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California ISO Draft Final Proposal

Ancillary Services Procurement in HASP and Dispatch Logic

Clean Version

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Ancillary Services Procurement in HASP and Dispatch Logic

Prepared for Discussion on a Stakeholder Conference Call – August 28, 2009

1 Issue and Background

The February 9, 2006 MRTU Tariff filed by the CAISO proposed to procure Ancillary Services from both internal and external resources in the Day-Ahead Market, the Hour-Ahead Scheduling Process (HASP), and the Real-Time Market. The HASP is designed to procure additional Ancillary Services needed to meet reliability requirements after the Day-Ahead Market, and to determine the optimal mix of Ancillary Services from internal resources, dynamic system resources, and non-dynamic system resources for the next trading hour. However, the market simulation revealed that software limitations prevented the CAISO from dispatching energy from the operating reserve capacity procured from non-dynamic system resources through HASP. To prepare for the new market launch, the CAISO filed and received approval from FERC to defer the procurement of Ancillary Services in HASP, and to procure any required incremental Ancillary Services after the Day-Ahead Market in the fifteen-minute Real-Time Pre-Dispatch (RTPD) process.

The CAISO filed the Deferred Function Amendment Filing with the FERC on October 31, 2008, and indicated to FERC that it anticipated reverting back to hour-ahead procurement of Ancillary Services six to nine months after the new market go-live. In the October 31, 2008 Order, FERC ordered the CAISO to conduct a stakeholder process to consider the reversion to this functionality and any resulting proposed amendments, and submit the proposal to the CAISO Board of Governors and the Commission for approval.

This proposal considers reverting back to Ancillary Service procurement in HASP and proposes solutions to dispatch energy from operating reserves procured from non-dynamic system resources in the hour ahead.

2 Ancillary Services Procurement in HASP

2.1 The Original Proposal and Deferral of This Functionality

The MRTU Tariff filed on February 9, 2006 proposed to procure incremental Ancillary Services from HASP to meet reliability requirements after the Day-Ahead Market. HASP was originally designed to determine the optimal mix of Ancillary Services from internal resources, dynamic system resources, and non-dynamic system resources for the next trading hour. The Tariff called for Ancillary Services awards for internal resources and dynamic system resources in HASP to be non-binding advisory awards and re-optimized in the subsequent 15-minute RTPD process, while the Ancillary Services (Spinning and Non-Spinning) awards for the non-dynamic system resources in HASP were to be binding awards and cleared for settlement. All operating reserves procured in HASP were to be designated as Contingency Only.[1]

In order for external resource capacity procured in HASP to be effective as operating reserves in real-time, the CAISO must be able to dispatch energy from such reserves in real time on a ten-minute basis. Due to software limitations that prevented the CAISO from dispatching energy from non-dynamic system resources in HASP, the CAISO deferred the procurement of Ancillary Services in HASP, and proposed to procure any incremental Ancillary Services after the Day-Ahead market from external resources in the fifteen-minute RTPD process. Non-dynamic system resources are allowed to participate in the RTPD process if energy from such resources can be dispatched for energy within ten minutes based on the definition of Spinning and Non-Spinning reserves.

The following tables compare the originally proposed functionality for procuring Ancillary Services in HASP to the functionality that is currently in practice.

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[1] The CAISO February 9, 2006 MRTU Tariff, Section 33.7.

Original Proposal to Procure Ancillary Services in HASP

Hour Ahead Scheduling Process	15-min RTPD
Internal resources (non-binding advisory A/S awards)	Re-optimize non-binding A/S awards in RTPD
Dynamic system resources (non-binding advisory A/S awards)	
Non-dynamic system resources (Binding Spinning and Non-Spinning awards)	

Deferral of Ancillary Services Procurement in HASP

Hour Ahead Scheduling Process	15-min RTPD
No A/S procurement in HASP	Internal resources (Binding A/S awards)
	Dynamic system resources (Binding A/S awards)
	Non-dynamic system resources (registered and certified to participate in RTPD and dispatchable within 10-min) (Binding Spinning and Non-Spinning awards)

2.2   Proposals for Reverting to Ancillary Services Procurement in HASP

2.2.1   Proposed Dispatch Logic for Ancillary Services Procured in HASP

The current software functionality is configured to procure Ancillary Services in HASP from internal resources, dynamic system resources and non-dynamic system resources, however, Real-Time Dispatch (RTD) does not have a mechanism to dispatch energy associated with operating reserve capacity from non-dynamic system resources procured in HASP.

