UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

	)	
California Independent System	)	
Operator Corporation	)	**Docket No. ER06 - _____**
	)	
	)	

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION ELECTRIC TARIFF FILING TO REFLECT MARKET REDESIGN AND TECHNOLOGY UPGRADE

February 9, 2006

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The Honorable Magalie R. Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

February 9, 2006

RE: CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
ELECTRIC TARIFF FILING TO REFLECT
MARKET REDESIGN AND TECHNOLOGY UPGRADE
DOCKET NO. ER06-_____

Dear Secretary Salas:

Pursuant to Section 205 of the Federal Power Act ("FPA"), 16 U.S.C. § 824d and Part 35 of the Federal Energy Regulatory Commission's ("FERC" or the "Commission") regulations, 18 C.F.R. § 35 *et seq.* and in compliance with certain Commission's orders regarding the market design contained within the California Independent System Operator Corporation ("CAISO") FERC electric tariff[1] the CAISO respectfully submits its Market Redesign and Technology Upgrade Tariff ("MRTU Tariff").

I. EXECUTIVE SUMMARY

This filing of the CAISO's MRTU Tariff represents the culmination of years of study, analysis, stakeholder input, coordination with state authorities, and Commission guidance to address the structural flaws in the CAISO's current electricity markets. These flaws include a Congestion Management system that led to excessive Congestion costs and inefficient use of the

[1] As discussed in Attachment D to this filing, the MRTU Tariff is being filed in response to Commission directives to the CAISO to modify the design of its markets. *See California Independent System Operator Corp.*, 90 FERC ¶ 61,006, at 61,013-014 ("January 7, 2000 Order"), *reh'g denied*, 91 FERC ¶ 61,026 (2000); and *San Diego Gas & Electric Co. v. Sellers of Energy and Ancillary Services Into Markets Operated by the California Independent System Operator and the California Power Exchange, et al.*, 97 FERC ¶ 61,275 at 62,245 (2001) ("December 19, 2001 Order").

CAISO Controlled Grid,[2] a market structure that provided opportunities for manipulation and failed to ensure that the resources necessary for reliability would be made available through market mechanisms, and the lack of an adequate forward Energy market in California since the California Power Exchange ceased operation. The MRTU market design addresses these flaws through a comprehensive overhaul of the electricity markets administered by the CAISO and the adoption of a new network model that will accurately reflect the operational realities of the CAISO Controlled Grid. The primary objectives of the MRTU project are to: (1) perform effective Congestion Management in the CAISO forward markets (Day-Ahead) by enforcing all transmission constraints so as to establish feasible forward schedules; (2) create a Day-Ahead Market for Energy; (3) automate Real-Time Dispatch so as to balance the system and manage Congestion in an optimal manner with minimal need for manual intervention; and (4) ensure consistency across market time frames (Day-Ahead through Real-Time) in the allocation of transmission resources to grid users and in the pricing of transmission service and Energy.

A. Major Components of MRTU

The principal components of the MRTU market design are as follows:

- MRTU manages transmission Congestion and Dispatches Generation based on a Full Network Model ("FNM") that resolves existing technical and software obstacles to proper Congestion Management.[3] The FNM will accurately depict available capacity and constraints on the CAISO Controlled Grid across all market time frames to ensure that market outcomes are consistent with Real-Time operation of the transmission grid.

- MRTU employs Locational Marginal Pricing ("LMP"), which has been successfully utilizes in other independent system operators ("ISOs") to allocate Congestion costs and provide appropriate price signals. As implemented in MRTU, LMP determines marginal Energy prices for each Settlement Period, that accurately reflect the cost of serving the next MWh of Demand at each location on the CAISO Controlled Grid, including the marginal cost of Congestion and transmission Losses, based on Market Participants' submitted Bids for Supply and Demand, or forecast of Demand. Generators will be paid based on the LMPs at their respective locations.

- MRTU enhances Congestion Management, reliability, and the ability of Market Participants to manage their Energy needs through a Day-Ahead Market ("DAM"). The DAM includes a Market-Power Mitigation run, a Reliability Requirements Determination, (together referred to as the "MPM-RRD"), an Integrated Forward Market ("IFM"), and a Residual Unit Commitment ("RUC") process. In the Real-Time, MRTU includes an Hour-Ahead Scheduling Process

[2] Capitalized terms not otherwise defined herein have the meanings set forth in the Master Definitions Supplement, Appendix A to the MRTU Tariff or, to the extent these terms refer to the existing CAISO Tariff, have the meanings set forth in the Master Definitions Supplement, Appendix A to the currently effective CAISO Tariff.

[3] For ease of reference, Attachment C to this filing is a list of various acronyms used in this filing letter and the various components of the MRTU Tariff filing.

("HASP"), which includes pre-dispatch of the Energy at the interties and is a special hourly run of the Real-Time Unit Commitment ("RTUC") process, and the Real-Time Economic Dispatch ("RTED"). The CAISO will simultaneously manage Congestion, balance Generation and Demand, and procure Ancillary Services in the most economically efficient manner through the use of these market procedures. Essentially the same optimization algorithm used in the Day-Ahead IFM is then employed in the RUC, and RTUC.

- MRTU, as in other ISOs employing LMP, will settle charges to Demand on an aggregated basis (*i.e.,* at "Load Aggregation Points" or "LAPs"). At the start of the new market design, much of the Demand in the CAISO Control Area will be settled at three Default LAPs based on the service territories of the three major California Investor-Owned Utilities ("IOUs"). In response to concerns raised by the Commission, stakeholders and the CAISO's consultants, however, the CAISO has modified the MRTU design to provide Demand with the ability to settle at a more granular level than the three Default LAPs in a number of specific circumstances where the CAISO has determined that such greater granularity is appropriate. For example, Participating Loads such as pump resources will be scheduled and settled at the individual nodal level rather than at the LAP level. The MRTU Tariff also provides for more granular Demand settlement for Metered Subsystems ("MSSs"), Existing Transmission Contracts ("ETCs"), Transmission Ownership Rights ("TORs"), and exports at Scheduling Points. This approach is supported by studies of Congestion and stakeholder input during the MRTU design process.

- MRTU provides for Congestion Revenue Rights ("CRRs") to allow Market Participants to manage their costs of Congestion. CRRs entitle the CRR Holder to receive revenues based on the Congestion Charges assessed to Demand according to whether the LMP at the source is greater or less than the LMP at the sink. To ensure revenue adequacy of CRRs, CRRs also obligate the CRR Holder to pay the CAISO for Congestion Charges when there is counter-flow Congestion on the designated CRR source to sink path. The CAISO will first allocate CRRs to Load-Serving Entities ("LSEs") that pay for the embedded costs of the CAISO Controlled Grid and then make remaining CRRs available through auctions open to all creditworthy parties. Entities serving Load outside the CAISO Control Area may also participate in the allocation of CRRs by pre-paying the Wheeling Access Charge for the term of the CRR to be nominated and at the Scheduling Point that the CRR would be nominated. As discussed below, MRTU provides for a limited amount of grandfathering of Seasonal CRRs.

- MRTU also includes a "perfect hedge" mechanism for Self-Schedules submitted pursuant to ETCs, TORs, which reverses Congestion Charges derived from the marginal cost of Congestion component of the IFM and Real-Time LMPs. Converted Rights holders that convert prior to the start of MRTU are also entitled to the reversal of such Congestion Charges derived from IFM LMPs only. In addition, MRTU provides flexibility to change schedules into Real-Time while

maintaining the "perfect hedge" and scheduling priority afforded to ETCs and holders of TORs in accordance with their entitlements.

