlinked Jurisdictions with Carbon Pricing: Options

- Cap-and-Trade Program Linkage
- Québec Cap-and-Trade System Approach
- Addressed by Other Jurisdiction

GHG Emissions from Specified Electricity by Jurisdiction



[CA GHG Emissions Inventory for 2020](#)

Cap-and-Trade Program Linkage

- Electricity generation in a linked jurisdiction would be covered in the same way as in-state generation
 - Ensures that leakage does not occur between jurisdictions
- Electricity generated in the linked jurisdiction and then imported to California would have an obligation in the linked jurisdiction but not face an additional California compliance obligation
- The linkage process can be complex and lengthy
 - Linkage in California must meet Senate Bill 1018 requirements
 - Other jurisdictions may have separate linkage processes and requirements

Québec Cap-and-Trade System Approach

- Québec imports electricity generated in jurisdictions covered by the Regional Greenhouse Gas Initiative (RGGI)
- Québec applies its full obligation on imports after counteracting the carbon price from the other jurisdictions by free allocation
 - Free allowances are provided to electricity importers equal in value to the average carbon cost faced in the other jurisdiction
- Protects against leakage and ensures a carbon price signal is maintained, while recognizing average compliance costs in other jurisdictions

$$\text{Allocation} = \text{Compliance Obligation} \times (\text{Avg. RGGI price}) / (\text{Avg. Québec price})$$

Addressed by Other Jurisdiction

- Rely on the other jurisdiction to address the costs of compliance with California's Cap-and-Trade Program for electricity exported from the jurisdiction to California
 - Exemption from an obligation in the other jurisdiction
 - Free allocation of allowances by the other jurisdiction
- Simple for California but requires action by another jurisdiction
 - Enables other jurisdiction to address the costs without needing to wait for a California regulatory change

Electricity Imports from Unlinked Jurisdictions with Carbon Pricing: Feedback

- Should CARB develop a mechanism to address dual carbon costs for electricity imports?
- What benefits or concerns do you have with the options presented?
- Are there other options that should be considered?
- Under such a mechanism, what types of carbon pricing programs should be recognized?
- Should an evaluation of compliance costs account for alternative compliance mechanisms?
- Should allocation in the other jurisdiction, and whether that allocation can be used for compliance, be a consideration?

RPS Adjustment

RPS Adjustment: Background

- CARB implemented the RPS Adjustment at the start of the Program
- The RPS Adjustment reduces the compliance obligation for electricity importers with contracts for RPS-eligible out-of-state generation that is not directly delivered to California (RPS Portfolio Content Category 2)
- The RPS Adjustment was designed to recognize the costs to comply with the RPS Program
- The RPS Adjustment is not a recognition of avoided emissions. All imported electricity emissions are reflected in CARB's GHG emissions inventory.

