

**DRAFT Initial Scoping of Market Enhancements for  
MRTU**

**Release 1A and Release 2**

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## 1. Executive Summary

Due to the need to allocate limited CAISO and stakeholder resources to the development of potential market design enhancements and the CAISO Board of Governors' desire for a high level cost benefit framework to be included with design alternatives brought before the board, the CAISO in conjunction with stakeholders developed a formal ranking process for potential market design modifications.

The large number of identified potential market enhancements for post MRTU Release 1 identified in the CAISO's Market Initiatives Roadmap requires the application of the CAISO's ranking process in order to apply a benefit/cost/risk analysis to these potential post-MRTU-startup features and functions. The results of the ranking process will facilitate the development of an implementation timeline for those market design enhancements that provide the greatest benefit in relation to their cost.

The formal ranking process was developed by the CAISO through a series of stakeholder meetings held in July and August of 2006. The ranking criteria that were developed provide transparency to both the CAISO Board of Governors as well as market participants by applying a clear rationale as to why, after the MRTU markets are in operation, the CAISO is developing and implementing certain features and market enhancements before others. The ranking process also enables the CAISO in conjunction with its stakeholders to prioritize projects and implement those projects that are determined to be most beneficial to CAISO's customers and the market as a whole.

The CAISO will have future planned Releases of market software modifications to further refine its market design and to include market features that were proposed for inclusion in the MRTU Tariff but were deferred due to implementation limitations. These releases will include packages of market enhancements that were both mandated by FERC and non mandated items prioritized based upon the defined ranking criteria.

Currently, there are two planned releases for market design enhancements post the initial implementation of MRTU Release 1:

- Release 1A, planned to be launched within 12 months of the implementation date of Release 1, and
- Release 2 planned to be launched within three years of the implementation date of Release 1.

The first step in identifying the design elements for Release 1A and Release 2 was to update the Market Initiatives Roadmap with all known market initiatives. The next step, after getting input from stakeholders, is to perform an initial high level ranking of the initiatives described in the Roadmap, followed by the more detailed prioritization process.

The updated Market Initiatives Roadmap (herby entitled "Five-Year Market Initiatives Roadmap) has been updated with progress on existing initiatives and new initiatives and is posted the to CAISO website at the following location:

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

Once the initial ranking process is complete the CAISO will develop a Straw Proposal identifying the proposed market design elements to be included in Release 1A and Release 2. After receiving and incorporating stakeholder comments, the CAISO will then develop a Final Proposal to be presented to the Board of Governors in October. At this time, the CAISO anticipates that the October proposal will include a final list of Release 1A elements and a proposed list of Release 2 elements. The final proposal and timeline for the Release 2 elements will be presented to the board early in 2008 once the CAISO has completed an implementation analysis and received additional input from stakeholders.

This paper offers an initial conceptual proposal in order to generate discussion and comments from stakeholders on the CAISO's perspective on what market initiatives other than FERC mandated enhancements should be included in Release 1A. Due to the significant design changes already mandated by FERC for Release 1A, combined with previously identified enhancements that were not able to be included in Release 1 due to implementation constraints, the CAISO is only proposing what it currently deems as non-discretionary design elements in Release 1A. This paper also includes a description of mandated items planned for Release 2. The CAISO is seeking comments from stakeholders, tied back to the ranking criteria, as to what items they believe should have high prioritization for implementation outside of the mandated items. Please see Attachment A for a template to follow when submitting comments.

After comments are received, the CAISO will use stakeholder input to perform a high level ranking of the non mandated initiatives listed in the Five Year Market Initiatives Roadmap as described in Section 2 below. After determining which initiatives rank high, the CAISO will then apply the more detailed ranking criteria to those items to further prioritize the list of initiatives. The CAISO will then present this information to stakeholders in a Straw Proposal and again ask for comments. Please see the proposed timeline for this stakeholder process in Section 6 below.

Once the Straw Proposal is finalized the CAISO will perform an implementation analysis on the market initiatives that were determined to be highest priority through the ranking process and will devise an implementation plan. The implementation plan will provide a timeline for future market design releases based on packages of the desired market design enhancements. Once conceptual market designs are developed, the CAISO, using more specific information based on precise design characteristics, will again apply the ranking criteria and provide this information to stakeholders as well as the Board of Governors early in 2008.

## **2. Review of Ranking Process**

The ranking of market initiatives is performed using a two step process:

1. High Level Prioritization

The CAISO will first conduct a high level assessment of proposed market initiatives on the Market Initiatives Roadmap by applying a simplified ranking process of three benefit

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and two feasibility criteria based on stakeholder input. In this iteration of the ranking process, each initiative will be graded “High”, “Medium” or “Low” based on the results of their criteria ranking. The high level benefit criteria are “Grid Reliability”, “Improving Market Efficiency”, and “Desired by Stakeholders” as shown in Figure A below. The high level feasibility criteria utilize two measures: “Market Participant Implementation Impact” and “CAISO Implementation Impact”.