- MRTU includes mechanisms that will allow the CAISO to ensure that it has sufficient capacity available to maintain reliability, including the Residual Unit Commitment process. After the IFM, the RUC process enables the CAISO to identify and commit on a Day-Ahead basis, incremental capacity that will be needed in Real-Time to meet the Demand Forecast but may not have been committed in the Day-Ahead IFM.

- MRTU's RUC process will supplement, as necessary, the capacity made available under the Resource Adequacy program established by the California Public Utilities Commission ("CPUC") or pursuant to Resource Adequacy requirements established by other Local Regulatory Authorities. Units providing such Resource Adequacy Capacity are required to participate in the CAISO's markets starting with Day-Ahead, to ensure that the "adequacy" achieved via forward procurement translates into day-to-day adequacy for operating the transmission system.

- MRTU requires that Scheduling Coordinators ("SCs") for all LSEs demonstrate that they meet standards concerning forward capacity and Energy procurement established by their Local Regulatory Authority, including the CPUC. The CAISO does not impose any obligation on LSEs or their regulators to specifically procure capacity to address local market power and reliability concerns. However, the CAISO will perform a study on an annual basis of the CAISO Controlled Grid, which applies established reliability criteria, to identify the minimum quantity of capacity required in transmission-constrained areas to meet those reliability requirements. Accordingly, the CAISO expects that the quantity of capacity needed by each LSE to meet the CAISO's local capacity needs will be coextensive with the procurement obligation imposed on the LSE by the CPUC or other Local Regulatory Authority. Although unlikely, to the extent the Resource Adequacy programs of the CPUC or other Local Regulatory Authorities fail to incorporate the outcome of the study, or otherwise fail to permit the CAISO to meet its minimum Applicable Reliability Criteria, or where a Scheduling Coordinator fails to satisfy its capacity obligation, the CAISO will utilize its procurement authority and allocate the costs of such CAISO procurement to Scheduling Coordinators that fail to demonstrate procurement of their proportionate share of local capacity.

As is the case with any large-scale project of this nature, the scope and design of the MRTU project must be "frozen" well in advance of the target implementation date. At the same time, the CAISO recognizes that some market design features that are not essential for the initial implementation of MRTU might be desirable for future updates of the MRTU market design. Therefore, the CAISO has identified a number of proposed market design features that will not be included in the "Release 1" design upon start-up of the new markets, but would be considered for a subsequent "Release 2" of the market design. For purposes of distinguishing between

Release 1 and Release 2, the CAISO proposes to include in Release 1 all those features and elements of the market design that are necessary to: (1) ensure reliable operation of the grid, (2) ensure that the market design works properly, *i.e.*, does not have a "fatal flaw", or (3) satisfy a regulatory requirement. The Commission should recognize that this deliberate staging of the MRTU process is necessary in light of the many challenges associated with developing and implementing a new market design for California.

B. Market Power Mitigation

No market design will completely eliminate the ability of some Market Participants to exercise market power under certain circumstances. Because of local constraints on the CAISO Controlled Grid, the CAISO must maintain mechanisms for local market power mitigation. The market power mitigation provisions included in the MRTU Tariff are designed to complement the updated market design and satisfy the following objectives: (1) to provide strong and effective measures against the exercise of local market power; (2) to provide an explicit mechanism within the MRTU design for addressing revenue adequacy of Frequently Mitigated Units not under long-term contracts; and (3) to provide a defined transition plan for relaxing CAISO system market power mitigation measures so that system market power concerns can be more effectively addressed through greater Demand Response and additional long-term contracting. The MRTU market power mitigation provisions were designed to closely model the market power mitigation measures currently in effect in PJM.

The CAISO expects that the long-term contracts that LSEs in California have entered into during and after the California energy crisis of 2000-2001 will be supplemented and ultimately replaced by long-term contracts negotiated in response to Resource Adequacy requirements and the CPUC's long-term procurement requirements. Because market power at a system level is much more effectively addressed through forward Energy contracting, the instant proposal has less stringent system market power mitigation provisions than exist today. The MRTU Tariff provisions implementing the Market Power Mitigation ("MPM") proposal do not include the current system bid conduct and market impact test (*i.e., "*System AMP") and provide for a $500/MWh Energy Bid cap for day one of MRTU implementation with a two-year transition plan for raising the cap to $1,000/MWh in annual increments of $250/MWh. The MRTU Tariff also includes $250 Bid caps for Ancillary Service Bids and RUC Availability Bids.

Under MRTU, obligations to offer capacity will apply only to Generator capacity that is bilaterally contracted to meet the Resource Adequacy ("RA") requirement or otherwise identified as RA Capacity. Units not identified as RA Capacity are not obligated to offer into the CAISO markets. This approach is less stringent than today's must-offer obligation, which applies to all thermal resources, regardless of whether they have a bilateral contract to satisfy RA requirements.

As noted above, effective local market power mitigation ("LMPM") is the most critical element of the MPM provisions. Under the MRTU approach to LMPM, if a resource is dispatched out-of-merit to relieve Congestion on a non-competitive transmission constraint, the Bids associated with that out-of-merit dispatch are mitigated by substituting a Default Energy Bid. This approach is modeled after the local market power mitigation procedures adopted by

PJM. Under this approach, a Generator has the option of choosing a negotiated, LMP-based or cost-based Default Energy Bid, similar to the options offered under PJM's market power mitigation procedures. For the reasons explained below, the CAISO proposes to use Forecast Demand rather than Bid-in Demand as the basis for the Day-Ahead market power mitigation procedures and requests that the Commission modify its most recent findings on this issue.

Based on analysis and stakeholder input, the CAISO has developed a specific methodology to determine when a particular transmission path is deemed "competitive" for the purpose of applying market power mitigation procedures. The designation of transmission paths as "competitive" and "non-competitive" will be done on an annual basis. The CAISO may, however, perform additional competitive constraint assessments during the year if there are material changes in market conditions or if market outcomes are observed that are inconsistent with competitive market outcomes. A transmission constraint will be designated "competitive" if no three unaffiliated suppliers are jointly pivotal in relieving Congestion on that constraint.

C. Additional Elements of the MRTU Tariff

As described in depth below, new tariff provisions for each of these major elements of MRTU have been crafted to address the many challenges that face implementation of a new market design in California. Existing tariff provisions have been modified, as necessary, to be compatible with MRTU. For example, CAISO Tariff provisions concerning Reliability Must-Run ("RMR") units have been adapted to preserve the existing protections against the exercise of market power provided by the CAISO's RMR structure while allowing the owners of such RMR units to participate in the new opportunities that are presented through the market redesign.

In addition, with the changes in CAISO scheduling requirements under MRTU, notably the elimination of the so called "balanced schedule" requirement, Scheduling Coordinators will not be required to engage in Inter-Scheduling Coordinator Trades. However, the MRTU Tariff preserves the ability of Scheduling Coordinators to engage in such trades. This feature is beneficial in part because it facilitates the settlement of bilateral contracts. The MRTU Tariff provisions governing Inter-Scheduling Coordinator Trades of Energy are also designed to accommodate the negotiated settlements associated with those contracts which were entered into during the California energy crisis and which have delivery provisions that, prior to the settlements, could have been construed to give the seller the choice of delivering power at any node within the CAISO existing zones ("Sellers Choice"). MRTU also provides for the establishment of Trading Hubs, including Existing Zone Generation Trading Hubs as successor delivery points for long-term contracts once the CAISO's current Congestion Management zones cease to exist.

MRTU provides flexibility to Constrained Output Generators. In the IFM, such Generators will be modeled as flexible resources and will be eligible to set prices. Although Constrained Output Generators will be treated as constrained in the RTM, they will be eligible to set prices in the Real-Time Dispatch ("RTD") just like other flexible resources.

MRTU also accommodates Participating Intermittent Resources. Participating Intermittent Resources are required to Self-Schedule the forecast provided by the Forecast Service Provider ("FSP") in the HASP.