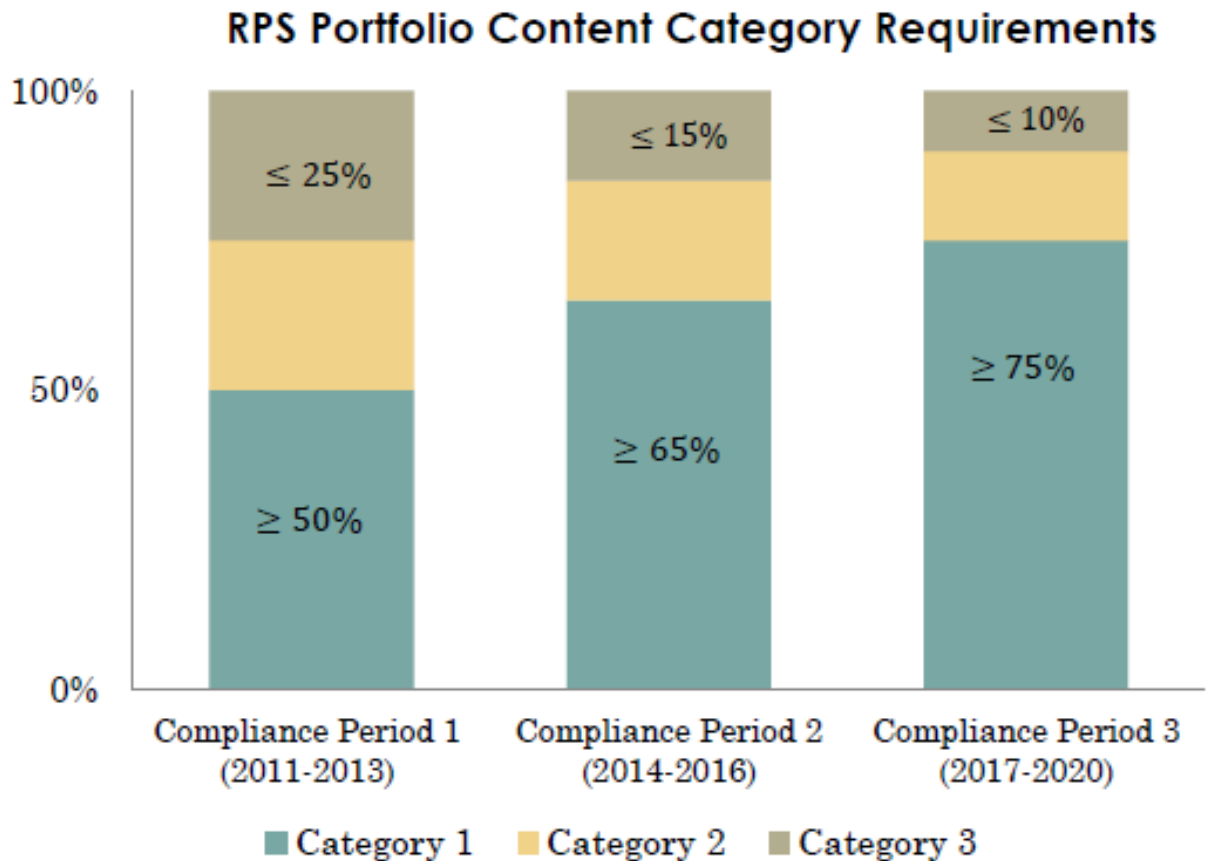
RPS Adjustment: Current Regulation

Electricity must meet the criteria in section 95852(b)(4) to be eligible for the RPS adjustment:

- Electricity importers must have either:
 1. Ownership or contract rights to procure the electricity and the associated RECs generated by the RPS-eligible renewable energy resource; or
 2. A contract with an entity subject to the California RPS that has ownership or contract rights to the electricity and associated RECs generated by the RPS-eligible renewable energy resource, as verified pursuant to MRR.
- RECs must be placed in the subaccount of the entity subject to RPS and designated as retired for compliance with the RPS Program
- Electricity must not be directly delivered to California or imported from a linked jurisdiction

RPS Adjustment: Electricity Decarbonization

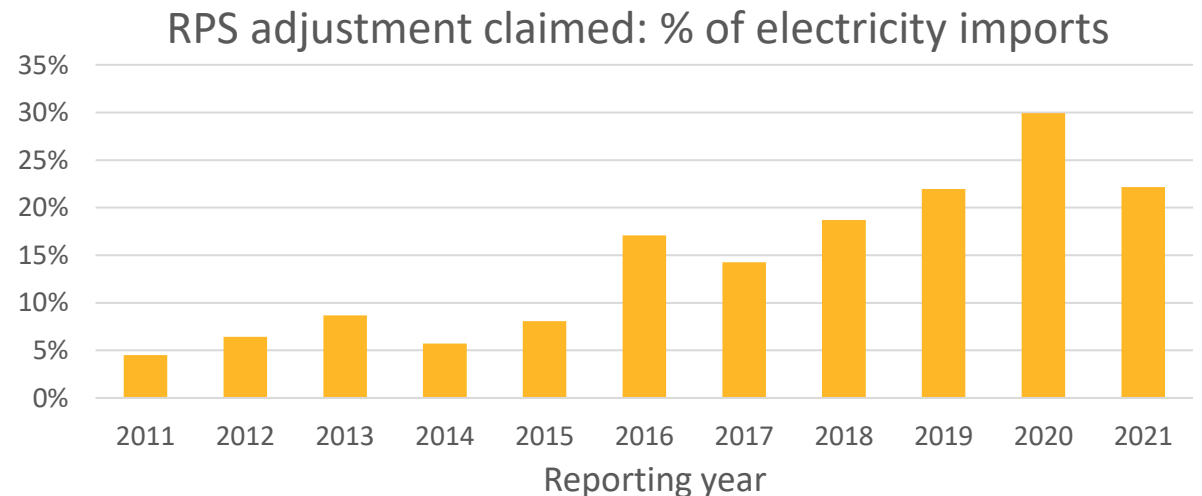
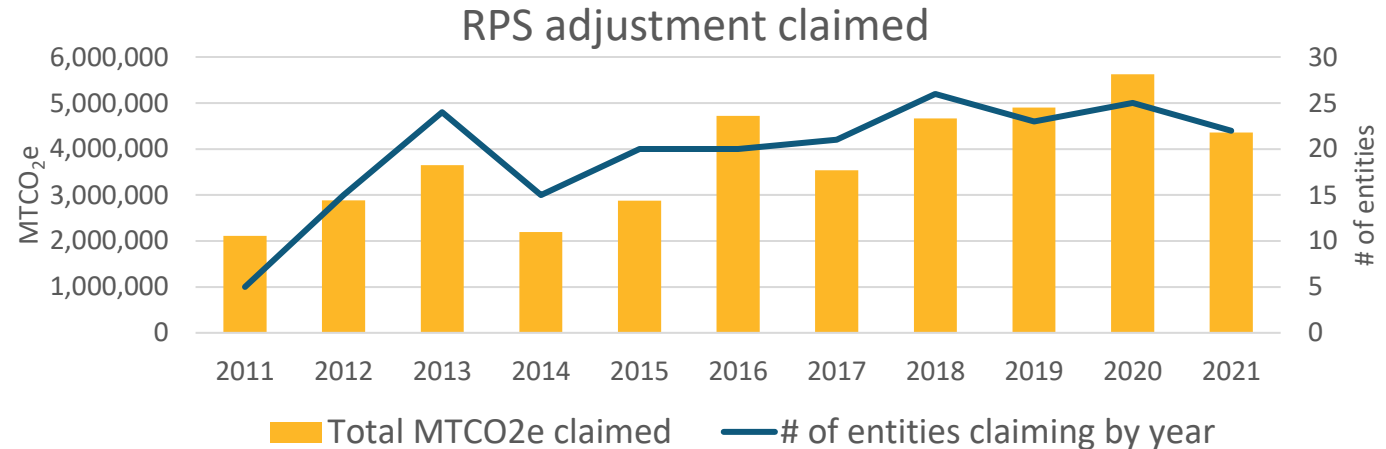
- CARB is evaluating the RPS Adjustment given the deep decarbonization needed as reflected in updated Integrated Resource Planning Targets and SB 100 target for a zero-carbon electricity resource supply
- The role of Portfolio Content Category 2 in the RPS has declined over time



