

**SCE comments on the CAISO's Multi-Stage Generation Draft Tariff Language
(March 19, 2010)**

SCE appreciates the ongoing efforts by the CAISO to identify and implement changes in the market software to improve the modeling of multi-stage generators. SCE provides the following comments to identify concerns and/or request clarification regarding parts of the ISO's proposed draft tariff language. SCE anticipates participating in the upcoming April 9 workshop during which these and other tariff changes will be discussed. In the meantime, please email or call me with any questions.

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Concerns and Questions by Section:

Section 8.10.8.3

No-pay determination should be at the configuration (not resource) level.

Section 11.8.1.1 and 11.8.1.2

Both these section contain the statement "For Multi-Stage Generating Resources, the Minimum Run Time and Minimum Down Time will be evaluated at both the configuration and resource level to determine whether an extension of the IFM Self-Commitment Period applies". Please clarify if the Min Run and Min Down time is associated with the configuration level only? If so, is evaluation of MRT and MDT at the resource level correct?

Section 11.8.1.3

Would the ISO provide comment on SCE's interpretation of this section, which is that MSGs are settled at the CAISO committed configuration if there was both a CAISO and a self-commitment in the same interval? Also, settlement is at RTM>RUC>IFM committed configuration in order of precedence in those situations when the CAISO has more than one commitment, with different configurations, in the same interval. This makes sense since it uses the "final" configuration that CAISO commits.

Section 11.8.2.1.1 (g)

This section addresses long start units that start before the IFM commitment period within the same trading day. SCE believes that the tariff also needs to address those units that must start on prior days to meet the IFM commitment timeline.

Section 11.8.2.1.2 and 11.8.4.1.2

Need clarification on determination of ML costs for settlement intervals that contain two dispatch intervals with two different configurations.

Section 11.8.2.1.7

Does a MSG unit still qualify for transition costs when part of the configuration is running on self schedule?

Section 11.8.2.1.4 and 11.8.4.1.7

Are transition costs guaranteed? Are there any checks (like the ones found in the SUC section) that an MSG can fail and not receive Transition Cost recovery? What if the unit doesn't transition?

Section 11.8.2.1.5 and 11.8.2.1.6 and 11.8.4.1.5 and 11.8.4.1.6

With regards to “cost is at resource level,” please clarify how the bid cost level is calculated at the resource level when bids and awards are at the configuration level.

Section 11.8.2.2 and 11.8.3.2 and 11.8.4.2.1

Revenues calculations need to be at the configuration (not the resource) level.

Section 27.8.3

Why does the CAISO feel it is necessary to restrict changes in the status and configurations of MSG units to once every 60 days? SCE has experienced situations in the past where strict time limits in the tariff have prevented the CAISO from changing erroneous data. If the CAISO insists on maintaining such a limit in the tariff, SCE requests that language be added to allow CAISO to waive the limit under special circumstances. However, such a waiver is a second choice to eliminating the language altogether.

Section 30.5.1 (k, l, m) and 30.5.2.1

These sections describe the rules around self-scheduling. These rules seem unnecessary and overly restrictive compared to the flexibility allowed for non-MSG resources. Could the CAISO please describe why these rules are necessary?

Section 31.2.2.2

This language is a bit unclear. SCE believes the CAISO is trying to say that the decision to mitigate will be done on a configuration by configuration level but the actual bid mitigation will occur across all configurations. SCE suggest the CAISO add some clarity to the section to either confirm our interpretation or make an alternative meaning evident.

Section 31.3.1.2 and 34.2

CAISO proposes to not award any AS for resources which are in transition the same interval (hour in IFM, 15 min in RTUC). This seems overly restrictive since many instances will arise where the transition takes place in less than 10 minutes. Preventing a resource from selling AS for an entire interval based off a sub-10 minute transition will unnecessarily limit the AS available to the market.

Section 31.5.5

It seems the CAISO might have been overzealous in adding the term “Transition Costs” everywhere that Startup and Minimum Load existed in the tariff. When a resource has already been committed in IFM but is transitioned to another configuration in RUC it

would make sense to consider the Transition Costs. Additionally, the new configuration will have a different minimum load cost. It seems like RUC should consider the difference in minimum load costs as well. Will RUC transition to “lower” configurations?

Section 31.5.7.2

RUC no-pay at the configuration (not resource) level.

Section 34.5 (12)

Language reads “The RTM optimization may factor in limitations on daily maximum number of transitions between configurations as defined in the transition matrix and their Minimum Up Time and Minimum Down Time as defined at the configuration level.” Should the term “may” read “will”.

