



**Draft Straw Proposal for Scoping Future Market  
Releases**

**Market Release 1A**

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## 1. Executive Summary

On August 6<sup>th</sup> the CAISO posted to its website an issue paper, *Initial Scoping of Market Enhancements for MRTU*. The issue paper outlined the formal process developed for prioritizing and ranking market initiatives and identified FERC mandated market initiatives that the CAISO is directed to implement in Market Release 1A and Market Release 2. The CAISO presented this information at the MSC/Stakeholder meeting held on August 10 and Stakeholder comments were received on August 24.

After consideration of resource requirements for the development and implementation of FERC mandated market design enhancements, stakeholder input, and the review and prioritization of market enhancements described in the 5-Year Market Initiatives Roadmap, the CAISO proposes to include the following market enhancements to comprise “Market Release 1A” planned to be implemented 12 months after MRTU start-up

- Convergence Bidding (FERC mandated)
- Scarcity Pricing (FERC mandated)
- Seasonal Competitive Path Assessment (FERC mandated)
- Dispatchable Demand Response
- Relax DEC Bidding Activity Rule
- Resolve effect on Real-Time prices due to Constrained Output Generation and run time constraints

The following sections of this Straw Proposal include an explanation why the above market enhancements are being considered for Market Release 1A, details of the proposed market enhancements, plans for CRR market enhancements and next steps to plan future market enhancements beyond Market Release 1A.

## 2. Background

In the August 6<sup>th</sup> issue paper *Initial Scoping of Market Enhancements for MRTU*, the CAISO suggested the following items be considered by stakeholders for Release 1A implementation.

- Convergence Bidding
- Scarcity Pricing
- Relax DEC Bidding Activity Rule
- Resolve effect on Real-Time prices due to Constrained Output Generation and run time constraints

The CAISO requested that stakeholders submit written comments to the *Initial Scoping of Market Enhancements for MRTU* issue paper on August 24 using a template that would structure their comments around the defined high prioritization ranking criteria that was developed through a stakeholder process in 2006. The high prioritization benefit criteria that stakeholders were asked to use to frame their comments were Grid Reliability, Market Efficiency, and the level to which the proposed design enhancement is desired by Stakeholders. Stakeholders were also asked to comment on the

Implementation Impact to CAISO, and Implementation Impact to Stakeholders. Using the template, Stakeholders were to state their business case tied back to the high level prioritization criteria as to what market enhancements captured in the 5-Year Market Initiatives Roadmap or to identify new market enhancements they felt should have high priority for implementation. Stakeholder comments are summarized in Section 7 of this Straw Proposal.

The CAISO 5-Year Market Initiatives Roadmap contains a description of the proposed market enhancements and has been updated with new initiatives identified in the August 24 Stakeholder comments where enough detail was provided. The roadmap is posted on the CAISO website at the following location:

<http://www.caiso.com/1c25/1c25d72958070.html>

The CAISO Board Documents on the CAISO Market Initiatives Ranking Methodology that was developed in conjunction with stakeholders in 2006 can be located on the CAISO website at the following link:

<http://www.caiso.com/1b94/1b94ded2511d0.html>

### **3. Market Release 1A**

The CAISO proposes to include the following market enhancements as part of Market Release 1A for implementation no later than 12 months after MRTU start date. This represents the CAISO's best estimate of what should be included in Release 1A at this time considering enhancements likely to provide the most benefit to the market and resource constraints. It is expected that there may be unforeseen issues that will need resolution once MRTU begins operation in Release 1 that could result in adjustments to the Release 1A proposed scope. The CAISO will consider comments and additional suggestions from stakeholders on this Draft Straw Proposal, and specific opportunities for stakeholder input are listed in Sections 5 and 6 of this paper.

#### Convergence Bidding

FERC's 9/12/06 MRTU Order (Paragraphs 430-452) requires the CAISO to implement convergence bidding within 12 months of MRTU Release 1. FERC's 4/20/07 Order (Paragraphs 105-119) specifies that the CAISO must file tariff language for the implementation of convergence bidding no later than 60 days prior to the one year anniversary of MRTU startup.