The CAISO has limited flexibility to dispatch energy from operating reserves for non-dynamic system resources in real-time due to agreements between the market

participants and the neighboring Balancing Authority Areas. These agreements typically only allow for a one time mid-hour schedule change per hour. This proposal is designed to address the real-time dispatch logic subject to this constraint. The CAISO proposes the following methodology for dispatching hourly inter-tie operating reserve capacity under two assumptions:

  1) Non-dynamic system resources are capable of having interchange schedules changed one time mid-hour in real time; and[2]

  2) Because operating reserves procured in HASP are Contingency Only, the proposed solutions also assume a contingency dispatch.

1. *Within-Hour Dispatch*

When a real-time contingency occurs, if a non-dynamic system resource receives a dispatch instruction in mid hour for energy associated with its Spinning or Non-Spinning capacity awarded in HASP, it shall be dispatched to operate at a constant level until the end of the hour as shown below.
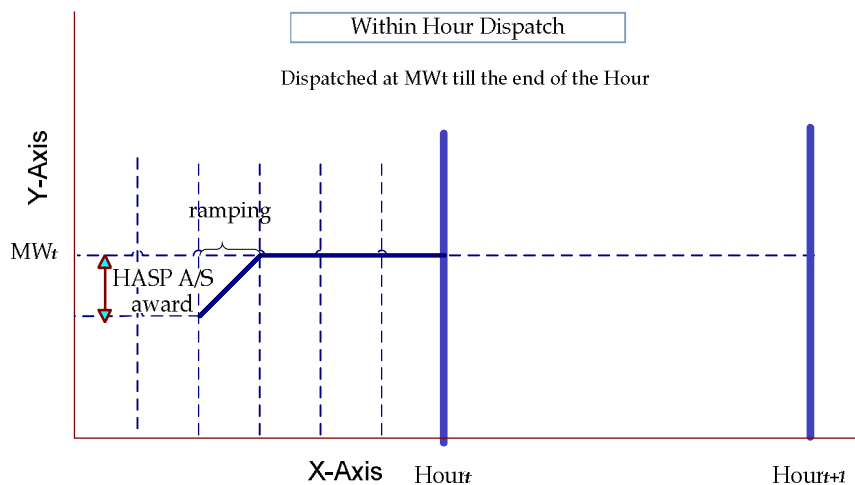

2. *Across-Hour Dispatch*

Since a contingency dispatch is for 10-minutes and can across an hourly boundary, if a contingency dispatch covers both the current hour and next hour, the dispatch level shall stay constant until the end of the next hour. If the awarded Spinning or Non-Spinning capacity is different between the current hour and the next hour, the lower amount of the awarded capacity shall be used for dispatch purposes.

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[2] Should non-dynamic system resources are capable of having more than one time mid-hour schedule changes in the future, then the proposed dispatch logic can be adjusted accordingly.

The CAISO Proposal:

When operating reserve capacity procured from non-dynamic system resources in HASP is dispatched in real-time, the dispatch level will stay constant until the end of the hour if dispatched within the hour, or until the end of the next hour when dispatched across an hourly boundary. In the latter case, the lower amount of the awarded operating reserve capacity between these two adjacent hours applies as shown below.

This dispatch logic will be applied to operating reserve awards to non-dynamic system resources in both HASP and the day-ahead market. These operating reserve awards are contingency-only and will be dispatched only under contingency situations.[3]

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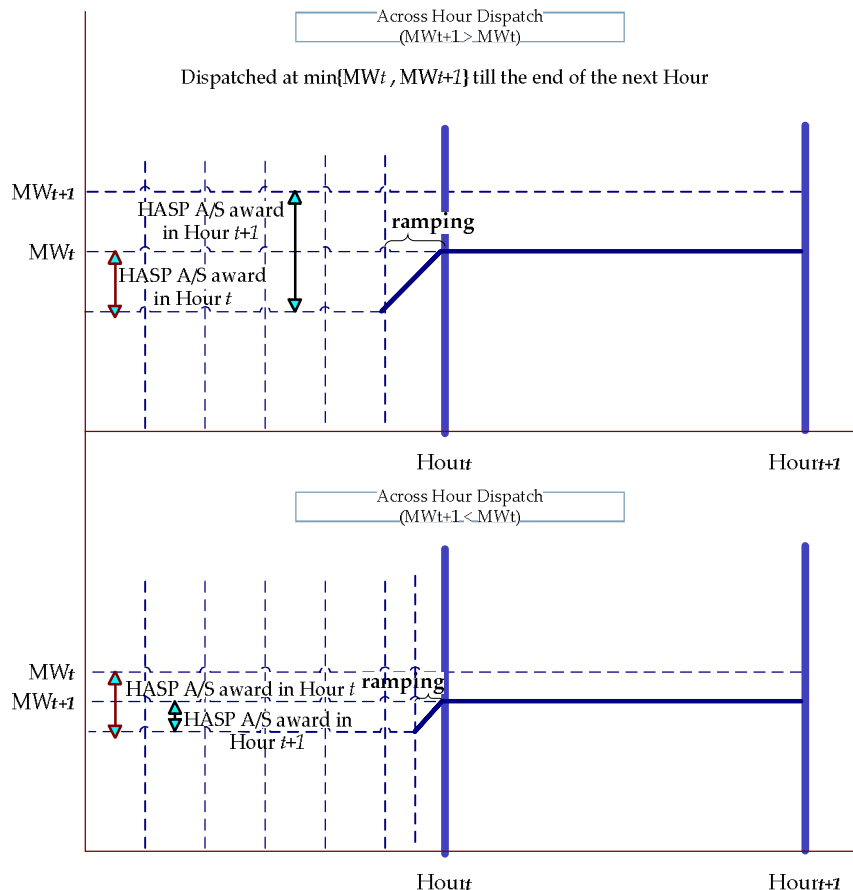
[3] The hour ahead ancillary services awards are incremental to the day-ahead awards, and the day-ahead awards cannot be bought back in HASP. Ancillary service importers are required to e-tag their capacity.