<https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/rps/rps-compliance-rules-and-process/60-percent-rps-procurement-rules>

RPS Adjustment: Current Use in Program

- In recent years, RPS Adjustment claims total a few million metric tons and are claimed by more than 20 entities
- As a percentage of imported electricity emissions, the use of the RPS Adjustment is growing as the electricity grid gets cleaner



RPS Adjustment: Ongoing Challenges

- Verification that electricity was not directly delivered, particularly when not all generation is tagged
- Reporting and verifying claims where a portion of RPS-eligible power is imported and a portion is claimed as an RPS adjustment, often by multiple entities
- Confidentiality agreements hinder CARB staff's ability to communicate with multiple counterparties

RPS Adjustment: Initial Concept

- Staff is evaluating phasing out the RPS adjustment to align with the deep decarbonization necessary to achieve the zero carbon electricity goals of SB 100 and the updated Integrated Resource Planning target of 30–38 MMTCO₂e in 2030 set by CARB's Board
- A planned phase out would provide certainty and time for entities to respond

RPS Adjustment: Feedback

- How should CARB align the RPS adjustment with state climate policy?
- Should the RPS adjustment be phased out? If so, what timeline should be considered for a phase out?
- What, if any, interim changes should CARB make to the RPS adjustment?

Questions and Feedback Session: Electricity Topics

- Public Comment Instructions



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5 minute break

Biogenic Emissions Exemptions

Biogenic Emissions Topics

Intent is to provide consistent treatment of biogenic fuels and emissions informed by AB 32 mandates, best available science and data, Scoping Plan goals, implementation experience, and evolving biofuels sector.

- Process CO₂ emissions
- Biomethane provisions
- Exempt biogenic fuels and feedstocks

Process Emissions Exemption

- Combustion CO₂ emissions from certain biofuels may be exempt from a compliance obligation if they meet Program eligibility and reporting requirements
- Biogenic CO₂ exemption provisions do not address process CO₂ emissions that are biogenic
- Biogenic CO₂ provisions largely developed during initial 2010 rulemaking when biofuel use was limited to combustion

Initial Concept

Update biogenic CO₂ exemption to provide equal treatment to process and combustion emissions