#### Scarcity Pricing

FERC's 9/12/06 MRTU Order (Paragraphs 1077 to 1079) directs the CAISO to file tariff language for the implementation of an expanded scarcity pricing methodology within 12 months of the effective date of MRTU Release 1. Furthermore, the Order directs the CAISO to develop a reserve shortage scarcity pricing mechanism that applies administratively-determined graduated prices to various levels of reserve shortage, to be implemented within 12 months after Release 1.

#### Competitive Path Assessment Seasonally

FERC's 9/12/06 MRTU Order (Paragraph 1031) directs the CAISO to "develop a competitive assessment study that designates a path as either competitive or non-competitive on a seasonal basis with seasonal designations". "Accordingly, we direct the CAISO to modify the competitive assessments study, as discussed above and to make a compliance filing with the necessary tariff changes to reflect these modifications within 12 months of the effective date of MRTU Release 1".

### Dispatchable Demand Response

The CAISO proposes that the implementation of Dispatchable Demand Response, which is currently identified as a mandated release 2 enhancement, be assigned high priority to be implemented in Release 1A.

The CAISO MRTU Release 1 software will include limited functionality and ability for demand resources to participate directly in the CAISO wholesale markets. The CAISO markets for MRTU Release 1 will accommodate pump hydro units and aggregated hydro pumps that participate in the CAISO markets as participating load. The software must be enhanced to allow more flexibility for other types of demand response resources to participate directly in the CAISO Markets.

This market initiative has been identified as a high priority enhancement for the following reasons:

1. Dispatchable Demand Response has been identified as an important component to ensure the success of Scarcity Pricing which is a FERC mandated Release 1A market enhancement.
  - As advised by MSC member Frank Wolak in his presentation at the June 6 MSC/Stakeholder Meeting, "coordinating scarcity pricing mechanism with active participation of final demand in the wholesale market" is a key element in determining how scarcity pricing should work in electric markets.
  - Scarcity Pricing will provide additional incentive for Demand Response resources to engage in the CAISO wholesale markets.
2. A number of Stakeholders identified Dispatchable Demand Response in their comments as a market enhancement that should be assigned high priority by the CAISO.
3. FERC's 9/21/06 MRTU Order (paragraphs 688 and 689) noted that the CAISO had committed to work with market participants to provide additional opportunities for demand response in Release 2, and accordingly, directed the CAISO to work with market participants to present additional opportunities for demand response resources to participate in the CAISO market. FERC's 4/20/07 and 6/25/07 Orders have reiterated FERC's guidance to provide additional opportunities for demand response.

The most recent issue paper on Dispatchable Demand Response is posted to the CAISO website at the following link:

<http://www.caiso.com/1c08/1c0810a2e527b0.pdf>

A DRAFT Straw Proposal will be posted to the CAISO website the week of 9/17, and a working group will be formed to concentrate on the conceptual design for Dispatchable Demand Response with the first working group meeting planned for October 16<sup>th</sup>.

The CAISO proposes the following two non-mandated market enhancements be considered high priority for implementation in Release 1A. Both items were identified by LECG in the February 2005 report “Comments on the California ISO MRTU LMP Market Design”<sup>1</sup> as issues in the CAISO’s MRTU market design that should be resolved as soon as possible. The CAISO intended to implement these enhancements in Release 1 but was unable to do so due to constraints in the CAISO MRTU software.

#### Relax DEC Bidding Activity Rule on Final Day-Ahead Schedules

The bidding activity rules in MRTU Release 1 disallow Decremental energy bids below the Day-Ahead Schedule in the Real-Time market at prices that are lower than what was bid in and accepted in the Day-Ahead market. The activity rule was put in place to prevent the “DEC” game in situations where transmission derates require re-dispatch of generation in the real-time market.

LECG in its report “Comments on the California ISO MRTU LMP Market Design” pointed out problems with these activity rules and determined the activity rules are ineffective due to the priority assigned to Day-Ahead schedules.

LECG pointed out that the activity rules are likely to discourage market participants’ from submitting DEC bids and therefore, by default, if there are insufficient DEC bids the CAISO must resort to uneconomic adjustments of self-schedules in Real-Time. Since Day-Ahead schedules are assigned a priority of \$-30/MWh this results in an implicit real-time offer price of \$-30/MWh for resources scheduled in the Day-Ahead Market

A sufficient DEC market will also be important when Convergence Bidding is implemented and units possibly must be decremented in Real-Time to account for virtual load that was cleared in the Day-Ahead Market that is subsequently liquidated in the Real-Time.

