August 22, 2016

Response to Information Requests

The California Independent System Operator Corporation provides the following responses to questions from stakeholders forwarded by the California Air Resources Board (CARB) in connection with CARB's June 24, 2016 workshop on electricity sector issues and, in particular, greenhouse gas emissions accounting and the western Energy Imbalance Market (EIM).

Question 1: For each month in the period November 2014 to April 2016, please provide the following information:

- The MWH associated with EIM transfers into the ISO by resource type (i.e. MWH associated with Coal, Gas and Non-Emitting) and in total;
- The Incremental Generation (in MWH) in EIM Entities by resource type (Coal, Gas, Non-Emitting) and in total;
- Total volume (MWH) of gross ISO imports – all markets;
- Total volume of ISO load

Response: The ISO provides responsive information in the spreadsheets posted on the Energy Imbalance Market webpage. In light of transitional issues associated with the EIM in November and December 2014, the ISO is providing responsive data from January 1, 2015 up to and including June 30, 2016 in response to this question.

- **Monthly EIM Transfer ISO Imbalances (MWh).** This file contains monthly MWh volumes of EIM transfers to serve ISO imbalances for the period January 2015 up to and including June 2016 for the following categories of resources: coal, natural gas, non-emitting, and total. The ISO's market optimization allocated these quantities to EIM participating resources to support ISO imbalances. The total data reflects Energy Transfer System Resource information, which is an aggregation of all supply resources in EIM Entity areas supporting transfers into the ISO to serve ISO imbalances. The file reflects information queried from the ISO's settlement database.

- **Incremental RTD EIM**. This file contains monthly information regarding incremental dispatches in MWh of participating and non-participating EIM resources from January 2015 up to and including June 2016. The data reflects the following categories of resources: coal, natural gas, non-emitting, and total. Positive numbers reflect incremental dispatches from EIM base schedules; negative numbers reflect decremental dispatches from EIM base schedules.

- **Monthly ISO Imports.** This file reflects total imports into the ISO in MWH for the time period January 2015 up to and including June 2016. The data also reflects imports to the ISO the day-ahead market, hour ahead scheduling process, fifteen minute market and five minute real-time dispatch for these months.

- **Monthly ISO Load.** This file reflects ISO load in MWh for the period January 2015 up to and including June 2016.

Question 2: Is it possible for the EIM optimization model to assign a GHG reporting obligation to one or more entities during intervals in which there are no EIM transfers into ISO? If yes, has this happened?

Response: The EIM optimization model does not assign a GHG reporting obligation, which instead arises out of CARB's mandatory reporting regulation. If the question asks whether the EIM optimization model can assign a GHG award during intervals in which there are no EIM transfers into ISO, then theoretically the answer is no. If this were to occur, it would reflect an anomaly in the ISO's market results.

Question 3: In any interval, has California ISO's EIM optimization model ever resulted in EIM GHG obligations in excess of the volume of EIM transfers into ISO?

Response: Theoretically, this result should not occur. If this were to occur, it would reflect an anomaly in the ISO's market results.

Question 4: In how many 5 min intervals during the November 2014 to April 2016 period, if any, has the volume of EIM Transfers into the ISO exceeded the volume of incremental dispatch of resources in EIM Entities?

Response: From January 2015 up to and including June 2016, total EIM transfers into the ISO has exceeded real-time incremental dispatch over base schedules of EIM participating resources in the majority of intervals.

Question 5: In intervals in which the volume of incremental dispatch of resources in EIM Entities exceeds the volume of EIM transfers into the ISO, how would the ISO determine which incremental dispatch is considered "secondary dispatch", as discussed in the June 24th CARB workshop presentation: (http://www.arb.ca.gov/cc/capandtrade/meetings/062416/arb_and_caiso_staff_presentations_updated.pdf)?

Response: The ISO plans to continue to work with CARB and stakeholders to develop the details of a proposal to account for the emission impacts to the atmosphere that result from serving ISO load through the western EIM. The outcome of CARB's stakeholder process will influence any market design changes that the ISO may need to explore through its own stakeholder process. However, a critical part of any calculation would depend in part on which resources in the EIM Entities' areas are considered to replace the output of EIM participating resources that the market optimization identifies as supporting ISO load. Options include:

- Participating resources with a non-zero MWh GHG bid;
- All participating resources; and
- All participating and non-participating resources.

Discussions regarding this matter are continuing and the ISO and CARB are exploring alternative means to account for emissions that may occur as a result of EIM transfers to serve ISO load. Among others, we continue to explore approaches that include (1) determining an historical average emission rate of the dispatch of EIM participating resources and applying the average emission rate to the EIM transfer serving ISO load; (2) determining the average emission rate of the dispatch of EIM resources serving ISO load in any market interval and apply the average emission rate to the amount of the transfer; (3) developing an alternative means to account for emissions serving ISO load through the western EIM; as well as (4) performing an after-the-fact counterfactual determination of what would have been dispatched absent the EIM transfer to serve ISO load.