Biomethane Accounting: Background

- Scoping Plan Scenario models biomethane use growing rapidly in sectors outside of transportation to achieve decarbonization
- Cap-and-Trade covered entities may apply book-and-claim-style accounting to biomethane fuel that is not directly delivered to end user
 - Cap-and-Trade exemption eligibility requirements for imported biomethane guard against resource shuffling and potential emissions leakage
 - Cap-and-Trade and MRR accommodate covered entities claiming biomethane matched to biomethane injected into a common carrier pipeline within the same calendar year
- Biomethane used in California's transportation sector may be reported using book-and-claim accounting for crediting in the LCFS Program
 - Must be injected into North American common carrier pipeline
 - Must be claimed within three quarters of injection

Biomethane in Cap-and-Trade: Feedback

- How can Cap-and-Trade support biomethane end-uses in non-transportation sectors?
- Should Cap-and-Trade clarify or incorporate additional deliverability and time-matching requirements for biomethane injected into a common carrier pipeline to support verifiability and integrity of emissions reductions?
- Should Cap-and-Trade modify existing resource shuffling requirements for imported biomethane to better enable reporting of eligible out-of-state biomethane while still protecting against emissions leakage?
- Should any new or modified requirements be aligned with existing California programs?

Biofuels Eligible for Exemption: Background

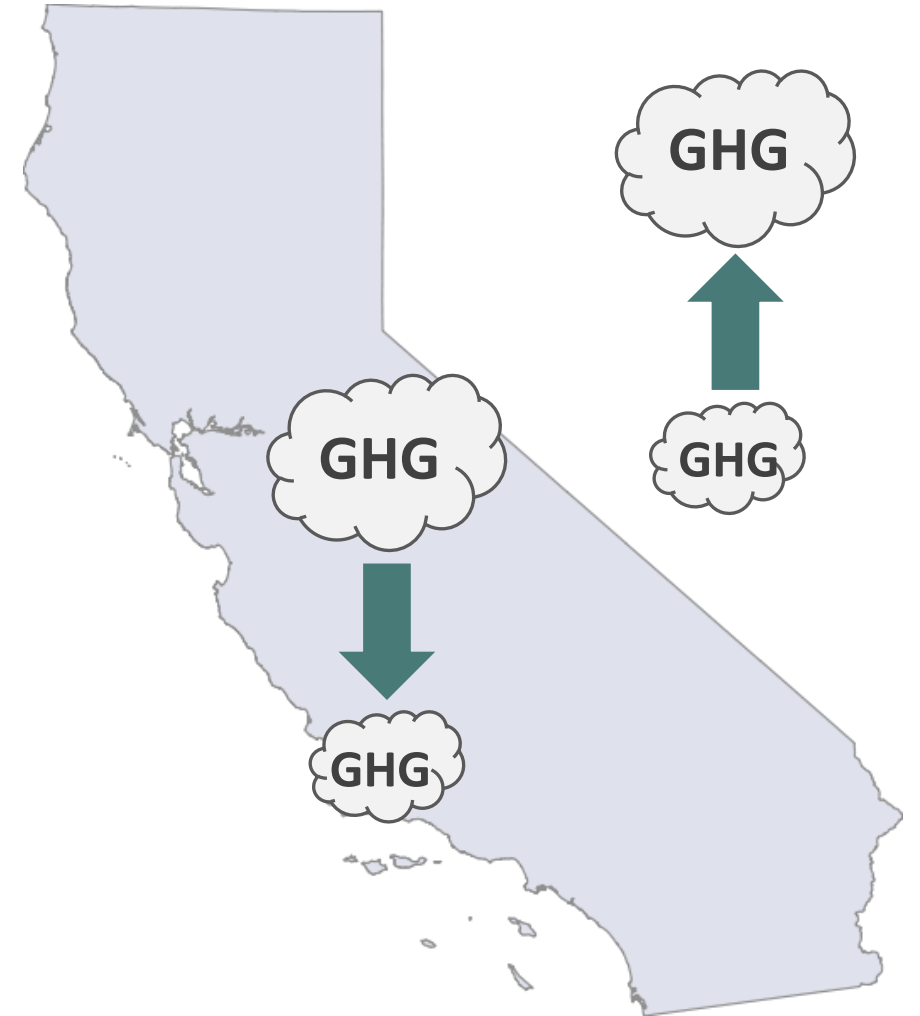
- Biomass-derived fuels incur a compliance obligation for every metric ton of CO₂e emissions unless specific exemption requirements are met
- Only biomass-derived fuels listed in section 95852.2(a) are eligible to have CO₂ emissions exempt from a compliance obligation. Fuels listed include:
 - Variety of biogenic waste and residues
 - Wood from timber management plan, for fire reduction, or forest improvement
 - Biomethane and biogas generated from biogenic waste
 - All renewable diesel, ethanol, and biodiesel
- CO₂ emissions from biomass-derived fuels not listed in 95852.2(a) incur a compliance obligation
- Framework determined in initial 2010 rulemaking, when biofuel use in California was largely static and limited to long-standing uses