The goal is to relax the DEC activity rules without creating a DEC game incentive. The CAISO will engage in a stakeholder process to consider possible solutions. One solution that has been proposed is to implement a re-bid period shortly after the Day-Ahead Market (possibly between 1:00 p.m. and 3:00 p.m.) to allow market participants to submit Real-Time bids that may be above or below prices accepted in the Day-Ahead Market.

The CAISO plans to produce an issue paper to initiate a stakeholder process on this issue in the 1st quarter of 2008.

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<sup>1</sup> LECG “Comments on the California ISO MRTU LMP Market Design” is located on the CAISO website at <http://www.caiso.com/docs/2005/02/23/200502231634265701.pdf>

Ramping Limits for the Real-Time Pricing Run with Constrained Output Generation (COG) – 2.2.13

Constrained Output Generators (COGs) are generators that can operate at two levels: either off or at maximum output.

COGs are modeled as flexible resources in the IFM and are eligible to set the price. The IFM software will construct an energy bid curve for these resources that has a single price for all MW of their PMax by dividing Minimum Load by the PMax to determine a price per MWh.

In the Real-Time Market the COG is modeled as a flexible resource using the Energy Bid that was calculated from its Minimum Load as described above. If any portion of the COG capacity is cleared economically to meet Demand in the Real-Time Dispatch (RTD), it is eligible to set the price like any other flexible resource.

In their February 2005 report, LECG pointed out that the CAISO's approach for how the upper dispatch limit of non-COG units is determined in the pricing dispatch is problematic and could result in the calculation of inappropriate high prices. This could occur when uneconomic gas turbines are operating due to run time constraints and the actual output of the non-COG units are backed down to accommodate the output of these uneconomic gas turbines. As pointed out by LECG, the NYISO experienced false price spikes arising from these kinds of situations until the NYISO changed the logic structure in their price calculation step in 2000.

In the MRTU Release 1 software the upper dispatch limit of non-COG units is based on their telemetered output plus their ramp rate. The proposed solution to be considered, which is used in the NYISO markets, is to instead use the dispatch level of non-COG resources from the previous interval's pricing run as the initial operating point of the non-COG resources in the pricing run for the current interval.

The CAISO plans to post an issue paper for stakeholder review on this topic in the 1<sup>st</sup> Quarter 2008.

LECG identified a total of five major issues in the CAISO's MRTU Market Design, including the two issues described above, that should be resolved as soon as possible.

The three other design issues identified by LECG are as follows:

- Sub-LAP adjustments in step 3 of LAP clearing validation

The LAP clearing procedure recommended by LECG and incorporated in MRTU Release 1 may under some rare conditions result in unintended inefficiencies. A three-step process was suggested to deal with such rare situations. The third step in this process involves “softening” the constraints imposed by fixed LAP Load Distribution Factors (LDFs) and allowing independent adjustment of nodal loads. A manual process in MRTU Release 1 will accomplish this step.

This issue is being further addressed for MRTU Release 1 in response to the June 25 FERC Order (Paragraph 162) where the CAISO was directed to clarify tariff language around the use of penalties for constraint violations.

- Use of Bid In Demand rather than Forecast Demand for mitigation

LECG suggested the use of bid-in Demand rather than Demand forecast in Pre-Integrated Forward Market (IFM) passes in the Day-Ahead Market.

The CAISO is mandated by FERC to address this issue no later than three years after MRTU start-up. Since this enhancement involves significant changes to the CAISO's IFM software, the CAISO will scope and address this market enhancement in a future market release.

- Multi Settlement System for A/S

LECG's February 2005 report stated that the lack of a full multi-settlement system for Ancillary Services that optimizes real-time reserves and settles deviations from day-ahead schedules at real-time prices could raise consumer costs when reserves scheduled in the Day Ahead market must generate energy in Real Time as a result of minimum run times, minimum down times or transmission constraints.