Section 39.7.1

What is the reason behind limited the DEB option for 90 days after status changes? This seems unnecessary.

Appendix AA

The transition plan mentions that market simulation will take place two months before go-live and that 75 days prior to go-live Scheduling Coordinators will have to commence the MSG registration process. It is likely that market simulation will enhance the CAISO and market participant understanding of the MSG enhancement. This newfound understanding may result in a need to register additional resources, unregister resources, and/or change the characteristics of registered resources. How does the CAISO plan to deal with these inevitable situations?

Also in the transition plan is the notion that certain aspects of an MSG cannot be changed during the first 60 days after go-live. What is the purpose of this limitation? One unchangeable value is the default RA configuration and its associated startup path. Since RA values change on a monthly basis (sometimes more than once a month) it is unreasonable to prevent this designation from changing when the basis for making the designation can change. SCE recommends the CAISO remove the constraint or at least reconcile the discrepancy with other tariff provisions.

Note: The last paragraph of the transition plan refers to creating Outages at the configuration level 48 hours before go-live. This will require the CAISO to make the Outage reporting mechanisms available to the market with sufficient time to meet the 48-hour deadline. SCE suggests CAISO make the Outage report mechanism available 168 hours before go-live.

General clarifying questions:

- Would the ISO please confirm whether changes to the Tariff will cause MSG units to be settled differently in the Real-Time Market than non-MSG units?

- Would the ISO please clarify how it will treat situations whereby an MSG Resource receives feasible schedules in IFM that become infeasible dispatches in Real-Time?

Specific recommended changes to Tariff language:

11.8.2 IFM Bid Cost Recovery Amount.

For purposes of determining the IFM Unrecovered Bid Cost Uplift Payments as determined in Section 11.8.5, and the purposes of allocating Net IFM Bid Cost Uplift as described in Section 11.8.6.4 the CAISO shall calculate the IFM Bid Cost Shortfall or the IFM Bid Cost Surplus as the algebraic difference between the IFM Bid Cost and the IFM Market Revenues for each Settlement Interval. The IFM Bid Costs shall be calculated pursuant to Section 11.8.2.1 and the IFM Market Revenues shall be calculated pursuant to Section 11.8.2.2. The Energy subject to IFM Bid Cost Recovery is the ~~actual~~ Energy awarded in the IFM. ~~delivered in the Real Time that is within the Day Ahead Schedule for each eligible resource.~~

11.8.2.1.5 IFM Energy Bid Cost

For any Settlement Interval, the IFM Energy Bid Cost for Bid Cost Recovery Eligible Resources, except Participating Loads, shall be the integral of the relevant Energy Bid submitted to the IFM, if any, from the higher of the registered Bid Cost Recovery Eligible Resource's Minimum Load and the Day-Ahead Total Self-Schedule up to the relevant MWh scheduled in the Day-Ahead Schedule, divided by the number of Settlement Intervals in a Trading Hour. ~~The IFM Energy Bid Cost for Bid Cost Recovery Eligible Resources, except Participating Loads, for any Settlement Interval is set to zero for any portion of the Day Ahead Schedule that is not delivered from the otherwise Bid Cost Recovery Eligible Resource that has metered Generation below its Day Ahead Schedule; any portion of the Day Ahead Schedule that is actually delivered remains eligible for IFM Energy Bid Cost Recovery.~~

The CAISO will evaluate the IFM Energy Bid Cost for a Multi-Stage Generating Resource at the resource level.

11.8.2.2 IFM Market Revenue

For any Settlement Interval in a CAISO IFM Commitment Period the IFM Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of: (1) the product of the ~~awarded~~ ~~delivered~~ MWh, in the relevant Day-Ahead Schedule in that Trading Hour where for Pumped-Storage Hydro Units and Participating Load operating in the pumping mode or serving Load, the MWh is negative, and the relevant IFM LMP, divided by the number of Settlement Intervals in a Trading Hour; and (2) the product of the IFM AS Award from each accepted IFM AS Bid and the relevant Resource-Specific ASMP, divided by the number of Settlement Intervals in a Trading Hour. In the case of a Multi-Stage Generating Resource, the CAISO will calculate the market revenue at the resource level. For any Settlement Interval in a IFM Self-Commitment Period the IFM Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of: (1) the product of the ~~delivered~~ ~~awarded~~ MWh above the greater of Minimum Load and Self-Scheduled Energy, in the relevant Day-Ahead Schedule in that Trading Hour and the relevant IFM LMP, divided by the number of Settlement Intervals in a Trading Hour; and (2) the product of the IFM AS Award from each accepted IFM AS Bid and the relevant Resource-Specific ASMP, divided by the number of Settlement Intervals in a Trading Hour.