MRTU preserves the ability of certain vertically integrated utilities to become (or maintain their status as) a Metered Subsystem ("MSS"). Under MRTU, an MSS has a number of options regarding its involvement with the CAISO. An MSS may choose whether: (1) to follow Load; (2) to receive CRRs and have settlements based on gross or net interchange; or (3) to be in or out of the Residual Unit Commitment process.

In addition to the tariff revisions needed to implement the MRTU market design, the instant filing includes a number of changes to provisions to the CAISO Tariff to conform those provisions to the terminology and other changes needed to implement the MRTU market design. These include the previously-mentioned changes to the RMR provisions of the tariff, revisions to the CAISO's credit policies and Uninstructed Deviation Penalty provisions, the addition of a requirement to schedule transmission outages 45 days in advance of the outage in order to allow the CAISO to determine the monthly CRRs available for release, and miscellaneous conforming changes, as well as the use of the acronym "CAISO" throughout the CAISO Tariff rather than "ISO."

D. Next Steps

As noted above, and further described in this filing letter and the attachments hereto, to say the MRTU market design is the result of extensive stakeholder input and Commission guidance is an understatement. The MRTU market design applies the experience of other ISOs and RTOs with LMP to the unique circumstances of the CAISO Controlled Grid through a technologically advanced network model. The MRTU market design makes every effort to balance the competing interests of the wide variety of CAISO Market Participants without jeopardizing the most critical consideration – reliability. The CAISO believes that the instant filing – which reflects invaluable contributions from California stakeholders, state authorities and the Commission itself – responds to the challenge that the Commission presented when it directed the CAISO to correct the flaws in the existing market design. The CAISO notes that, although certain stakeholders may take issue with specific elements of the MRTU Tariff, there is widespread support among stakeholders for the essential elements of the MRTU Tariff.[4] As filed, the MRTU Tariff reflects a comprehensive LMP market design with balanced market power mitigation measures that is ripe for a decision by the Commission.

Even though this filing represents a significant milestone, there will be additional work prior to start-up of the new markets to ensure that implementation details are fully fleshed out and to ensure readiness on the part of the CAISO and Market Participants. The CAISO will conduct a subsequent stakeholder process to develop the detailed MRTU Business Practice Manuals needed to provide Market Participants with implementing detail on the attached tariff provisions. The CAISO also anticipates additional section 205 filings in 2006 and 2007 related

[4] For example, numerous stakeholders commenting at the October 19, 2005 meeting of the CAISO Board of Governors expressed support for the overall direction of the CAISO's MRTU filing. Transcripts of this discussion can be found at: http://www.caiso.com/pubinfo/BOG/minutes/calendar.cgi

to the initial implementation of MRTU in specific areas, such as: the methodology for determining the Day-Ahead RUC procurement target; the methodology for post-Day-Ahead release of Resource Adequacy Capacity; the methodology for allocating CRRs to merchant transmission projects; tariff provisions modeled on approved provisions in other ISOs that will allow the CAISO to make price corrections in certain circumstances where market flaws, the MRTU software or equipment malfunctions produce anomalous results, the methodology for defining sub-LAPs; a *pro forma* agreement to bind entities other than Scheduling Coordinators that purchase CRRs to the relevant terms of the MRTU Tariff, and a process to recertify Scheduling Coordinators prior to implementation of the new market design. These items are not fundamental features of MRTU, such that the Commission cannot act on the MRTU Tariff at this time. Rather, these filings will provide additional detail, consistent with the MRTU Tariff, or tools that the CAISO will require to manage the complexities of MRTU.

II. REQUESTED RELIEF

The CAISO respectfully requests that the CAISO MRTU Tariff be approved, without modification, suspension, or hearing, to go into effect on the November 1, 2007 Trading Day (the "MRTU Implementation Date"). The CAISO recognizes the extensive nature of the changes proposed in the MRTU Tariff, however, these changes have been discussed extensively with stakeholders and reflect the Commission's guidance in nearly a dozen Commission orders from July 2002 to November 2005.[5] The CAISO therefore believes the issues related to the MRTU Tariff are sufficiently developed to allow the Commission to issue an order without hearing.

The CAISO respectfully requests a waiver of the provisions of section 35.3 of the Commission's regulations, 18 C.F.R. § 35.3(2005), to permit an effective date more than 120 days after this filing.[6] The waiver is justified because a Commission order well in advance of the MRTU Implementation Date is needed in order to allow the CAISO sufficient time to finalize the software, Business Practice Manuals, and other implementation details for the initial implementation of the MRTU market design.

As explained in the direct testimony of Brian Rahman (Exhibit No. ISO-8), provided as Attachment M to this filing letter, the process of developing, testing and implementing the software to implement a wholly new market design in California is extremely complex. As Mr. Rahman explains, as a result of a recent review assessing the current status of the software development process and ensuring that the software under development fully reflects the policy decisions in the MRTU Tariff, the CAISO has revised the projected implementation for MRTU Release 1 from earlier in 2007 to November 2007. Also, Market Participants have informed the CAISO that they need a year or more to develop the internal business practices necessary to effectively participate in the CAISO's new markets.

As Mr. Rahman further explains in his testimony, further changes to the MRTU design may result in a substantial delay of that implementation date. In order to attain the November

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[5] Attachment D to this filing summarizes the previous CAISO filings and Commission orders on the conceptual MRTU market design. Attachment E to this filing describes the extensive stakeholder process that informed the development of the new market design and the specific provisions of the MRTU Tariff.

[6] *See, e.g., Northern Maine Independent System Administrator, Inc.,* 89 FERC ¶ 61,179 at 61,560 (1999).

2007 date, even minor changes to the MRTU market design should be incorporated into the MRTU design by this summer.

For these reasons, the CAISO respectfully asks that the Commission consider issuing an order on this filing by June 2006. If the Commission elects not to act on this filing by June, the overall schedule for MRTU implementation could be affected, delaying the benefits to California customers of the new market design.

The CAISO currently files monthly reports in Docket No. ER02-1656 regarding the progress of developing and testing the new market design. The CAISO proposes to continue these monthly MRTU status reports but believes it would be more appropriate to file these reports in the docket established by the instant filing. The CAISO therefore requests that the Commission confirm that it is authorized to submit these reports in the new MRTU docket.

The CAISO also requests that the Commission issue a notice of filing that establishes a 46 day deadline for comments on the MRTU Tariff and an additional 21 days for the CAISO to respond to such comments. Under the proposed schedule, intervenor comments would be due on March 27, 2006, and the CAISO's response to intervenor comments would be due on April 17, 2006.[7] The proposed schedule would give the Commission three months after stakeholder comments (and two months after the CAISO response) if the Commission were to issue an order by June 2006.

The attached MRTU Tariff sheets are provided in a clean version and a version redlined against the CAISO's Simplified and Reorganized Tariff ("S & R Tariff").[8] In an order issued on November 21, 2005 in Docket No. ER05-1501, the Commission accepted the S & R Tariff to become effective on April 21, 2006, or on an earlier date set by a subsequent Commission order after a technical conference to address any inconsistencies, error, or required administrative revisions to the S & R Tariff.[9] The S & R Tariff will therefore be in effect for over a year before the proposed MRTU Implementation Date. The CAISO therefore believes it is appropriate to redline the MRTU Tariff against the S & R Tariff and, to the extent necessary, requests waiver of any contrary interpretations of the Commission's regulations to permit redlining against the S & R Tariff. The CAISO also notes that the MRTU Tariff includes changes to the S & R Tariff based on stakeholder comments and the December 7, 2005 technical conference on the S & R Tariff. These changes, which have been submitted for Commission approval in a compliance filing in Docket No. ER05-1501, are shown in Attachment B to this filing letter (the redlined MRTU Tariff sheets submitted with this filing) in bolded, italicized, underlined and shaded text. The substantive tariff revisions related to the MRTU market design are shown in the same attachment in underlined and strike-through text.

