

Independent Emissions Market Advisory Committee

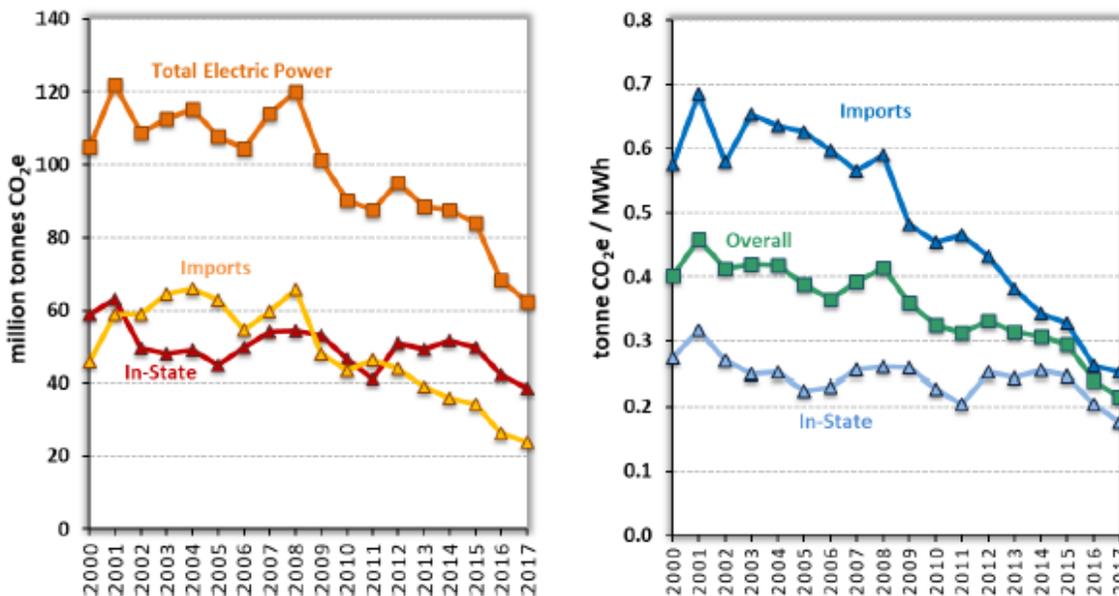
Chapter X Draft: Overlapping Markets and Policy Interactions

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X.1. Introduction

The electricity sector is responsible for a significant share of the net reductions in statewide greenhouse gas (GHG) emissions achieved since the passage of the state’s 2006 climate law, AB 32. In particular, a large share of these reductions has come from reductions in the reported carbon intensity of electricity imports (see Figure 1). As the role of clean electricity imports grows, so too does the importance of understanding how California’s cap-and-trade program is impacting electricity markets and GHG emissions in neighboring states.

Figure 1: Electricity sector greenhouse gas emissions (source: CARB 2019)



The fundamental issue is that energy and climate policies are not coordinated across western states. To the extent that emissions reductions in California are offset by “resource shuffling” of low- and high-emitting resources with our neighbors, emissions may “leak” and reduce the environmental benefits of state policy. A related challenge is that rules and accounting

protocols designed to mitigate leakage in one part of the integrated western electricity market can affect outcomes—and potentially undermine efficiency—in other parts of the market.

This report will look at two related topics that fall under the broader theme of overlapping markets and climate change regulation. The first considers interactions between California’s GHG emissions trading program and Renewable Portfolio Standard (RPS) programs in neighboring states. The second concerns GHG accounting practices that have been—or could be—designed to account for these policy overlaps in an electricity market context.

## **X.2. Interactions Between California’s cap-and-trade program and neighboring RPS policies**

There are mounting concerns about how zero-carbon renewable energy imports are tracked and managed in California’s cap-and-trade program. Currently, CARB does not require the Renewable Energy Certificates (REC) associated with imported renewable electricity to be retired in order to claim that the imported electricity is a zero-carbon import for the purposes of assigning emissions liabilities in the cap-and-trade program. Some stakeholders have argued that this policy decision creates the possibility for “double-counting” of emission reductions because the RECs associated with electricity delivered to California could be used for compliance with another western state’s Renewable Portfolio Standard (RPS).

At the heart of this issue lie potential inconsistencies in how policymakers in California and across the west implement climate change policies designed to reduce the carbon intensity of electricity generation. California tracks tons of GHGs in order to assess compliance with its cap and trade program. Under a renewable portfolio standard (RPS), renewable energy producers generate electrical energy (MWh) and RECs (one REC per MWh). In contrast with the cap-and-trade program, RPS compliance is measured in terms of RECs. If a neighboring state assumes that a REC represents a zero-carbon resource, but California counts the zero-carbon resource with the associated energy delivery, there is the potential to “count” (albeit using different metrics) the same zero emissions attribute twice.

We recognize that this is a complicated issue that involves multiple states and even multiple agencies within California. The California Energy Commission, for example, tracks electricity imports in its Total System Electric Generation reports (CEC, 2019a) and is proposing to update its Power Source Disclosure program this year to track RECs and electricity imports separately in some cases for the purposes of emissions accounting (CEC, 2019b).