2. Detailed Ranking

After determining the results of the high level prioritization the high priority initiatives are ranked again using more detailed criteria based on stakeholder input. The criteria, described below, are divided into two general categories: benefit and feasibility. Each of these criterions has a weight associated with it, based on its relative importance. The weighting is a scale from 1 to 10 with 10 being the highest weight. For example, “Grid Reliability” is assigned a weight of 10 because it is a core function of the CAISO while “Process Improvement”, an important but not critical criterion is ranked substantially lower as a 5. Those proposed market initiatives that are ranked highest will be considered for the earliest implementation. See Figure B below for a sample of the detailed ranking.

CAISO Board Documents on the CAISO Market Initiatives Ranking Methodology can be located on the CAISO website at the following link:

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

**Figure A**

CAISO High Level Prioritization Criteria						
#	Criteria	Strategic Objective	HIGH	MEDIUM	LOW	NONE
			10	7	3	0
1	Benefit	Reliability	Significant Improvement	Moderate Improvement	Minimal Improvement	No Improvement
2		Market Efficiency	Significant Improvement	Moderate Improvement	Minimal Improvement	No Improvement
3		Customer Care/Regulatory	Universally desired by stakeholders	Desired by a majority of stakeholders	Desired by a small subset of stakeholders	No apparent desire
4	Feasibility	Market Participant Implementation Impact (\$ and resources)	No Impact	Minimal Impact	Moderate Impact	Significant Impact
5		ISO Implementation (\$ and resources)	No Impact	Minimal Impact	Moderate Impact	Significant Impact

**Figure B**

CAISO Prioritization Criteria								
#		Criteria	Strategic Objective	Weight	HIGH	MEDIUM	LOW	NONE
					10	7	3	0
1	Benefit	Grid Reliability	Reliability	10	Significant Improvement	Moderate Improvement	Minimal Improvement	No Improvement
2		Improving CAISO Market Efficiency	Market Efficiency	10	Significant Improvement	Moderate Improvement	Minimal Improvement	No Improvement
3		Promote Efficient Infrastructure Development						
4		Desired By Stakeholders	Customer Care/Regulatory	10	Universally desired by stakeholders	Desired by a majority of stakeholders	Desired by a small subset of stakeholders	No apparent desire
5		Process Improvement(ISO &MP)	Customer Care Financial & Enterprise Risk Management	5	Significant Improvement	Moderate Improvement	Minimal Improvement	No Improvement
6	Feasibility	Market Participant Implementation Cost		7	No Cost	Minimal Cost	Moderate Cost	Significant Cost
7		Market Participant implementation Impact on systems and resources		7	No Impact	Minimal Impact	Moderate Impact	Significant Impact
8		Impact on Market Participant ongoing operating costs		7	No ongoing operating costs	Minimum ongoing operating costs	Moderate ongoing operating costs	Major ongoing operating costs
9		ISO Implementation Cost		10	<\$1M	>\$1M, <\$5M	>\$5M<10M	>\$10M
10		ISO Implementation impact on systems and resources		7	No Impact	Minimal Impact	Moderate Impact	Significant Impact
11		Impact on ISO on going operating costs		7	No ongoing operating costs	Minimal ongoing operating costs	Moderate ongoing operating costs	Major ongoing operating costs

### 3. MRTU Release 1A

FERC directed the CAISO in its September Order to implement Convergence Bidding and Scarcity Pricing no later than 12 months after MRTU go live date. These are major market enhancements that will require significant effort towards stakeholder engagement, conceptual design, requirements definitions, software development and testing.

In order to not endanger this FERC-mandated deadline for Release 1A, the CAISO is initially proposing only two additional items that were not mandated by FERC to be part of the Release 1A package. Both of these features were recommended by LECG in the February 2005 report “Comments on the California ISO MRTU LMP Market Design” as important market fixes that should be implemented as soon as possible.

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

The CAISO proposes the following non mandated market enhancements be included in Release 1A:

### 1. Relax DEC Bidding Activity Rule on Final Day-Ahead Schedules – 2.2.12

The bidding activity rules in MRTU Release 1 disallow Decremental 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”<sup>1</sup> pointed out problems with these activity rules and determined the activity rules are meaningless and unproductive due to the priority assigned to Day-Ahead schedules.