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[7] Answers to motions to intervene and comments are generally due 15 days after the motion is filed. *See* 18 C.F.R. § 385.213(d) (2004). Due to the extensive scope of the instant filing and the volume of issues the CAISO expects parties to raise in their comments, the CAISO requests a modest extension of six days (for a total of 21 days) to file a response to comments on the MRTU Tariff.

[8] The S & R Tariff reflects all tariff amendments and corrections accepted by the Commission as of August 31, 2005, with language that was pending as of that date shaded in gray.

[9] *California Independent System Operator Corp.*, 113 FERC ¶ 61,186 (2005).

Although the clean MRTU Tariff sheets provided in Attachment A to this filing letter do contain header and footer information, the CAISO requests waiver of the requirements of Order No. 614[10] and applicable provisions of section 35.9 of the Commission's regulations[11] to the extent this information does not fully comport with these requirements. This waiver is justified because the portions of the S & R Tariff that serve as the basis of the MRTU Tariff are likely to be amended in the normal course of business between the filing date and the proposed November 2007 MRTU Implementation Date. Prior to the MRTU Implementation Date, the CAISO will submit tariff sheets containing the MRTU Tariff provisions approved by the Commission that fully comply with Order No. 614.

Lastly, the CAISO requests waiver of section 35.13 of the Commission's regulations, 18 C.F.R. § 35.13, to the extent applicable to this filing and requests waiver of any other applicable requirement of 18 C.F.R. Part 35 for which waiver is not specifically requested, if necessary, in order to permit Commission acceptance of this filing.

III. SUPPORTING DOCUMENTS

This transmittal letter is intended to provide the Commission with an overview of the MRTU market design and the MRTU Tariff. The attached testimony also provides a more detailed discussion of the MRTU market design and the MRTU Tariff. The transmittal letter and testimony should not, however, be relied upon to detail each and every change that is proposed by the CAISO in the instant filing. The attached tariff sheets contain each of the proposed MRTU Tariff changes.

The supporting documents submitted with this filing are as follows:

Attachment A	Clean MRTU Tariff Sheets
Attachment B	MRTU Tariff Sheets Redlined Against the CAISO "Simplified and Reorganized" Tariff
Attachment C	List of Acronyms Used in the MRTU Tariff Filing
Attachment D	Summary of Prior CAISO Filings and Commission Orders on California Market Design
Attachment E	Summary of MRTU Stakeholder Process
Attachment F	Direct Testimony of Lorenzo Kristov (Exhibit No. ISO-1)
Attachment G	Direct Testimony of LECG's Scott Harvey and Susan Pope on Congestion Revenue Rights and related market design issues (Exhibit No. ISO-2)

[10] *Designation of Electric Rate Schedule Sheets*, FERC Stats. & Regs., Regs. Preambles ¶ 31,096 (2000).

[11] 18 C.F.R. § 35.9 (2005).

Attachment H	Direct Testimony of LECG's Scott Harvey on how the CAISO has addressed issues in the February 2005 MRTU Report (Exhibit No. ISO-3)
Attachment I	Direct Testimony of Farrokh Rahimi (Exhibit No. ISO-4)
Attachment J	Direct Testimony of Mark Rothleder (Exhibit No. ISO-5)
Attachment K	Direct Testimony of Keith Casey (Exhibit No. ISO-6)
Attachment L	Direct Panel Testimony of Lorenzo Kristov, Mark Rothleder, and Farrokh Rahimi on the treatment of Metered Subsystems under the MRTU Market Design (Exhibit No. ISO-7)
Attachment M	Direct Testimony of Brian Rahman (Exhibit No. ISO-8)
Attachment N	CAISO Board and Stakeholder Documents
Attachment N-1	October 12, 2005 Memorandum on MRTU Issues Resolution from Anjali Sheffrin and Lorenzo Kristov to CAISO Board of Governors
Attachment N-2	Appendix A to October 12, 2005 Memorandum – Summary of CAISO Proposals to Resolve Policy Issues Discussed in the 2005 Stakeholder Process
Attachment N-3	Appendix B to October 12, 2005 Memorandum – Stakeholder Process Matrix
Attachment N-4	October 26, 2005 Memorandum on Additional MRTU Issues and Authorization to File MRTU Tariff from Sidney M. Davies and Anjali Sheffrin to CAISO Board of Governors [12]
Attachment N-5	Appendix A to October 26, 2005 Memorandum – October 19, 2005 Trading Hub White Paper
Attachment N-6	Appendix B to October 26, 2005 Memorandum – November 19, 2004 Metered Subsystems White Paper
Attachment N-7	January 13, 2006 Notice of Clarification of MRTU Design Features

[12] The CAISO notes that the discussion of Metered Subsystem issues in the October 26, 2005 Memorandum was updated by the discussion of these issues in the January 18, 2006 Memorandum on MSS Provisions for MRTU Release 1.

	Attachment N-8	January 18, 2006 Memorandum on MSS Provisions for MRTU Release 1 from Chuck King and Lorenzo Kristov to CAISO Board of Governors
	Attachment N-9	February 9, 2006 Notice of Clarification of MRTU Design Features
Attachment O		Market Surveillance Committee Documents
	Attachment O-1	October 12, 2005 Memorandum from Frank Wolak to CAISO Board of Governors
	Attachment O-2	Market Surveillance Committee Opinion on Aspects of the CAISO's MRTU Conceptual Filing dated September 30, 2005
Attachment P		May 12, 2005 Comments of Scott M. Harvey and William W. Hogan on the California ISO's Proposed Hour-Ahead Scheduling Process

IV. BACKGROUND

A. Procedural History

The CAISO's market redesign efforts can be traced back to a series of Commission orders directing the CAISO first to overhaul its approach to managing transmission congestion and then to engage in a more comprehensive redesign of its market structure, including the creation of a Day-Ahead Energy market to replace the defunct markets of the California Power Exchange. Based on those directives, the CAISO has developed a series of conceptual market design proposals that were filed for Commission review. Since 2002, the Commission has issued a series of orders on those conceptual filings that provided direction on the further development of the MRTU market design. These orders shaped the development of the MRTU Tariff. Significant Commission orders on market design issues include:

- *California Independent System Operator Corp.*, 90 FERC ¶ 61,006, at 61,013-14 ("January 7, 2000 Order"), *reh'g denied*, 91 FERC ¶ 61,026 (2000)
- *San Diego Gas & Electric Co., et al.*, 97 FERC ¶ 61,275, at 62,245 (2001) ("December 19, 2001 Order")
- *California Independent System Operator Corp.*, 100 FERC ¶ 61,060 ("July 17, 2002 Order"), *order on reh'g and compliance filing*, 101 FERC ¶ 61,061 (2002)
- *California Independent System Operator Corp.*, 105 FERC ¶ 61,140 ("October 28, 2003 Order"), *reh'g denied*, 105 FERC ¶ 61,278 (2003)
- *California Independent System Operator Corp.*, 107 FERC ¶ 61,274 (2004) (June 17, 2004 Order")

- *California Independent System Operator Corp.*, 108 FERC ¶ 61,254 (2004) ("September 20, 2004 Order"), *reh'g denied*, 110 FERC ¶ 61,041 (2005)
- January 18, 2005 Commission Staff Guidance Letter
- *California Independent System Operator Corp.*, 110 FERC ¶ 61,113 (2005) ("February 10, 2005 Order")
- *California Independent System Operator Corp.*, 111 FERC ¶ 61,384 (2005) (June 10, 2005 Order")
- *California Independent System Operator Corp.*, 112 FERC ¶ 61,007 (2005) ("July 1, 2005 ETC Order")
- *California Independent System Operator Corp.*, 112 FERC ¶ 61,013 (2005) ("July 1, 2005 Market Design Order")
- *California Independent System Operator Corp.*, 112 FERC ¶ 61,310 (2005) ("September 19, 2005 Order")
- *California Independent System Operator Corp.*, 113 FERC ¶ 61,151 (2005) ("November 14, 2005 Order")

Attachment D to this filing letter is a summary of the CAISO's prior filings and Commission orders on these market design proposals. Section V of this filing letter discusses specific elements of these prior Commission orders that are relevant to consideration of the MRTU Tariff.

