#### Import/Export Hourly Block Schedule Difference Calculation

The CAISO will calculate and publish, for each EIM Entity BAA, the absolute and the relative hourly net inter-tie scheduling error of imports and exports whose final tagged schedules differ from either the EIM base schedule or, in the case of the CAISO BAA, the CAISO hourly schedules. The CAISO calculates two histograms: one based on absolute hourly scheduling deviation and another based on relative hourly scheduling deviation. The hourly scheduling deviations over each month between the 15th day of the third prior month and the 15th day of the current month.

If an EIM Entity BAA has historical deviations in the net import/export schedule changes between T-40 and T-20, the CAISO will add an additional capacity requirement to the capacity test. This ensures that the bid range from EIM Participating Resources cover the difference between net EIM Base Schedules and the Demand Forecast for the Operating Hour, including the historical intertie over/under-scheduling within a 95% confidence interval.

In the event the historical net import/export calculation produces anomalous results, the CAISO will set the low histogram percentile, high histogram percentile, low absolute histogram percentile and high absolute histogram percentile described below to zero temporarily while it investigates the cause of the anomalous results.

The CAISO will calculate the histograms and the additional capacity requirement as follows:

* The CAISO will net imports and exports against each other in each Operating Hour.
* If net-tagged imports are greater than net imports in the EIM Base Schedules, the CAISO will add to the affected BAA in the EIM an additional downward capacity requirement. If net-tagged imports are less than net imports included in the EIM Base Schedules, the CAISO will add to the affected BAA in the EIM an additional upward capacity requirement.
* If net-tagged exports are greater than net exports included in the EIM Base Schedules, the CAISO will add to the affected BAA in the EIM an additional upward capacity requirement. If net-tagged exports are less than net exports included in EIM Base Schedules, the CAISO will add to the affected BAA in the EIM an additional downward capacity requirement.
* The CAISO will include only data for hourly Scheduled imports and exports and base EIM Transfers in the histogram. The following schedules will be excluded from the histogram: 15-minute intertie schedules, dynamic inter-tie schedules, and pseudo-ties.
* The CAISO will exclude any outlier data from the histogram calculations. See below for details on this process.
* Three months of production data is required to calculate the histogram. So, for all new EIM entities, the histogram percentiles will be set to zero until this information is available.

Histogram Calculations:

The CAISO will calculate the data samples for the absolute and relative histogram for the net hourly inter-tie schedules deviation between imports and exports scheduled at T-40 (net base inter-tie schedules) and the final tagged net imports at T-20 (net actual hourly inter-tie schedule) as:

Data sample for relative deviation: (net actual hourly inter-tie schedule – net base inter-tie schedule) / net base inter-tie schedule

Data sample for absolute deviation: net actual hourly intertie schedule – net base intertie schedule.

The CAISO will provide each EIM Entity the low- and high-end cutoff percentiles for both the absolute and the relative net inter-tie schedule deviation histograms (2.5% and 97.5%, configurable from each histogram). If either the high-end cutoff percentile or the high-end cutoff absolute value based on the histogram data is below zero, then it will be set to 0. Similarly, if either the low cutoff percentile or the low cutoff absolute value based on the histogram data is above zero, then they will be set to 0.

The CAISO will perform a bid range capacity test for each of the four fifteen-minute intervals in every hour. The CAISO will calculate the additional up and down requirements as follows:

The CAISO calculates additional upward capacity requirement using data from both the absolute and relative histograms. First, consider a scenario with net imports for a trade hour. In this case, the application considers the minimum of the highest expectation of the net import or the minimum of the absolute difference in net imports for the past 90 days. Second, consider a scenario with net exports for the hour under consideration. In this case, the application considers the minimum of the highest expectation of the net export or the minimum of the absolute difference in net imports for the past 90 days. The calculations for both these scenarios are captured in the equation below.

For Net Import:

Additional upward capacity requirement = min(–1\*relative low percentile \* net base intertie schedule, –absolute low percentile)

For Net Export:

Additional upward capacity requirement = min(–1\*relative high percentile \* net base intertie schedule, absolute high percentile)

Similarly, the ISO calculates the additional downward capacity requirements in case of overscheduling using the equation captured below.

For Net Import:

Additional downward capacity requirement = max(–1\*relative high percentile \* net base intertie schedule, –absolute high percentile)

For Net Export:

Additional downward capacity requirement = max(–1\*relative low percentile \* net base intertie schedule, absolute low percentile)

Exclusion of Outlier Data from Histogram Calculations:

EIM entities may request that the CAISO exclude certain outlier data from the absolute and relative net intertie schedule deviation histograms. The following data is eligible for exclusion from the histograms:

* Data samples impacted by an intertie path capacity reduction as a result of a forced outage.
* Data samples impacted by energy assistance sent to a participant in a reserve sharing group.

In order to request the exclusion of the above data from the histogram calculation, EIM entity Scheduling Coordinators should submit a CIDI ticket with the following information:

1. Subject Line: Exclusion of Outlier Data from NSI Uncertainty Calculations
2. Trade date
3. Hour(s)
4. BAA name
5. Justification for exclusion of data

Once the EIM entity Scheduling Coordinator submits the CIDI ticket with the appropriate information, the CAISO will review the request. The CAISO expects to complete the process within ten (10) business days. However, if there are any delays processing this request, the CAISO will inform the Scheduling Coordinator of the root cause of the delay.