



Comments from Brian Theaker, NRG Energy, Inc.

27.12 Operator Imbalance Conformance

27.12.1 Operator Conformance in the Real-Time Market

The CAISO Operator may conform the CAISO Forecast Of CAISO Demand prior to executing a Real-Time Market run for reliable operations to obtain a Real-Time Market solution that is feasible and accounts for known system conditions. The EIM Entity operator may conform the EIM Demand forecast prior to the CAISO executing a Real-Time Market run for reliable operations to obtain a Real-Time Market solution that is feasible and accounts for known system conditions of the respective EIM Entity's Balancing Authority Area. The CAISO or EIM Entity operators will consider factors such as: inaccurate load forecast; Area Control Error adjustments; Variable Energy Resource deviations; resource outages not entered in the Outage Management System; generator testing; reliability curtailments due to transmission or equipment outages; weather changes; pumping resource schedule changes; input data based on averages that do not reflect changes dramatic load increase or decrease seen in the operational timeframe. The CAISO and the EIM Entity will log Operator conformances.

Commented [A1]: The generic verb "conform" does not meaningfully describe what the CAISO is actually doing, namely, manually adjusting an automated forecast of a variable (in this case, demand,) that is a key component of the CAISO's markets. The CAISO should create a defined term "Conform" and include that defined term in Appendix A to the Tariff.

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Commented [A2]: If the "input data" referred to in this sentence could include things other than demand forecasts, I suggest making this language more generic; if the input data consists solely of demand data, then I suggest replacing "input data" with demand data.

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Commented [A3]: If the CAISO is going to define the verb "Conform", then it should also describe the noun "Conformance".

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27.12.2 Conformance Limiter in the Real-Time Market

The CAISO will limit an Operator conformance in the Real-time Market to ensure the conformance does not trigger shortage or surplus pricing for any interval in which there is no shortage or surplus of Energy indicated during the pricing of resources for that interval. The limiter will: (1) be based on the conformance and ramping capability shortages or surplus changes between intervals; (2) consider information from current and previous intervals; (3) not require that the conformance is the same direction of the shortages or surpluses of ramp capability; and (4) consider the conformance magnitude in previous intervals and whether the limiter was applied in the corresponding intervals.

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31.5.3 RUC Procurement Target

The procurement target for RUC in any given Trading Hour will be determined based on the next day's



hourly CAISO Forecast Of CAISO Demand less the Energy scheduled in the Day-Ahead Schedule, and accounting for other factors, as appropriate, such as Demand Forecast error and estimated incremental RTM Bids including those from Participating Intermittent Resources. The adjustments listed in Sections 31.5.3.1 to 31.5.3.1.6 will be made to the CAISO Forecast Of CAISO Demand to account for the conditions as provided therein. Adjustments may be made on a RUC Zone basis to ensure that RUC results in adequate local capacity procurement. The RUC procurement target setting procedure is designed to meet the requirements of reliable grid operation without unnecessary over procurement of RUC Capacity or over-commitment of resources. Additional detail on the process for setting the RUC procurement target is specified in the Business Practice Manuals.

**31.5.3.1 CAISO Operator Review & Adjustment**

The CAISO Operator reviews the CAISO Forecast of CAISO Demand and all calculated adjustments as provided in Sections 31.5.3.1.1 through 31.5.3.1.6. The CAISO Operator shall accept, modify, or reject such adjustments based on Good Utility Practice. If the CAISO Operator determines it must modify the CAISO Forecast Of CAISO Demand ~~reject adjustments~~, the CAISO Operator shall log sufficient information as to reason, Operating Hour, and specific modification(s) made to the CAISO Forecast Of CAISO Demand ~~calculated adjustments~~.

**31.5.3.1.1 RUC Net Short Conditions**

The CAISO Operator may conform the CAISO Forecast Of CAISO Demand in the event the CAISO Operator has determined that additional capacity may be need to be procured in RUC to meet anticipated Real-Time system conditions. The CAISO Operator will consider factors such as: CAISO Forecast Of CAISO Demand error: **dramatic** weather pattern that is expected to continue or change with the next Trading Day; generator outage resulting in different Supply availability than was bid into the Day-Ahead Market; fire **danger** that threatens transmission lines and/or corridors; **and the** expectation that **the amount of** Generation committed in the IFM will not **be sufficient to** meet the anticipated Demand; and Reliability Coordinator next-day analysis of system conditions.

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**31.5.3.1.2 Demand Response Adjustments.**

The CAISO shall account for Demand response that is clearly communicated to the CAISO as certain to be curtailed for the next Trading Day only for the two following types of Demand response: (1) Demand



response triggered by a staged System Emergency event; and (2) Demand response that is triggered by a price or an event known in advance. If an LSE informs the CAISO of anticipated Demand response prior to Market Close of the DAM, the CAISO Forecast of CAISO Demand used as the RUC procurement target will be reduced accordingly.

**31.5.3.1.3 MSS Adjustment**

As specified in section 31.5.2.1, MSS Operators are permitted to make an annual election to opt-in or opt-out of RUC participation. If the MSS Operator opts-in to the RUC procurement process, the CAISO considers the CAISO's Demand Forecast of the MSS Demand in setting the RUC procurement target. If an MSS Operator opts-out of the RUC procurement process, the CAISO does not consider the CAISO's Demand Forecast of the MSS Demand in setting the RUC procurement target. An MSS Operator that has elected to opt-out of RUC, or has elected to Load follow and therefore has also elected to opt-out of RUC, is required to provide sufficient resources in the Day-Ahead Market, and in the case of a Load following MSS Operator, follow its Load within the MSS Deviation Band. To reflect these options and to prevent committing additional capacity or resources for any differences between the CAISO Demand Forecast for the MSS and the MSS Self-Scheduled quantities in the IFM, the CAISO replaces the CAISO Demand Forecast for such MSS with the quantity of Demand in Self-Schedules submitted by the Scheduling Coordinator for the MSS in the IFM.