Biofuels Eligible for Exemption: Discussion

- Stakeholders have noted an uncertain regulatory environment for emerging biofuels and applications. Stakeholders have expressed uncertainty about treatment of biofuels that are:
 - Derived from exempt listed biofuels (e.g., biochar from wood harvested for forest stand improvement)
 - Produced simultaneously alongside exempt biofuels (e.g., biogenic naphtha that is a by-product of renewable diesel production)
- Biofuels use is rapidly evolving as incentives and demand for decarbonization options increase

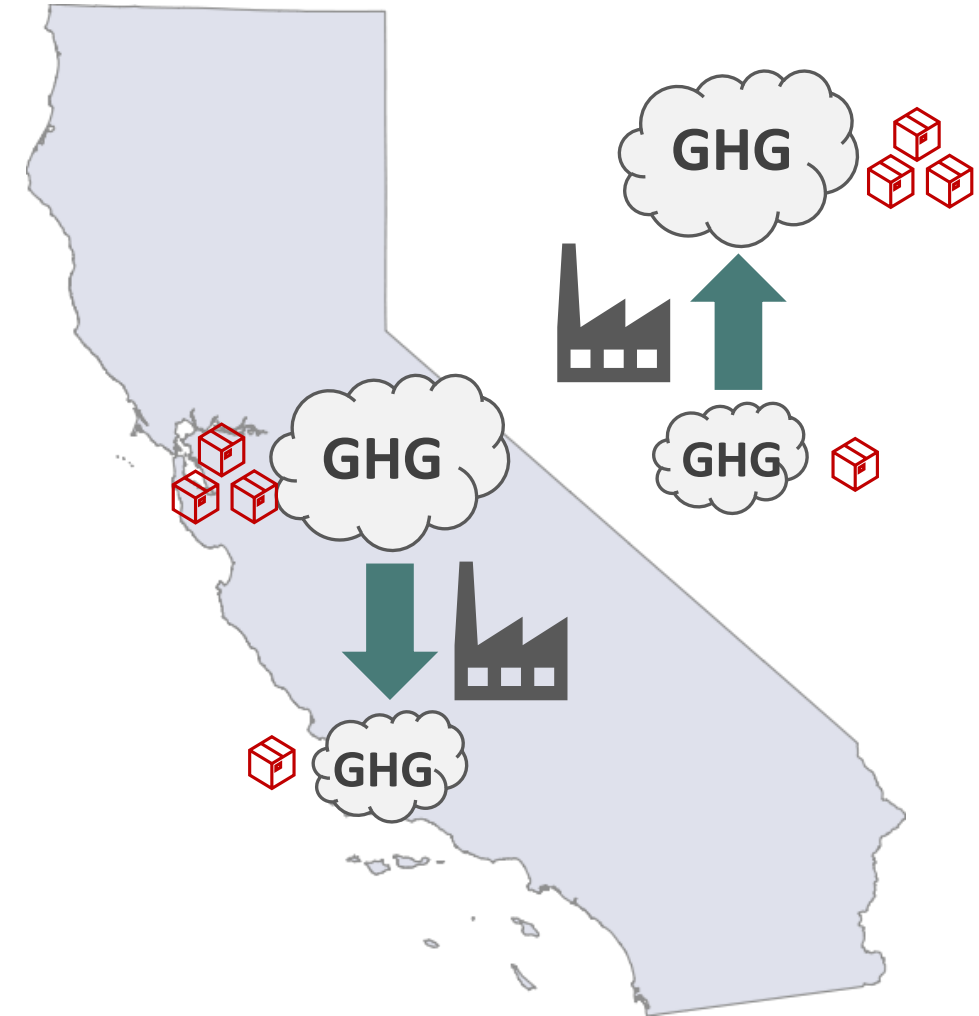
Biofuel Exemption Considerations: AB 32 Mandates

- Per AB 32, CARB regulations adopted to achieve GHG reductions shall “minimize leakage”
- Emissions leakage is a decrease in GHG emissions in-state that has a corresponding increase in out-of-state GHG emissions