The potential emissions implications of this double counting are very difficult to assess in the absence of good data on renewable energy imports. We requested data from CARB on the electricity imports it tracks for the purposes of its cap-and-trade program's Mandatory Reporting Regulation, but CARB was unwilling to provide this information at the time. We appreciate that there may be reasons why CARB and CEC programs identify different quantities of electricity imports, potentially owing to the differences in their policy purposes and regulatory authorities, but it would be helpful to be able to compare this information on an ongoing basis.

- **Recommendation #1: CARB should publicly report data on the total renewable electricity imports as collected under its Mandatory Reporting Regulation. CARB should report as many subcategories of renewable energy types (e.g. wind, hydro) and geographies of origins (e.g. states or northwest vs. southwest) as is practicable to do without compromising confidential company information. The data structure for reporting should be designed, if reasonably feasible, to facilitate comparison with the California Energy Commission's Total System Electric Generation reporting.**

### **X.3. GHG accounting in the presence of overlapping policies**

The California Independent System Operator's Western Energy Imbalance Market (CAISO EIM or EIM) is one electricity market in which market operations and GHG accounting practices have been designed to address concerns about reshuffling and GHG emissions leakage. These practices correct—to some extent, and with potential imperfections—any double counting that may be happening as a result of overlaps between California's GHG market and RPS policies in neighboring states. In contrast, it is our understanding that GHG accounting practices in the current CAISO real-time and day-ahead markets or bilateral transactions market do not impose analogous requirements.

In the EIM, out-of-state power plants that wish to sell electricity to California must include in their bids a facility-specific GHG bid adder (\$/MWh) that reflects the anticipated costs of complying with the cap-and-trade program. Because the market optimization algorithm will select the lowest-cost options, it may preferentially select low-emitting resources for dispatch to California including renewable energy imports. This has led to concerns about "secondary" dispatch of higher emitting resources to serve load outside of California—a form of GHG emissions leakage.

CARB, CAISO, and stakeholders have debated this issue and ultimately reached a compromise position (as summarized in IEMAC, 2018: 33-35). The details of how these liabilities are assigned and managed are complicated, but in essence, the emissions associated with secondary

dispatch in the EIM are estimated as the difference between the unspecified emissions rate (0.428 tCO<sub>2</sub>e/MWh) applied to California imports and the out-of-state emissions associated with CAISO imports identified in the EIM market. EIM purchasers are ultimately responsible for surrendering compliance instruments to cover these secondary emissions.

The EIM is currently a small market, capturing only a small share (2-5%) of total western electricity transactions. Its primary function is to help balance supply and demand on the margin across western markets, a goal that helps facilitate increased renewable energy deployment. According to CAISO, the EIM reduces emissions across the west, but these claimed benefits are not captured in CARB's accounting structure. If leakage/reshuffling remedies discourage participation in the EIM, this could undermine the efficiency with which the electricity market can respond to variable supply conditions, and efficiently coordinate renewable energy integration across the west. Both aspects need to be carefully considered because they affect one another; focusing on one to the exclusion of the other may miss important opportunities to increase environmental and economic benefits in tandem.

Last year we recommended CARB consider updating the default emissions factor for unspecified power, which has not yet happened. We also encouraged CARB to consider how leakage-mitigation approaches developed for the CAISO EIM might unintentionally encourage electricity market participants to avoid organized markets like the EIM in favor of bilateral transactions, which do not require any offsetting of emissions associated with resource shuffling despite featuring challenges that are similar to what is observed in the EIM. We believe that the potential for these unintended consequences remains relevant and needs to be considered by policymakers going forward.

Meanwhile, policymakers are exploring opportunities to increase efficiency and renewable integration in the western U.S. by adding day-ahead market services to the EIM. If this development occurs, the current approach to accounting for secondary GHG emissions in the EIM relative to a "base dispatch" benchmark will no longer work. New accounting approaches will need to be devised. Affected jurisdictions may address these challenges on their own terms, and absent a regional effort, the solutions that emerge may contradict—instead of complement—each other.

- **Recommendation #2: Given the role that the current real-time EIM is playing to support renewable energy integration—and the role that a day-ahead EIM could play—any environmental benefits of accounting requirements designed to mitigate leakage and reshuffling should be weighed against potential market efficiency costs. CARB should work to facilitate a regional dialog among states and stakeholders to make sure GHG accounting and associated policy incentives are coordinated and clear.**

## References

[California Air Resources Board \(2019\), California Greenhouse Gas Emissions for 2000 to 2017 Trends of Emissions and Other Indicators.](#)

[California Energy Commission \(2019a\), Total System Electric Generation.](#)

[California Energy Commission \(2019b\), AB 1110 Implementation Rulemaking, Docket 16-OIR-05.](#)

Independent Emissions Market Advisory Committee (2018), [2018 Annual Report of the Independent Emissions Market Advisory Committee.](#)