The CAISO recognizes that there may be legitimate business reasons for market participants to submit DEC bids in the Real-Time market at lower prices than were accepted in the Day-Ahead Market. The activity rules 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/MW this results in an implicit real-time offer price \$ -30 for resources scheduled in the Day-Ahead Market.

The goal is to relax these 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.

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

The February 2005 LECG report stated that the mechanism proposed for implementation of real-time constrained output generator (COG) pricing could result in the calculation of inappropriately high prices during circumstances in which uneconomic gas turbines are operating as a result of either minimum run time or minimum-down time constraints. The proposed solution to be considered, which is used in the NYISO markets, is to 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, rather than using telemetry as basis for the initial operating point of non-COG resources which is what the MRTU Release 1 software will do

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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.aiso.com/docs/2005/02/23/200502231634265701.pdf>

## 4. MRTU Release 2

FERC has directed the CAISO to implement the following market enhancements by Release 2 of MRTU. Each of the market enhancements listed below is described in the Five-Year Market Initiatives Roadmap and the relevant section number of the Roadmap is identified for quick reference.

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 MRTU Release 2 to reduce the likelihood of over-mitigation of suppliers

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 of MRTU

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 MRTU 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 MRTU Release 2

7. Accurately model constraints of combined cycle units - 2.2.20



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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 MRTU 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 MRTU Release 2”.

9. Address Possibility for Multi-Settlement System for Ancillary Services – 2.2.9

FERC's 9/21/06 Order on MRTU found it reasonable for the CAISO to limit Ancillary Services substitution opportunities to units that are in the appropriate location and whose bids clear in the relevant market, but directs the CAISO (Paragraph 303) to address the possibility of added flexibility for substitution of the source of Ancillary Services in future MRTU releases

10. Dispatchable Demand Response – 2.2.5

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.

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 MRTU 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 MRTU 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

## **5. Congestion Revenue Rights Enhancements**

The following items are either FERC Mandated Items or CAISO committed items to be implemented for Year 2 (calendar year 2009): the relevant section number of the Roadmap is identified for quick reference for each item.

1. Increased MW Granularity of CRR Tracking - 2.81

FERC's September 21, 2006 MRTU Order affirmed that it would be useful to have this feature, and the CAISO has planned to consider this functionality among the enhancements to the CRR systems for CRR Year Two. The September 21 Order directs the CAISO to file tariff language to implement the ability to sell CRRs in the CRR auctions no later than MRTU Release 2

2. Sale of CRR's in the CRR Auction - 2.82

The September 21 Order directs the CAISO to file tariff language to implement the ability to sell CRRs in the CRR auctions no later than MRTU Release 2

3. Multi-period Optimization Algorithm for Long Term CRRs – 2.83

FERC's July 6 Order affirmed that if the CAISO and its stakeholders choose to implement the multi-period algorithm, the CAISO must make a compliance filing within 30 days explaining the reasons for the change, how the change will affect Long Term CRR nominations, and how the change has been tested

These items are not subject to the ranking process but are mentioned here to bring into view additional work the CAISO will be engaged in at the same time as Release 1A and Release 2 work.

Please refer to section 2.8 of the Market Initiatives Roadmap for more information on CRR Enhancements planned for Year 2 and beyond.

## 6. Stakeholder Process

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 <sup>th</sup>	Stakeholder comments due
September 11 <sup>th</sup>	CAISO posts Straw Proposal
September 14 <sup>th</sup>	Stakeholder Conference Call
September 26 <sup>th</sup>	Stakeholder comments due
October 5 <sup>th</sup>	CAISO posts final proposal
October 17-18	CAISO presents proposal in October Board Meeting

## 7. Stakeholder Comments

The CAISO is requesting comments from stakeholders, tied back to the High Level Ranking Criteria, as to what items outside of the FERC mandated items, described in the 5-Year Market Initiatives Roadmap they believe should have high priority for implementation.

The CAISO has proposed two additional non mandated items for Release 1A implementation that were previously identified by LECG in their review of the MRTU design and is seeking comments from stakeholders on these items as well as other items they feel should be included in Release 1A based on their stated business case using the attached template.

The FERC mandated items for Release 2 have been described in Section 4 above and the CAISO is seeking comments from stakeholders on additional non-mandated items that they believe should be included in MRTU Release 2.

Please use the template shown in Attachment A when submitting comments on the prioritization of the market initiatives. This will assist the CAISO in organizing stakeholder comments and applying the ranking methodology.

Stakeholder comments are requested to be submitted to the CAISO by August 24<sup>th</sup>, 2007. Please submit comments to Margaret Miller at [mmiller@caiso.com](mailto:mmiller@caiso.com).

## 8. Attachment – A Template for Submission of Stakeholder Comments

Attachment A is posted to the CAISO website at the following link:

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