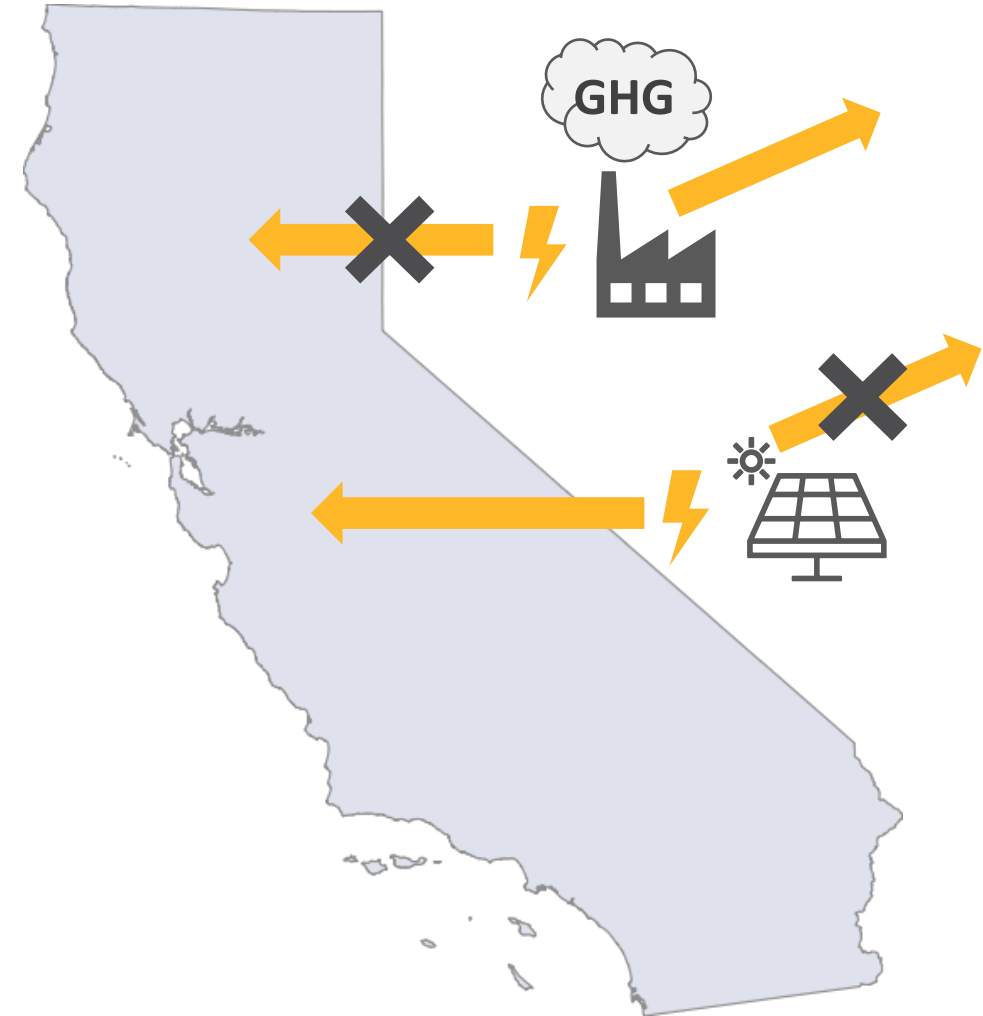
Emissions Leakage: Provisions within Cap-and-Trade

- **Industrial allowance allocation**
 - Leakage associated with a potential shift from in-state production to out-of-state production