B. Stakeholder Process

Since January 2002, the CAISO has conducted an extensive stakeholder process to guide the MRTU effort.[13] In fact, from January 2002 to July 2003, the CAISO devoted hundreds of hours to stakeholder activities, including but not limited to: (1) conducting meetings and conference calls with both individual and larger groups of stakeholders, as well as with Commission staff; (2) participating in Commission-sponsored technical conferences; (3) hosting multiple-day forums; and (4) maintaining an updated CAISO website containing current information and relevant documents for stakeholder review and consideration. From July 2003 to January 2006, the already-extensive CAISO stakeholder process intensified, including twelve days of "page turn" meeting during which the CAISO reviewed drafts of the MRTU Tariff with stakeholders. Attachment E to this filing letter highlights the more significant MRTU stakeholder activities.

C. February 2005 MRTU Report

Since August 2004, LECG, LLC, an economic and management consulting company with extensive experience advising other ISOs on LMP-based market designs, has been assisting the CAISO with the implementation of the MRTU market design. In February 2005, Scott Harvey and Susan Pope of LECG, along with William Hogan of Harvard University, provided the CAISO with "Comments on the California ISO MRTU LMP Market Design," identifying a

[13] The CAISO's efforts to implement a market redesign and the accompanying stakeholder process in fact predate January 2002. In the spring of 2000, the CAISO commenced its "Congestion Management Reform" ("CMR") project. That effort, however, was interrupted by the California energy crisis and later superseded by the more comprehensive effort to redesign the CAISO markets.

number of issues with the version of the MRTU market design under consideration at that time ("February 2005 MRTU Report"). Attachment H to this testimony is the testimony of Scott Harvey (Exhibit No. ISO-3) discussing how the CAISO has addressed the issues identified in the February 2005 MRTU Report.

V. MRTU MARKET STRUCTURE

The primary feature of the CAISO's proposed market redesign is an integrated Day-Ahead Market, Hour-Ahead Scheduling Process, and Real-Time Market ("RTM") that involves the simultaneous optimization of Energy and Ancillary Services procurement based on Locational Marginal Pricing in a process that will also manage Congestion. With the proposed changes, the CAISO will: (1) eliminate the distinction that currently exists in the CAISO's Congestion Management system between Inter-Zonal and Intra-Zonal congestion, (2) eliminate the "market separation rule" and the "balanced schedule" requirement under the current CAISO Tariff,[14] and (3) conduct a forward spot Energy market that is integrated with the CAISO's Ancillary Services ("AS") markets and the management of congested interfaces.

The series of proposed forward and Real-Time market procedures will enhance Congestion Management through optimal procurement of Generation and will "balance" all Generation, Demand, import and export schedules using a Security-Constrained Unit Commitment ("SCUC") algorithm with an AC power flow model to enforce linear transmission constraints. In the Real-Time the use of the Security-Constrained Economic Dispatch ("SCED") in the Real-Time Dispatch will provide optimal five-minute Dispatch Instructions consistent with resource and transmission constraints. The use of these procedures together will produce feasible financially binding forward schedules and Real-Time Dispatch Instructions, on which the CAISO can rely for operations and settlements of its wholesale Energy markets.

The CAISO's existing system of Firm Transmission Rights will be replaced by a new system of CRRs distributed through a process of allocation to LSEs first, with the remaining CRRs released to creditworthy parties through auctions. The CRR allocation process has been designed to enable LSEs with the ability to manage their Congestion costs resulting from the LMP-based markets.

A. Full Network Model

As set forth in Section 27.5 of the MRTU Tariff, the CAISO markets under MRTU will employ a Full Network Model with an accurate representation of the CAISO Control Area and all Control Areas that are either embedded within the CAISO Control Area or adjacent to the CAISO Control Area within the state of California.[15] Interconnections with all other adjacent

[14] The Commission has long recognized the benefits of eliminating the market separation rule and balanced schedule requirement: "At present, the CAISO has a 'market separation rule' that limits the CAISO to making balanced trades within a given Scheduling Coordinator's portfolio, rather than balancing one Scheduling Coordinator's incremental bids against another Scheduling Coordinator's decremental bids. The market separation rule, together with the absence of a real-time imbalance trading market, prevents these Scheduling Coordinators from making mutually beneficial trades and thus eliminating the Price Overlap." July 17, 2002 Order at P 125.

[15] A software change order recently provided to the CAISO's vendor will ensure that the FNM will include embedded and adjacent Control Areas that are predominately within California to the extent the CAISO has

Control Areas will be modeled in the FNM as radial lines. External Control Areas, except for transmission facilities for which Participating Transmission Owners have converted their scheduling rights, are not modeled. The FNM is composed of network nodes interconnected with network branches. Generation and Load Resources are modeled at the relevant network nodes. The use of the FNM in the DAM and the RTM incorporates Transmission Losses and allows the model to enforce all network constraints. This results in Locational Marginal Prices for Energy that reflect the marginal cost of Energy, losses, and Congestion. The MRTU power flow model will produce LMPs at every node in the network. The Full Network Model is also consistent with a point-to-point approach to scheduling and Congestion Management proposed in the MRTU Tariff. In contrast, the historic "contract path" paradigm, even though it has long been an industry practice in the Western Interconnection, is inconsistent with the physics of power flows.

B. Locational Marginal Pricing

The CAISO proposes to manage congestion and price Energy and Ancillary Services using the LMP method currently in use by other ISOs. Eastern markets have functioned effectively for many years with LMP. LMP is the method currently used to manage congestion by the PJM Interconnection, LLC ("PJM"), the New York Independent System Operator ("NYISO"), ISO New England, Inc. ("ISO-NE") and the Midwest Independent Transmission System Operator ("MISO").

The Commission conceptually approved the CAISO's adoption of LMP in the October 28, 2003 Order.[16] The benefits of a LMP pricing and Congestion Management scheme are significant. LMP will more accurately price the true cost of using the grid and therefore should result in a more efficient and effective dispatch, *i.e.*, a dispatch that enables more efficient generation to be dispatched and compete for limited transmission capacity. LMP prices are consistent with the CAISO's actual dispatch of the least cost units in a manner that recognizes the operational limitations of resources and constraints of the transmission system. In addition, LMP-based markets will provide invaluable locational information to those considering long-run investments in new Generation, Load management and other Demand resources. LMP-based markets will also identify system constraints and Congestion that can be eliminated through transmission upgrades.

Importantly, the CAISO does not anticipate, as a result of implementation of LMP, significant increases in wholesale Energy costs provided that effective local market power mitigation measures are in place. As discussed in Section V.C of this transmittal letter, for MRTU Release 1, the CAISO proposes to settle much of the Demand in the CAISO Control Area using average prices based on the Demand in three Default LAPs based on the service territories of the three major California IOUs. The initial MRTU design does permit a more granular settlement of charges for Demand in certain circumstances where the CAISO has determined, based on stakeholder input and other guidance that such treatment is appropriate.