11.8.4 RTM Bid Cost Recovery Amount.

For purposes of determining the RTM Unrecovered Bid Cost Uplift Payments as determined in Section 11.8.5, and for the purposes of allocation of Net RTM Bid Cost Uplift as described in Section 11.8.6.6 the CAISO shall calculate the RTM Bid Cost Shortfall or the RTM Bid Cost Surplus as the algebraic difference between the RTM Bid Cost and the RTM Market Revenues for each Settlement Interval. The RTM Bid Costs shall be calculated pursuant to Section 11.8.4.1 and the RTM Market Revenues shall be calculated pursuant to Section 11.8.4.2. ~~The Energy subject to RTM Bid Cost Recovery is the actual Energy delivered in the Real Time associated with Instructed Imbalance Energy described in Section 11.5.1, excluding Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, Derate Energy, Ramping Energy Deviation, Regulation Energy and MSS Load Following Energy.~~

11.8.4.1.5 RTM Energy Bid Cost

For any Settlement Interval, the CAISO shall compute two RTM Energy Bid Cost for the Bid Cost Recovery Eligible Resource except Participating Loads. The first shall be computed as the sum of the products of each Instructed Imbalance Energy (IIE) portion, except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, Derate Energy, MSS Load Following Energy, Ramping Energy Deviation, Real-Time Minimum Load Energy, and Regulating Energy, with the relevant Energy Bid prices, if any, for each Dispatch Interval in the Settlement Interval. The second shall be computed as the sum of the products of each delivered energy portion less the corresponding IFM Energy award, except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, Derate Energy, MSS Load Following Energy, Ramping Energy Deviation, Real-Time Minimum Load Energy, and Regulating Energy, with the relevant Energy Bid prices, if any, for each Dispatch Interval in the Settlement Interval. For the first RTM Energy Bid Cost the relevant Energy Bid price equals the corresponding IFM Energy Bid price if the Instructed Imbalance Energy (IIE) portion is negative, else, it equals the RTM Energy Bid price. For the second RTM Energy Bid Cost the relevant Energy Bid price equals the corresponding IFM Energy Bid Price if the delivered Energy is less than the corresponding IFM Energy award, else it equals the RTM Energy Bid price. RTM Revenue is also computed using both Instructed Imbalance Energy and the actual Energy delivered. The RTM Energy Bid Cost eligible for Bid Cost Recovery is the amount that when netted against the corresponding RTM Revenue amount, excluding revenue from Minimum Load Energy, produces the largest surplus or smallest shortfall. ~~The RTM Energy Bid Cost for a Bid Cost Recovery Eligible Resource except Participating Loads for a Settlement Interval is set to zero for any undelivered Real-Time Instructed Imbalance Energy by the Bid Cost Recovery Eligible Resource. Any Uninstructed Imbalance Energy in excess of Instructed Imbalance Energy is also not eligible for Bid Cost Recovery.~~ For a Multi-Stage Generating Resource the CAISO will evaluate the RTM Energy Bid Cost based on the Multi-Stage Generating Resource resource level.

11.8.4.2.1 For each Settlement Interval in a CAISO Real-Time Market Commitment Period, the RTM Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of the elements listed below in this Section. For Multi-Stage Generating Resources the RTM Market Revenue calculations will be made at the resource level.

- (a) The CAISO shall calculate two Energy revenue amounts. The first shall equal the sum of the products of the Instructed Imbalance Energy (including Energy from Minimum Load of Bid Cost Recovery Eligible Resources committed in RUC where for Pumped-Storage Hydro Units and Participating Load operating in the pumping mode or serving Load, the MWh is negative), except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, Derate Energy, MSS Load following Energy, Ramping Energy Deviation and Regulation Energy, with the relevant Real-Time Market LMP, for each Dispatch Interval in the Settlement Interval; the second shall equal the sum of the products of the delivered Energy less IFM Energy awards (including Energy from Minimum Load of Bid Cost Recovery Eligible Resources committed in RUC where for Pumped-Storage Hydro Units and Participating Load operating in the pumping mode or serving Load, the MWh is negative), except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, Derate Energy, MSS Load following Energy, Ramping Energy Deviation and Regulation Energy, with the relevant Real-Time Market LMP, for each Dispatch Interval in the Settlement Interval. The RTM Energy revenue eligible for Bid Cost Recovery is the amount that when netted against the corresponding RTM Bid Cost amount, excluding revenue from Minimum Load Energy, produces the largest surplus or smallest shortfall.