2.2.2 Treatment of Energy Bids associated with Un-Awarded Ancillary Services by Non-Dynamic System Resources in HASP

Stakeholders have raised concerns on the treatment of energy bids associated with un-awarded Ancillary Services by non-dynamic system resources in HASP. An associated energy bid is required to be submitted at the same time as an Ancillary Service bid. Based on the current market design, in the event that an Ancillary Service bid is not awarded in HASP, the associated energy bid is still available for dispatch in the real time five-minute energy market. However, five-minute dispatch is not viable for non-dynamic system resources, and this has prevented them from participating in HASP.

The CAISO Proposal:

For non-dynamic system resources, to ensure that energy bids associated with un-awarded HASP Ancillary Services are not dispatched in real time, the CAISO proposes the following:

While non-dynamic system resources certified to provide Ancillary Services are required to submit an energy bid associated with a capacity bid in HASP, only the Ancillary Service bids will be used to solve the optimization problem and the associated energy bids will not be used in HASP. In this case, the resulted operating reserve prices will reflect the cost of providing capacity but not the opportunity cost of providing energy. In the event that these Ancillary Service bids are awarded in HASP and dispatched for energy in real time contingency run, the associated energy bids will be used to determine the energy prices on inter-ties. The energy bids will only be used up to the total of day ahead and HASP capacity awards on that resource.

It is worth clarifying that for internal resources and dynamic system resources, Ancillary Services and energy will be co-optimized in HASP.

2.2.3 Other Issues Not included in the Scope of This Proposal

1. Hourly bid cost protection provided to Ancillary Service bids in the event that Ancillary Services prices or congestion shadow prices on inter-ties are corrected.

The CAISO has identified this as an issue in the market initiatives roadmap process and will be addressing it in that forum. Below is a description of this initiative in the market initiatives catalogue[4]:

Ex Post Price Correction "Make-Whole" Payments

Ex post price corrections have led to instances in which bids that were cleared in the market are no longer economic when evaluated against the corrected price. Currently, the ISO does not have a policy or mechanism for compensating Market Participants when this occurs. The absence of such a "make-whole" mechanism was based on the assumption that the need for market results would always be consistent with the cleared bids. In practice, this is generally the case. When market prices require corrections or when uneconomic adjustments occur between the scheduling and pricing run, however, settlement prices can differ from the value of the cleared bids. Through this initiative, the ISO will develop a "make-whole" payment mechanism to compensate Market Participants for adverse financial impacts in the case when prices are adjusted in a way that is not consistent with their accepted bids.

2. Potential enhancement to Ancillary Services market in HASP to provide binding Ancillary Services awards to internal resources, dynamic system resources, as well as non-dynamic system resources.

Stakeholders have also suggested to potentially enhance the current Ancillary Services market in HASP to provide binding Ancillary Services awards to internal resources and all system resources. The CAISO appreciates this suggestion and would evaluate this issue together with other further design enhancements to the Ancillary Services market.

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[4] Updated Catalogue of Market Design Initiatives, August 2009, Section 2.9.
  http://www.caiso.com/2411/2411e8ed70630.pdf

3   Process and Timetable

Per stakeholder conference call on August 12 and written comments received on August 19, the CAISO has further developed this proposal to address additional policy issues. The CAISO will conduct a conference call on August 28 to review with stakeholders the revised proposal.

The following timetable shows the proposed stakeholder process for developing the proposal and presentation to CAISO Board of Governors for approval.

August 5, 2009	Post *Straw Proposal*
August 12, 2009	Stakeholder Conference Call
August 19, 2009	Written Comments due
August 25, 2009	Post Draft *Final Proposal*
August 28, 2009	Stakeholder Conference Call
September 10 -11, 2009	Presentation to CAISO Board of Governors