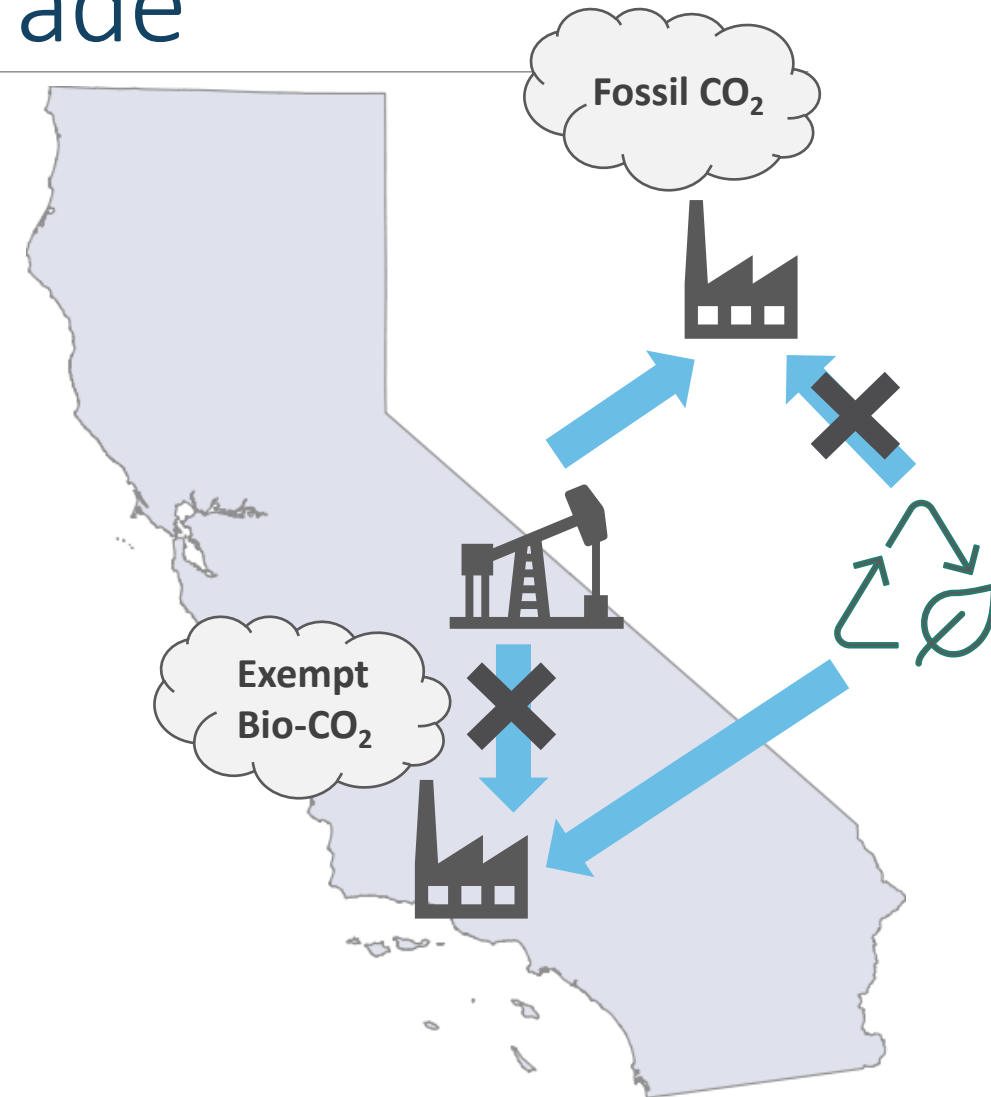
Emissions Leakage: Provisions within Cap-and-Trade

- Industrial allowance allocation
- **Electricity resource shuffling provisions, coverage of imported electricity, EIM outstanding emissions**



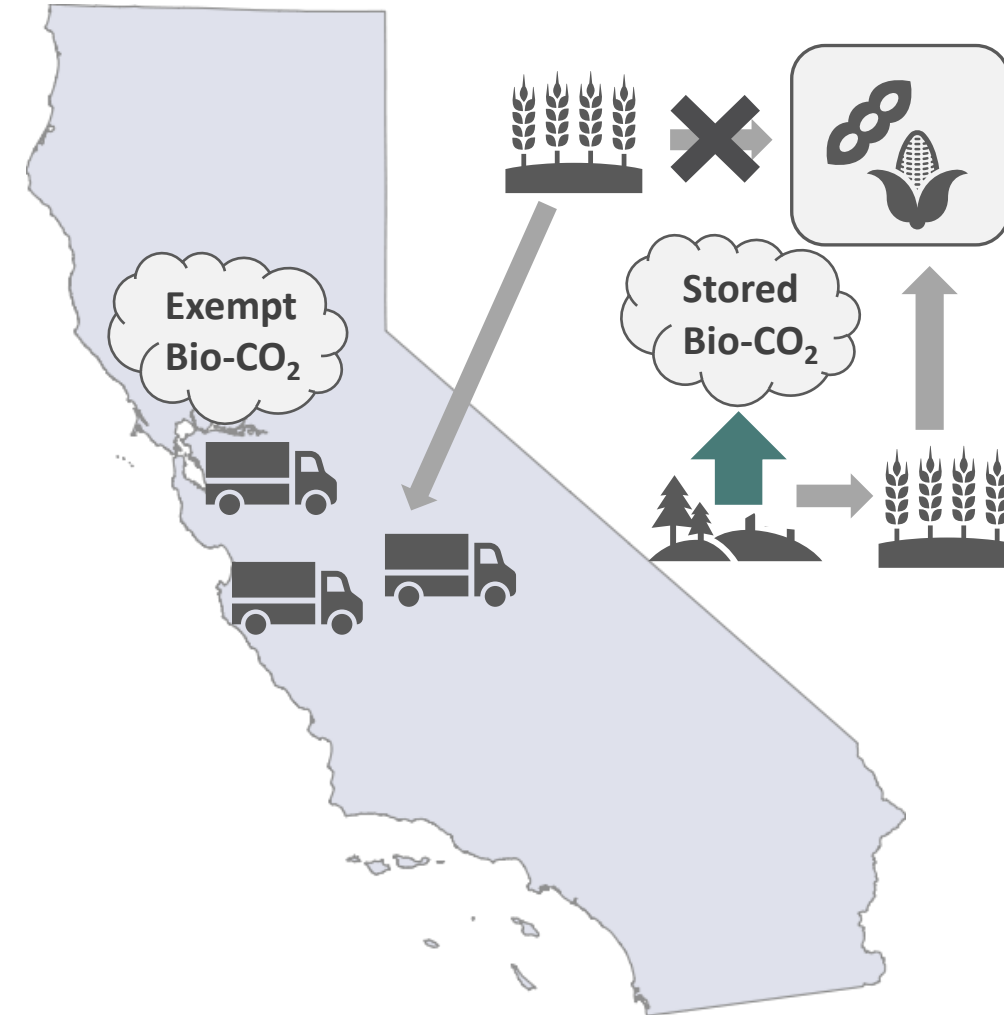
Emissions Leakage: Provisions within Cap-and-Trade