**31.5.3.1.4 Eligible Intermittent Resource Adjustment**

Scheduling Coordinators for Eligible Intermittent Resources may submit Bids, including Self-Schedules, in the Day-Ahead Market and the quantity ultimately scheduled from Eligible Intermittent Resources may differ from the CAISO forecasted deliveries from the Eligible Intermittent Resources. The CAISO may adjust the forecasted Demand either up or down for such differences by RUC Zone in which the Eligible Intermittent Resource resides. To the extent the scheduled quantity for an Eligible Intermittent Resource in the IFM is less than the quantity forecasted by CAISO, the CAISO makes a Supply side adjustment in RUC by using the CAISO forecasted quantity for the Eligible Intermittent Resource as the expected delivered quantity. To the extent the scheduled quantity for an Eligible Intermittent Resource in the IFM is greater than the quantity forecasted by the CAISO, the CAISO makes a Demand side adjustment to the RUC Zone Demand equal to the difference between the Day-Ahead Schedule and the CAISO forecasted



quantity.

**31.5.3.1.5 Real-Time Expected Incremental Supply Self-Schedule Adjustment**

In order to avoid over procurement of RUC, the CAISO shall, using a similar-day approach, estimate the RTM Self-Schedules for resources that usually submit RTM Self-Schedules that are greater than their Day-Ahead Schedules. The CAISO Operator may set the length of the Self-Schedule moving average window. Initially this moving average window shall be set by default to seven (7) days; in which case the weekday estimate is based on the average of five (5) most recent weekdays and the weekend estimate is based on the average of the two (2) most recent weekend days. To the extent weather conditions differ significantly from the historical days, additional adjustment may be necessary. After determining the estimate of Real-Time Self-Schedules, using a similar day forecasting approach, the CAISO adjusts the CAISO Forecast Of CAISO Demand of a RUC Zone based on the forecasted quantity changes in Supply as a result of Self-Schedules submitted in the RTM. This adjustment for forecasted Real-Time Self-Schedules may result in positive or negative adjustments. Demand adjustments to the CAISO Forecast Of CAISO Demand result when there is a net forecast decrease in Real-Time Self-Schedule Supply relative to the Day-Ahead Schedule Supply. Supply adjustments to the individual resources occur when there is a net forecast increase in Real-Time Self-Schedule Supply relative to the Day-Ahead Schedule Supply of the individual resource.

**31.5.3.1.6 Day-Ahead Ancillary Service Procurement Deficiency Adjustment**

While the CAISO intends to procure one hundred percent (100%) of its forecasted Operating Reserve requirement in the IFM based on the CAISO Forecast of CAISO Demand as specified in Section 8.3.1, the CAISO shall make adjustments to the CAISO Forecast of CAISO Demand used in RUC to ensure sufficient capacity is available or resources committed in cases that the CAISO is unable to procure one hundred percent (100%) of its forecasted Operating Reserve requirement in the IFM; provided, however, that the CAISO shall not procure specific Ancillary Services products in RUC, nor will the RUC optimization consider AS-related performance requirements of available capacity.

**31.5.3.27 RUC Zones**

**31.5.3.27.1 Use of RUC Zones**



The CAISO shall adjust the CAISO Forecast of CAISO Demand by RUC Zone for the conditions described in Sections 31.5.3.1.2 through 31.5.3.1.6. If any adjustments are made throughout the affected RUC Zone, such adjustments will be made consistent with the subset of system LDFs for the Nodes that define the RUC Zone(s). The CAISO will adjust the CAISO Forecast of CAISO Demand of each affected RUC Zone, preserving the LDFs within each RUC Zone, but the relative weighting of the LDFs across the system will deviate from the original LDFs. RUC costs will be pooled together to establish the RUC Compensation Costs. As described in Section 11. 6.1, Settlement of RUC Compensation Costs will not be on a RUC Zone basis.

**31.5.3.27.2 Designation of RUC Zones**

The CAISO shall define RUC Zones as areas that represent UDC or MSS Service Areas, Local Capacity Areas, or any other collection of Nodes. RUC Zones will be designated by the CAISO as necessary and to the extent that the CAISO has developed sufficient data on historical CAISO Demand and weather conditions to allow it to perform Demand Forecasts. Once the CAISO has established RUC zones, the mapping of RUC Zones to Nodes shall be static data and shall be maintained in the Master File. The CAISO may add new Nodes to a RUC Zone if new Nodes are added to the FNM. The status of each RUC Zone shall remain active for as long as the CAISO maintains regional forecasting capabilities, but once a RUC Zone is designated the CAISO will only adjust the CAISO Forecast of CAISO Demand as necessary to address RUC procurement constraints and not as a normal course for all CAISO Market functions. The actual RUC Zones used by the CAISO in its operation of RUC are posted on the CAISO Website.

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As noted above, I recommend the CAISO create the defined terms “Conform” and “Conformance”.

**- RUC Zone**

A forecast region representing a UDC or MSS Service Area, Local Capacity Area, or other collection of Nodes for which the CAISO has developed sufficient historical CAISO Demand and relevant weather data to perform a Demand Forecast for such area, for which as further provided in Section 31.5.3.27 the



California ISO

*Imbalance Conformance Enhancements –  
Draft Tariff Language*

CAISO may adjust the CAISO Forecast of CAISO Demand to ensure that the RUC process produces adequate local capacity procurement.