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sufficient data to do so. The CAISO recognizes that detailed stakeholder discussion and review will be needed to resolve technical issues and data issues associated with the modeling of such adjacent and embedded Control Areas.

[16] "We approve the CAISO's adoption of LMP for managing congestion in its markets." October 28, 2003 Order at P 50.

For example, Participating Loads will be scheduled and settled at the individual nodal level rather than at the Default LAP level. The MRTU Tariff also provides for more granular Demand settlement for Metered Subsystems, Existing Transmission Contracts, Transmission Ownership Rights, and exports.

Further, the CAISO proposes to allocate CRRs to LSEs in an amount based on their historic Demand for the annual allocation and based on forecasted Demand for the monthly allocation. These financial rights should help insulate LSEs from LMP-based Congestion costs on the system. LMP-based markets ensure feasible schedules, eliminating the problems with infeasible schedules. Under the MRTU market design, Scheduling Coordinators do not submit schedules, they submit Bids, which can be Economic Bids or Self-Schedules. The MRTU software them optimizes resources based on submitted Bids and develops a Day-Ahead Schedule containing the MWH scheduled for each hour of the next day and associated LMPs. This schedule will be based on the Full Network Model and will therefore be feasible. As a result, the opportunities for market manipulation that may result from infeasible schedules under the current market design will be eliminated.

In short, LMP will send more accurate price signals that will encourage efficient Supply and Demand decisions in both the short-run and long-run time frames. LMP will facilitate the efficient use of the transmission system and will promote efficient trading and the development of competitive wholesale power markets.

1. Energy, Congestion, and Loss Components of LMPs

Under MRTU, an LMP is calculated for all nodes, including the ones without Load. As set forth in Section 27.1 of the MRTU Tariff, the LMP at a given node is composed of the following three components: (1) the System Marginal Energy Cost ("SMEC"); (2) the Marginal Cost of Losses ("MCL"); and (3) the Marginal Cost of Congestion ("MCC"). The System Marginal Energy Cost is the same for all nodes in the network; it is the sensitivity of the power balance constraint at the optimal solution. The Marginal Cost of Losses reflects the marginal cost of Transmission Losses in the network; it is the System Marginal Energy Cost multiplied by the marginal loss factor at that node. The Marginal Cost of Losses may be positive or negative depending on whether a power ejection at that node marginally increases or decreases losses. The Marginal Cost of Congestion reflects the marginal cost of Congestion in the network; it is a linear combination of the shadow prices of all binding constraints in the network, each multiplied by the corresponding power transfer distribution factor.[17] The Marginal Cost of Congestion may be positive or negative depending on whether a power ejection at that node marginally increases or decreases congestion. Additional detail on these three components of each LMP is provided in the Direct Testimony of Farrokh Rahimi (Exhibit No. ISO-4), provided as Attachment I to this filing letter.

2. Modified Proposal for Treatment of Excess Revenue from Marginal Losses

[17] The shadow price of a congested intertie is the cost sensitivity of the binding intertie constraint at the optimal solution, *i.e.*, the marginal reduction of Energy-AS procurement cost for a marginal relaxation of that constraint.

Incorporating the Marginal Cost of Losses in Locational Marginal Prices is important both for assuring least-cost dispatch and for establishing nodal prices that accurately reflect the cost of supplying the Load at each node. Because marginal losses rise exponentially with transmission system flows, marginal losses will exceed average losses roughly by a factor of two, resulting in an over-collection of loss revenues. This will result in the over-collection of Transmission Loss revenues that the CAISO must distribute back to Market Participants. After conducting an extensive stakeholder process on this issue the CAISO has developed, a method for refunding the over-collection of losses. Since the Marginal Cost of Losses will be included in settlement charges borne by Scheduling Coordinators that submit Bids for LSEs, the CAISO proposed in the July 23, 2003 Filing to refund the over-collected revenue to Loads.

Initially, the CAISO proposed to credit the hourly net loss charges to the CRR Balancing Account and distributing it to those entities that hold CRRs. Adding the net marginal loss charges to the CRR Balancing Account would provide some additional level of insurance that the CRRs would be revenue adequate, which in the first instances is ensured by the release of CRRs that are simultaneously feasible. The CAISO believed this approach to be just and reasonable as the reduction of the Transmission Access Charge ("TAC") to Demand and exports that pay these costs through their market transactions since simultaneous feasibility would ensure that most of the net marginal losses over-collection would be returned back to such entities. The Commission approved this treatment in the October 28, 2003 Order but asked the CAISO to clarify how an entity that self-provides for losses under the CRR Balancing Account will be compensated.[18]

Since the October 28, 2003 and June 17, 2004 Orders, many stakeholders have voiced concerns about the treatment of net loss charges and the management of these charges via the CRR Balancing Account. Specific concerns were expressed by entities with Existing Transmission Contracts and Transmission Ownership Rights who serve Demand (internal Demand or export) under these rights, are charged marginal losses, but are not beneficiaries of the reduction in TAC. Even some of the entities that were ultimately the beneficiaries of the reduction in TAC objected to the long delay between the time they incur charges due to the marginal losses collected by the CAISO and the time when they receive the benefit of the credit through a reduced TAC. The CAISO therefore considered ways it might address the expressed concerns.

On September 15, 2005 the CAISO circulated a new proposal on how to credit net loss revenues back to Demand. This new proposal keeps the net loss revenues separate from the CRR Balancing Account and credits the funds back to Demand on a flat per-MWh hour basis on each settlement statement. As a result the net loss charges will not be available to support the revenue adequacy of CRRs, as originally proposed in the CAISO's July 22, 2003 Filing. In other words, the CAISO proposes to separate the management of net loss charges from the CRR Balancing Account and to credit the net loss revenues directly to the entities that serve Demand (internal Demand and exports, including those served under ETCs or TORs) on each monthly Settlement Statement, rather than at the end of the year indirectly through reductions in transmission revenue requirements of the participating transmission owners. With each

[18] October 28, 2003 Order at P 78. On rehearing, the Commission again found the CAISO's original proposal to be reasonable. June 17, 2004 Order at PP 145, 146.

Settlement Statement, for the period of that Settlement Statement, the CAISO will calculate on an hourly basis the total net loss charges collected for the system and divide this by the total MWh of Demand (internal Demand plus exports) to determine a per-MWh loss refund amount. *See* MRTU Tariff, Section 11.2.1.6.

For Demand not served under an ETC or TOR, this will be equivalent to a fixed reduction in each MWh of access charges paid by the Scheduling Coordinator and, therefore, similar in concept to the FERC-approved approach using the CRR Balancing Account. The modified approach will reduce the impact on Market Participants of incorporating a marginal loss component in LMPs because the CAISO will no longer collect the net surplus loss charges and hold the surpluses for refund at a later time, but will instead use the surpluses to provide an immediate offset to each Market Participant's access charges.[19] The CAISO believes that this proposal addresses the concerns raised by stakeholders in a manner that is consistent with the need to retain the use of marginal losses in the calculation of LMPs under the MRTU design.

C. Demand Settlement Under MRTU

The CAISO proposes to settle much of the Demand in the CAISO Control Area at three Default LAPS based on the service territories of the three major California IOUs. *See* MRTU Tariff, Section 27.2. In response to concerns raised by the Commission in prior orders and input provided by stakeholders and LECG, the CAISO has modified the MRTU design to provide Demand with the ability to settle at a more granular level than the three Default LAPs in a number of specific circumstances. Specifically, Participating Loads will be scheduled and settled at the individual nodal level rather than at the LAP level. *See* MRTU Tariff, Section 30.5.3.2. As described in more detail below, the MRTU Tariff also provides for more granular Demand settlement for MSSs, ETCs, and TORs, and for exports submitted at a Scheduling Points. *Id.* The CRR allocation process also includes a tier that will allow LSEs to request CRRs that sink at the sub-LAP level to obtain some financial protection for the final increment of their CRR eligibility in the event that no additional LAP-level CRRs are feasible. *See generally* Section 36.8.3 of the MRTU Tariff. These policy decisions are the result of several iterations of stakeholder consultation and extensive consideration and re-evaluation of issues raised by the Commission in MRTU orders.

