

**Regional Integration California Greenhouse Gas Compliance
and
EIM Greenhouse Gas Enhancement
Straw Proposal, November 17, 2016**

**Comments by Department of Market Monitoring
December 15, 2016**

Summary

The Department of Market Monitoring (DMM) appreciates this opportunity to comment on the Regional Integration California Greenhouse Gas Compliance and EIM Greenhouse Gas Enhancement Straw Proposal. The ISO's proposal outlines changes to the Energy Imbalance Market (EIM) market design intended to address both regional integration and concerns that the current EIM market design does not capture the full greenhouse gas effect of EIM imports into California for compliance with the California Air Resources Board (CARB) cap-and-trade program.

CARB has asserted that the current EIM market design does not adequately capture the full impact of EIM imports serving California load on global greenhouse emissions and has characterized this issue as leakage.¹ The ISO has proposed several revisions to existing EIM market design to accommodate the ISO's understanding of CARB's requirement, selecting a single proposed solution in this straw proposal. DMM is concerned that implementing the proposed solution will introduce unintended market inefficiency. In addition, it is not clear that the proposed solution will assure compliance with CARB's revised regulation as CARB has yet to offer a precise definition of the future cap-and-trade compliance obligation of EIM transfers into California.

DMM's primary concern, however, is that any solution designed to hold EIM to a higher GHG compliance standard than other imports into California will alter the incentives to participate in EIM both on a resource and system level. Discouraging participation in the EIM in favor of source specific imports, could reduce the long-term GHG reduction benefit associated with increased renewable penetration throughout the west that is facilitated by expansion of the EIM.

Issue and proposed solution

The straw proposal proposes altering the EIM market optimization to assess GHG compliance obligations in each 15 minute and 5 minute interval as the difference between two optimized solutions: (1) a GHG base in which net EIM imports into California are zero and (2) a final dispatch in which net imports into California may be

¹ Leakage is defined as a decrease in emissions in California that is offset by an increase in emissions outside of California.

greater than zero and the difference between the GHG base and final schedule is optimally dispatched on the basis of GHG bids. Solving for California GHG compliance as the difference between a counterfactual optimized dispatch *without* any net imports into California compared to the final market dispatch *with* net imports into California allows a clearer identification of resources dispatched in EIM solely for the purpose of serving California load. If net imports into California are the sole difference between the GHG base and the final dispatch, the proposed solution would clearly identify such resource dispatch in compliance with an EIM GHG compliance obligation defined as energy dispatched in EIM to serve California load. This would clearly eliminate any secondary dispatch leakage, assuming *leakage* is defined as any increase in dispatch of other possibly higher emitting resources to serve external load when an EIM resource is deemed delivered to California.

Any proposed solution to alter the EIM market design to designate GHG compliance obligations in accordance with a revised definition forthcoming from CARB must conform to federal law as well as the Federal Energy Commission's direct orders to the ISO on market changes designed to accommodate California's cap-and-trade program. One condition is that resources located outside of California serving load outside of California should not be subject to California state GHG compliance obligations. A corollary requirement is that resources outside of California must be able to opt out of participating in California's cap-and-trade program.² In addition, under the Federal Power Act the ISO shall not maintain "an unreasonable difference in rates, charges, service, facilities, or in any other respect, either as between localities or as between classes of service."³

For the ISO to generate a technical solution to the perceived under reporting of GHG emissions associated with EIM imports into California, CARB's forthcoming EIM GHG cap-and-trade requirement cannot preclude a market design in conformance with the principles above. The current EIM market design fulfills all three of these conditions with a single stage optimization for each interval that allows economic selection of energy for transfer into California over available transmission through EIM on the basis of voluntary GHG bids submitted to the market. The optimization outlined in the straw proposal appears to fulfill all three conditions as well.

Holding EIM to a higher GHG compliance standard discourages EIM participation

CARB's published regulation has yet to justify the necessity of imposing changes on EIM market design that discourage participation in the ISO's energy imbalance market. Any change to the current market design allocating additional secondary GHG compliance obligations to EIM participating resources would assign a greater GHG compliance obligation to energy imported through EIM than energy imported from specified

² Under FERC's June 19, 2014, conditional acceptance of the tariff changes required to implement the EIM, the ISO was required to develop further tariff modifications that would both allow market participants to participate in EIM without participating in California's cap-and-trade program and require participating resources to submit cost-based bids.

³ Federal Power Act Section 205(b) 16 U.S.C. § 824d(b) (2000)

sources on a short-term basis. Doing so would discourage participation in EIM on both a resource and system level.

By allowing participating balancing area authorities across the west to redispatch resources in the real-time, the EIM was designed in part to accommodate increasing penetration of renewables. By optimizing dispatch and balancing across a wider and more heterogeneous footprint, the expansion of the EIM allows an increased penetration of intermittent and low emission renewable resources such as solar and wind. Discouraging participation in the EIM in favor of source specific imports could reduce the GHG reduction benefit associated with increased renewable penetration.

Implementation and modeling concerns

The ISO's straw proposal includes several simplifications intended to increase the likelihood that adding an additional optimization in each real-time binding and advisory interval is feasible and produces a feasible solution. Section 5.2.2 (Optimization Problem) and Section 5.4 (Implementation Considerations) list simplifying assumptions which include two of particular concern: (1) introduction of modeling simplification errors into advisory interval results and (2) allowing changes in dispatch between GHG base and the second pass that are not assigned a GHG compliance obligation.

The GHG base run for advisory intervals is solved without network constraints. The GHG dispatch run for advisory intervals would be solved in a next step using the GHG base run as an input. Doing so may result in discrepancies between advisory and binding intervals that is caused by a GHG base run without network constraints. Advisory interval results are used as an input in two processes: market power mitigation and flex ramp product. Introducing modeling error into advisory interval results which serve as inputs to these processes may have unintended consequences.

In addition, the current specification of the optimization problem only allows incremental increases from GHG base to count as GHG MW for compliance purposes. Restricting changes between dispatches of the two passes to be positive restricts the solution space and will limit the total net import into California. The optimization problem specified in section 5.2.2 allows incremental changes in both positive and negative directions, but allows only positive changes to be designated for GHG compliance, either in whole or in part. The total positive deviation from GHG base is offset by total negative deviation, and the net GHG compliance quantity is then allocated to the resources with the lowest GHG bids within the set of resources with a positive deviation from GHG base schedules.

The elegance of the two pass solution is that it allows a logical argument that resource deviations were caused by importing power into California, satisfying a concern that GHG compliance within EIM measure the full impact of emissions generated outside of California dispatched by EIM to serve California load. Allowing only a subset of positive deviations does not comply with this principle. A more complete reporting alternative would either allow negative deviations to be credited for GHG compliance purposes or restrict the solution space to incremental increases in dispatch. Although it would

require CARB and the ISO to account for negative GHG compliance obligations, the first solution is preferable to the second because it would allow the second pass to resolve congestion constraints.