Since this enhancement involves a redesign of the CAISO's Ancillary Services Markets, the CAISO plans to address this issue in a future market release through a stakeholder process. The CAISO has committed to provide more flexible options for Ancillary services substitution for reasons other than an outage no later than three years after MRTU start date.

## **4. Enhancements to Congestion Revenue Rights**

### Market Design and System Functionality for CRR Year Two and Beyond

Section 2.8 of the CAISO's August 3 Revised Five-year Market Initiatives Roadmap identified eight potential enhancements to the market design and system functionality for Congestion Revenue Rights (CRRs). The present status update adds one additional item to that set and summarizes the CAISO's current thinking regarding the stakeholder process for prioritizing and developing the CRR enhancements to be implemented for "CRR Year Two," that is, in time for the annual CRR allocation and auction processes that will be conducted starting in summer 2008 to release CRRs for the 2009 calendar year.

### CRR Year-Two enhancements to which the CAISO is already committed

The CAISO is already committed to implementing the items described in sections 2.8.1, 2.8.2, and 2.8.3 of the August 3 Revised Roadmap for CRR Year Two. Increased MW granularity of CRR tracking (2.8.1) was ordered by FERC in the July 6 CRR order pursuant to the discussions of this matter in conjunction with the CAISO's filings on Long Term CRRs and other CRR issues earlier this year. Greater MW



granularity is important to both the treatment of CRR nominations featuring trading hub sources and the transfer of CRRs for load migration.

Sale of CRRs in the CRR auctions (2.8.2) was ordered by FERC in the September 2006 MRTU order and was acknowledged even earlier by the CAISO as a desired feature that simply could not be implemented for CRR Year One.

Multi-period optimization algorithm for Long Term CRRs (2.8.3) was identified by the CAISO and stakeholders during the development of the Long Term CRR design as an important feature for increasing the efficiency of the Long Term CRR optimization. Although FERC did not order the implementation of this feature, the July 6 CRR order directed the CAISO to discuss it with stakeholders and report to FERC on the outcome of that discussion.

#### Enhancements that will be subject to prioritization in the stakeholder process

The remaining items identified in section 2.8 (2.8.4 through 2.8.8) have not been ordered by FERC for implementation for CRR Year Two and the CAISO has made no decisions at this time whether or not to include them among the CRR Year Two enhancements. These “candidate” items will all be open for discussion in the upcoming stakeholder process (see below).

In addition the CAISO adds the following “candidate” item to the list, as section 2.8.9 of the Revised Roadmap.

#### **CRR Optimization Algorithm**

Under the current algorithm, when two or more CRR allocation nominations by different LSEs compete for limited transfer capacity on a binding transmission constraint, the optimization algorithm will try to maximize the amount of CRRs released by reducing the CRR nomination that has highest effectiveness in relieving the constraint. The advantage of this approach is that the total overall MW of CRRs released is maximized. An undesirable side effect, however, is that the reduction in awarded CRRs due to the constraint will typically fall entirely on the one LSE that nominated the most effective CRR. In previous stakeholder discussions this aspect of the optimization algorithm was identified as a feature we could not change for CRR Year One. A possible alternative the CAISO now wants to discuss with stakeholders is to utilize a “weighted least squares” algorithm that would allocate shares of the constrained transmission facility to each CRR nomination that has some effectiveness on the constraint. Although this approach will typically result in fewer total CRRs being allocated, it may be considered a more equitable approach to CRR allocation because it distributes the impact of the constraint across all LSEs whose nominations contribute to that constraint.

As a final point, note that the problem described is really only a problem in the CRR allocation processes. In the CRR auction processes the objective of the optimization algorithm is to maximize net auction revenues and therefore the bid prices are also taken into account in any reductions of bid MW to relieve constraints. Auction participants can use their bid prices to express the relative value they place on obtaining CRRs that impact congested transmission facilities.

### **Proposed Stakeholder Process**

The CAISO has not yet established a timetable for a stakeholder process on these topics, but expects to do so in the near future. Because any items included in the CRR Year Two scope must have sufficient time for both the FERC filing process and the development and testing of software, the CAISO expects to start a stakeholder process on CRR Year Two enhancements before the end of 2007. The CAISO will initiate the process by publishing a discussion paper on all the items discussed here, to allow for both developing additional details required for the ones already committed to, as well as clarification and prioritization of the candidate items.