1. The July 22, 2003 Filing and October 28, 2003 Order

In the July 22, 2003 Filing, the CAISO proposed that Loads within the CAISO Control Area that are not served under ETCs would submit Bids, which can be Economic Bids or Self-Schedules, and settle at one of three LAPs that correspond to the service territories of the three

[19] It is important to note that this approach to the allocation of Day-Ahead marginal loss surplus is consistent with the allocation of marginal loss surplus in Real-Time implicit in elements of the MRTU market design previously accepted by the Commission. *See, e.g.,* June 17, 2004 Order, 107 FERC ¶ 61,274 at P 145 ("The Commission and commenters agree that the CAISO should not retain surplus revenues. We further agree with the CAISO and SoCal Edison that the surplus should be distributed in a way that does not distort the marginal cost price signal and does not influence participants' decisions regarding procurement of energy or transmission service. . . . There are several ways that could be used to distribute the revenue surplus that could achieve this objective."). The MRTU design has always reflected the notion that the Real-Time surplus will be part of the CAISO's neutrality account, which is allocated to metered CAISO Demand plus exports.

IOU participating transmission owners. Because the IFM optimization requires Demand to be located at individual nodes, submitted Economic Bids and Self-Schedules must be distributed to individual nodes using Load Distribution Factors ("LDFs") for the purpose of running the IFM. The CAISO originally proposed to clear these nodal Loads individually and then planned to re-aggregate nodally-cleared Loads to LAP-level Day-Ahead Demand schedules for each SC. In the October 28, 2003 Order, the Commission found the CAISO's proposal to aggregate prices for Demand over the three existing IOU service territories to be a "reasonable and simplified approach to introduce LMP pricing, while minimizing its impact on load." October 28, 2003 Order at P 65.

2. The May 13, 2005 Filing and 2005 Orders

In a report prepared in February 2005 assessing the conceptual MRTU market design, Scott Harvey and Susan Pope of LECG, along with William Hogan of Harvard University expressed concerns that the CAISO's proposed approach for distributing Demand Bids (but not Self-Schedules) to individual nodes and then re-aggregating the nodal Loads cleared in the IFM back up to the LAP level was problematic and could have adverse consequences. *See* February 2005 MRTU Report at 13-25. In response to the concerns raised in the February 2005 MRTU Report, the CAISO revised its Demand clearing proposal in its May 13, 2005 Filing. Specifically, the CAISO proposed then, and continues to propose in the instant filing, to clear LAP-level Demand Bids based on LAP prices.

Conceptually, the CAISO's current proposal to clear LAP Demand bids can be described as follows: (1) LDFs are used to distribute LAP Demand Bid quantities to nodes, but not Bid prices; (2) the IFM is cleared based on these nodal Demand quantities treating them as price takers, and the resulting LMPs are used to calculate LAP prices; (3) the LAP Demand Bids are cleared based on LAP prices to determine Day-Ahead Schedules for Demand at the LAP level; and (4) steps (1)-(3) are repeated on an iterative basis, revising the LAP Demand quantity until this quantity, when distributed using the LDFs, and the resulting LMPs from the IFM are consistent with the quantity of Demand that clears at the LAP level based on the LAP price. In the actual implementation of this concept the discrete steps mentioned above are not carried out sequentially, but accomplished through a simultaneous solution. Under the this approach, the nodal distribution of Demand in the Day-Ahead Schedule is consistent with the initial LDFs, which are the most accurate LDFs available at the time. As a result, the commitment and Dispatch of Generation in the IFM is appropriate and optimal to serve the actual distribution of Demand. The CAISO's proposed approach is very similar to the Demand aggregation approach successfully used in the NYISO markets.

In July 2005, the Commission reiterated its conceptual approval of the CAISO's proposal to settle Demand at the LAPs. July 1, 2005 Market Design Order at P 34. In that same Order, responding to some stakeholder comments regarding LAP disaggregation, the Commission noted stakeholder concerns about the number of LAP "zones" and "encouraged the CAISO, in reviewing the results of its CRR 2 Study, to consider how the sizing of the zones may impede the ability of Market Participants to effectively hedge congestion costs due to the reduced availability of CRRs that result from larger zone definitions." July 1, 2005 Market Design Order at P 37. The Commission further stated that, "[a]t a minimum, however, each wholesale

customer should have the option of establishing, as a separate zone, the set of nodes where it receives energy." *Id.*

However, in a November 14, 2005 Order, the Commission reconsidered the issue of the establishment of LAP zones for specific wholesale customers and concluded that for Release 1 of the CAISO's MRTU Proposal, it would not require the CAISO to facilitate the establishment of separate LAP zones for specific wholesale customers. November 14, 2005 Order at P 1. The Commission was careful to distinguish the establishment of specific LAP zones for wholesale customers with the related, but distinct, issue of the appropriate number of geographic zones for LAPs. On the latter issue, the Commission reiterated its holding the September 19, 2005 Order that "the CAISO is directed to re-examine its proposed LAP zones and, after taking into account the results of CRR Study 2 and its stakeholder process, disaggregate the zones further." *See* September 19, 2005 Order at P 20. The Commission has also indicated that it will reconsider the concerns of interested parties, such as Southern California Edison ("SCE"), that have raised issues about the potential adverse impacts of smaller LAPs in the context of the instant Tariff filing.[20]

3. Explanation of the Current Demand Settlement Proposal

The CAISO has taken into account stakeholder comments regarding the number of LAPs in the context of the results of CRR Study 2. Based on those results, the CAISO proposes to maintain the large LAP design as proposed in the July 22, 2003 Filing, with certain modifications discussed below.[21] Consistent with the Commission's findings in the November 14, 2005 Order, the MRTU Tariff does not have provisions that generally would allow Loads the option to "opt-out" of the aggregation. The CAISO believes that this approach is appropriate because it will preclude Loads at low-priced nodes from opting-out and thereby raising the prices at the remaining nodes.

There are a number of reasons why the CAISO believes the proposal to settle most (but not all) Load at three Default LAPS is justified.[22] First, the CAISO believes that the rationale for this position, as originally articulated in the July 22, 2003 Filing is still valid. The California transmission grid was not built with the expectation that the system would be used to support an LMP-based market. Further disaggregation of the LAPs for the initial release of MRTU could result in extremely high prices to consumers in congested areas resulting from constraints in a transmission system that was designed and constructed under an entirely different regulatory

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[20] September 19, 2005 Order at P 21 ("As we stated above, the CAISO is directed to re-examine its proposed LAP zones, taking into account the results of CRR Study 2 and its stakeholder process. If this re-examination shows that there are efficiencies in proceeding with LAPs that are smaller than SCE's service territory and the CAISO makes such a proposal, then SCE may argue against and demonstrate the specific barriers to its implementing additional LAPs by February 2007.").

[21] In the July 1, 2005, Market Design Order, the Commission directed the CAISO "to ensure that the software for Release 1 of MRTU can easily accommodate the use of trading hubs and varying levels of LAP granularity." 112 FERC ¶ 61,013 at P 38. The CAISO confirms that the MRTU software is sufficiently flexible to accommodate greater LAP granularity in the future.