- Industrial allowance allocation
- Electricity resource shuffling provisions and coverage of imported electricity
- **Resource shuffling for imported biomethane**
 - Leakage associated with importing biomethane that had an already existing use out-of-state, resulting in increased use of a replacement fuel (e.g., natural gas) out-of-state



Emissions Leakage Potential: Biofuels and Land-Use Change (LUC)

- Biogenic CO₂ emissions from common transportation biofuels (RD, BD, ethanol) are exempt in the Program regardless of biomass feedstock
- Use of agricultural land to grow crops for biofuel production can result in release of stored biogenic CO₂ due to land use change
- Land conversion occurs primarily outside of California



2022 Scoping Plan Direction for Transportation Fuels

- Use best available science to ensure that raw materials used to produce transportation fuels do not incentivize consumption of feedstocks with little to no GHG reductions from a life cycle perspective
- Production of alternative fuels must not come at the expense of global deforestation, unsustainable land conversion, or adverse food supply impacts
- California policies need to send appropriate market signals that do not result in unintended consequences

Biofuels Eligible for Exemption: Cap-and-Trade Feedback

- How could CARB ensure a clear pathway for reporting biomass-derived fuel use under MRR and for treatment of biogenic CO₂ emissions in Cap-and-Trade?
- Should emissions exemptions be amended to provide consistent treatment of biomass and biomass-derived fuels based on their source biomass?
- Within Cap-and-Trade, how should biomass and biomass-derived fuels be evaluated and accounted for in a manner consistent with AB 32 mandates and Scoping Plan directives?
- Would any supplier or supply of biogenic transportation fuels, gaseous or liquid biomethane, or biogenic propane not be addressed by emission categories specified in 95852(c),(d),(e),(f),(k), and (i)?

General Biofuel Reporting: MRR Feedback

- What biomass-derived fuels or non-fossil fuels with associated GHG emissions not listed in 95852.2(a) are currently or likely to be used in California in the next decade?
 - Do any of these fuels pose specific challenges with regard to accurate quantification and/or reporting of emissions? (e.g., challenges measuring the biomass fraction)
 - Are there emission factors that can be incorporated by MRR to calculate GHG emissions for fuels not currently listed under 95852.2(a)?

Transportation Biofuel Reporting: MRR Feedback

- How could terminal position holders know the biomass source of supplied biofuels?
- How could terminal position holders know the biogenic content of supplied fuels (e.g., the biogenic content of finished fuels containing renewable diesel, renewable naphtha, etc.)?
- What challenges might terminal position holders face with determining/documenting biogenic content and biomass source?
- How will existing and emerging transportation biofuels be distributed in California?
- If blended with other fuels, what fuels will biofuels be blended with, under what product name will the fuels be marketed, and where will blending occur?

Questions and Feedback Session: Biogenic Emissions Exemptions

- Public Comment Instructions



Raise Hand

1. Use the “Raise Hand” function in the toolbar at bottom of your screen
 2. When staff call your name, please “Unmute” yourself and proceed to introduce yourself
 3. Commenters will be given 3 minutes, no ceding time to others
- Submit written feedback online through October 26 at 11:59 p.m. Pacific Time
 - Link to submit written feedback available at Cap-and-Trade Meetings and Workshops webpage
 - <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/cap-and-trade-meetings-workshops>

Next Steps

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