## **5. Summary of Mandated Market Enhancements for Future Market Releases**

FERC has directed the CAISO to implement a number of market enhancements no later than three years after MRTU start date. These mandated items are listed in this Draft Straw Proposal for informational purposes to provide market participants a view of the scope of work the CAISO will be engaged in beyond Market Release 1A.

Each of the market enhancements listed below is also described in the Five-Year Market Initiatives Roadmap and the relevant section number of the Roadmap is identified for quick reference.

In 2008, the CAISO will conduct an implementation analysis and perform prioritization and ranking of non mandated items listed in 5-Year Market Initiatives Roadmap. Once the CAISO completes its implementation analysis and ranking process, a release schedule for future market enhancements will be determined and discussed with stakeholders.

The list of FERC mandated market enhancements to be implemented no later than three years after MRTU start-up are as follows:

1. Day-Ahead Market Power Mitigation based on bid in demand rather than forecasted demand – 2.2.3

FERC's 9/21/06 MRTU Order (P 1089) conditionally accepted the CAISO's proposal to use forecasted Demand in Pre-IFM passes, subject to the CAISO instituting bid-in demand as the basis for applying market power mitigation in the pre-IFM runs no later than Release 2 to reduce the likelihood of over-mitigation of suppliers. This issue was also identified by LECG as an important market enhancement and is discussed in Section 3 above.

2. Increase the number of LAP Zones – 2.2.24

FERC's 4/20/07 MRTU Order (Page 121) directed the CAISO to increase the number of LAP zones for Release 2 stating that "We continue to believe that increasing the number of LAP zones will provide more accurate price signals and assist participants in the hedging of congestion charges".

3. Address Multi Block constraint in RUC – 2.2.4.1

FERC granted the CAISO's request for rehearing in the 4/20/07 MRTU Order (paragraph 56) and directed the CAISO to implement this bidding parameter in Release 2.

4. Support Exports of Ancillary Services – 2.2.7

FERC's 9/21/06 Order on MRTU (Paragraph 355) directs the CAISO to develop software to support exports of ancillary services in the future through stakeholder processes and to propose necessary tariff changes to implement this feature no later than Release 2

5. Implement SLIC to SIBR Interface – 2.2

FERC directed the CAISO in its 9/21/06 Order (paragraph 244) the CAISO to "implement an interface between SLIC and SIBR as of the earlier of Release 2 or the time that SLIC derates become recognized by SIBR and SLIC interacts with the day-ahead and real-time markets."

6. Move to Two Tier Real-Time Bid Cost Recovery Allocation- 2.2.28

In the FERC 4/20/07 Order (paragraph 309) the CAISO was directed to work with stakeholders to develop a proposal for two-tiered allocation of real-time bid cost recovery costs that could be included in Release 2

7. Accurately model constraints of combined cycle units - 2.2.20

FERC's 9/21/06 MRTU Order (Paragraph 573) directs the CAISO to continue working with software vendors to develop an application that will accurately detail the constraints of combined cycle units, and to file tariff language for implementation of such improvements no later than Release 2

8. Resolve issues involving Bid Cost Recovery for Units with Run Times longer than 24 hours – 2.2.21.1

In the 9/21/06 FERC Order (paragraph 533) the CAISO was directed to "develop and file with the Commission a plan for units facing these types of constraints for implementation no later than Release 2".

9. Ancillary Services Substitution

In the 9/21/06 FERC order (paragraph 297) it states that ancillary services substitution will not be available in Release 1 due to constraints associated with the development of CAISO's MRTU software and that the CAISO has committed to stakeholders to include this item in the list of upgrades for Release 2.

In addition, the CAISO is mandated to perform studies or other work on the following items:

11. Perform Study on Multi-Segment Ancillary Services Bidding - 2.2.19

FERC directed the CAISO in the 9/21/06 Order (Paragraph 341) to file a report, before making its Release 2 filing, addressing the potential benefits of including this element

12. Address Reasons for inclusion or exclusion of RUC Self-Provision – 2.2.27

FERC's 9/21/06 MRTU Order (Paragraph 172) directs the CAISO to continue to work with market participants on this issue, and to provide reasons for the inclusion or exclusion of RUC self-provision no later than Release 2

13. Address issues around rebate of loss over-collection for renewable resources – 2.2.6

FERC's 9/21/06 MRTU Order directs the CAISO to address issues related to the integration of intermittent resource issues, including transmission line loss over collection issues, in Release 2

## 4. Next Steps

The CAISO seeks stakeholder input on the proposal for Market Release 1A implementation and plans for future market releases presented in this Draft Straw Proposal. The CAISO will hold a stakeholder conference call on September 21 2007, from 12:30 PM to 2:00 PM Pacific Time to review the proposed options. Written comments should be submitted by September 24, 2007 to **Margaret Miller at [mmiller@caiso.com](mailto:mmiller@caiso.com)**.

The CAISO plans to post a revised Straw Proposal on the proposed Market Release 1A scoping to the CAISO website by September 28<sup>th</sup>. An information briefing on the proposed scope for Release 1A will be presented to the CAISO Board of Governors in October 2007. The revised Straw Proposal will not include the implementation analysis planned for later this year.

Once the CAISO completes its implementation analysis, which is planned for 4<sup>th</sup> quarter of 2007, a final proposal for Release 1A scope will be presented to stakeholders and the CAISO Board.

## 6. Revised Dates for Stakeholder Engagement

The CAISO proposes the following stakeholder process for this effort, with the major milestones shown below:

August 6	Initial Scoping Document and Updated Roadmap posted
August 10	Discussion at MSC Meeting
August 24	Stakeholder comments due
September 14	CAISO posts Draft Straw Proposal
September 21	Stakeholder Conference Call
September 24	Stakeholder Comments Due

## DRAFT Straw Proposal – Scoping Future Market Enhancements

September 28	CAISO posts Straw Proposal based on stakeholder feedback
October 17-18	CAISO presents Straw Proposal in October Board Meeting
1 <sup>st</sup> Quarter 2008	CAISO presents Release 1A Final Proposal to stakeholders and CAISO Board
TBD	Continue future market enhancement implementation prioritization and scoping activities

### 7. Summary of Stakeholder Comments

Five stakeholders submitted written comments to the CAISO on 8/24 in regards to what market enhancements either outlined in the Market Initiatives Roadmap or new should have high priority for implementation tied back to the CAISO's prioritization criteria. The relevant location in the 5-Year Market Initiatives Roadmap is identified next to each item for quick reference.

Multiple stakeholders identified the following items as high priority:

- Dispatchable Demand Response - 2.2.5
- Two-Tier Real-Time Bid Cost Recovery - 2.2.28
- Treatment of use-limited resources with limited number of hours or start-ups – 2.2.21
- Maximizing inter-tie transfer capacity – 2.3.7
- Multi-Day unit commitment in the IFM – 2.2.11
- Sale of CRRs in the CRR Auction 2.2.26

In addition, stakeholders submitted the following new market initiatives in their comments that they consider to have high priority for implementation in future market releases: In the case where enough information was provided by stakeholders, these new initiatives have been added to the 5-Year-Market Initiatives Roadmap and will be included in future ranking activities. Items that indicate “to be added” will be added to the Roadmap when more information is obtained from the stakeholders that submitting the enhancement. Additional suggestions for enhancements to be added to the Market Initiatives Roadmap may be submitted to Margaret Miller at [mmiller@caiso.com](mailto:mmiller@caiso.com)

- Spinning Reserve from Participating Load – 2.5.3
- Consideration of UFE as demand for cost allocation – 2.2.29
- Normalization of standards for the sale of RA, transmission and generation across ties – 2.3.9
- Develop capacity set asides for CRR and LT CRR auctions – to be added
- Re-examine local market power mitigation for ancillary services and RUC bids – 2.2.30
- Strengthen general market power mitigation provisions (anti-gaming measures) – 2.2.30
- Tagging and Tracking System for RA Capacity – to be added
- PIRP Resources – Fix disincentives to schedule Day-Ahead – to be added

All stakeholder comments received in response to the *Initial Scoping of MRTU Market Enhancements* issue paper are posted to the CAISO website at the following link:

<http://www.caiso.com/1822/1822931f287d0.html>