[22] The CAISO is mindful of the Commission's findings concerning the number of LAP zones in the July 1, 2005 Market Design Order and the September 19, 2005 Order. The CAISO believes that those orders provide sufficient flexibility to revisit the issue of disaggregating the number of LAP zones based on the results of CRR Study 2 and further stakeholder input.

regime – a regime that did not anticipate competitive Generation markets and nodal pricing. Not only would imposing such high prices on these consumers on the first day of MRTU implementation be inequitable, it could also create significant political resistance to LMP-based markets in California. It is for this reason that the CPUC supports large LAPs as an essential element of the Day One MRTU market design. The CAISO notes that written comments received recently from stakeholders, representing many different types of LSEs and consumer interests, support maintaining settlement at the level of LAPs proposed by the CAISO. These entities specifically include: the Bay Area Municipal Transmission Group, the Energy Users Forum, the Northern California Power Agency, Pacific Gas & Electric, the City and County of San Francisco, Silicon Valley Power, Southern California Edison and Strategic Energy.

Second, the primary motive for the Commission's findings favoring greater LAP granularity for all Demand was the concern, first expressed in LECG's February 2005 MRTU Report on the comprehensive MRTU design, that larger LAPs could adversely affect the ability of Loads within the CAISO Control Area to protect themselves against the Congestion costs associated with the LMP market design. The CAISO immediately acknowledged the legitimacy of this concern and noted that its forthcoming CRR Study 2 Report would provide some empirical evidence on the potential severity of this impact. Based on the results reported in the final CRR Study 2 Report, prepared by LECG and released on August 24, 2005, and provided as an appendix to Attachment G to this filing letter, the CAISO found no evidence to suggest that the effect on congestion hedging of the three-LAP approach is severe enough to require a change to the July 2003 proposal regarding the number and size of the Default LAPs.

The Direct Testimony of Scott Harvey and Susan Pope (Exhibit No. ISO-2), provided as Attachment G to this filing letter, describes the results of the CRR 2 Study on this issue in great detail. Among other things, Doctors Harvey and Pope explain:

> CRR Study 2 found that application of the simultaneous feasibility test to CRR awards at the LAP level, rather than at the sub-LAP level, had relatively little impact on the level of proration of CRR awards in the scenario in which most CRR nominations were modeled as obligations (except for converted rights and TORs), reducing the average MW proration ratio from 87.45% to 81.49% (see Table 47R of the study) and reduced the proration ratio on a dollar value basis from 90.70% to 86.74% (Table 46).

Exhibit No. ISO-2 at p. 69.

Third, the Commission should recognize that the CAISO has made a number of modifications to the MRTU design that will facilitate more granular settlement of Demand in a number of specific circumstances. Doctors Harvey and Pope confirm that the CAISO has also addressed other concerns about the level of LAP granularity raised in the February 2005 MRTU Report. For example, LECG concerns about price-responsive Demand have been addressed by provisions of the MRTU Tariff that allow Participating Loads, such as State Water Project pump resources, to settle Load on a nodal basis. As discussed in Sections V.K, V.L, and V.Q of this filing letter, the MRTU Tariff also provides for more granular Load settlement for MSSs, ETCs, TORs, and exports.

The CAISO notes, moreover, that its proposal for allocating CRRs to all LSEs allows for greater granularity in the release of CRRs in order to redistribute Congestion Charges to LSEs as fully as possible. The last tier of the tiered allocation process allows LSEs to request CRRs that sink at the sub-LAP level, thereby to obtain some financial protection for the final increment of their CRR eligibility in the event that no additional LAP-level CRRs are feasible.

The specific sub-LAPs available during MRTU Release 1 will be defined as part of the MRTU stakeholder process in 2006, prior to the mid-year running of the CAISO's proposed illustrative CRR allocation process. The CAISO anticipates submitting details on the methodology for defining sub-LAPs in a subsequent 205 filing prior to the MRTU Implementation Date. The CAISO anticipates that such sub-LAPs will be roughly the same as the sub-LAPs utilized in CRR Study 2.

4. LAP Demand Clearing and Pricing

As noted above, LECG expressed concern that the CAISO's original conceptual approach to clearing Demand bids at LAPs, as reflected in the July 22, 2003 Filing, was problematic and could have adverse consequences. In particular, LECG noted that the original approach, which involved distributing Demand Bids (including Self-Schedules) to individual nodes and then re-aggregating the nodal Demands cleared in the IFM back up to the LAP level, could result in situations in which the resulting schedule would be infeasible and the IFM unit commitment inconsistent with the Day-Ahead Schedule of Demand. *See* February 2005 MRTU Report at 13-25. In response to those concerns, the CAISO revised its proposed approach to LAP Demand clearing in its May 13, 2005 Filing. Under the revised proposal, LAP Demand Bids would be cleared based on LAP prices rather than nodally. In the July 1, 2005 Market Design Order, the Commission approved the revised approach, stating, "We agree that the new proposal avoids several important problems of the original proposal, including avoiding infeasible day-ahead schedules." July 1, 2005 Market Design Order at P 34.

In the MRTU Tariff, the CAISO proposes to implement the approach to clearing LAP Demand Bids that was presented in the May 13, 2005 Filing and approved in the July 1, 2005 Order. Under that approach, the LAP-level Demand curve for each LAP would be cleared against the aggregated LAP prices to produce a final LAP-level Demand Schedule that is consistent with the accurate LDFs and, importantly, a Day-Ahead Schedule that is feasible. This approach is used in the NYISO markets and has been working effectively there. This approach is described in detail in the testimony of Dr. Rahimi.

The CAISO recognizes that the approach to clearing LAP Demand Bids employed in the MRTU Tariff can have some inefficient and undesirable consequences under certain conditions. In their testimony (Attachments F and I to this filing letter), Dr. Kristov and Dr. Rahimi discuss those issues, as well as the CAISO's approach to addressing them in the MRTU. They note that the LDFs used to distribute the submitted LAP Demand Bids and Self-Schedules to nodes are preserved in the clearing of Demand against Supply for the LAP, in order to address the principal concern raised by LECG with respect to the original LAP-clearing proposal. As Dr. Rahimi notes, this feature has the potential, in what are expected to be rare circumstances, for a local

transmission bottleneck in conjunction with insufficient local Supply Bids to shift scheduled LAP Demand from the IFM market-clearing process to subsequent markets (the RUC and the real-time market). This may lead to very high Day-Ahead LMPs at the locally constrained and Supply Bid deficient areas of the LAP. Dr. Rahimi and Dr. Kristov explain that this situation is unlikely to occur under the MRTU market design, because the MRTU design is based on a strong physical local Resource Adequacy program, as well as a strong obligation for RA resources to offer capacity to the CAISO, which should minimize the occurrence of local Bid insufficiency conditions.

Dr. Kristov also indicates that, even if the MRTU design did not use LAPs, high LMPs in a load pocket could result when there is Supply insufficiency in a constrained area of the grid, which is why all LMP markets have effective local power mitigation mechanisms. Dr. Rahimi further explains that, in the unlikely event that this situation arises and it precludes the CAISO from resolving a non-competitive transmission constraint using all effective Economic Bids, the CAISO will schedule Energy from Self-provided Ancillary Services that utilize capacity that is obligated to offer an Energy Bid (*i.e.*, RA and RMR capacity), or take other appropriate measures to address the constraint, which could include relaxing the fixed LDF constraint, consistent with operating practices. Recognizing that the LAP construct and software limitations may result in inconsistent market outcomes, the CAISO will continue to employ necessary resources and to work with the Department of Market Monitoring ("DMM") to develop appropriate procedures that yield correct market outcomes.

D. Congestion Revenue Rights

A critical piece of the CAISO's MRTU market design is the replacement of the current system of Firm Transmission Rights ("FTRs") with a Congestion Revenue Rights program. This market design element dates back to the CAISO's July 22, 2003 Filing, which included a proposal to replace the existing path-specific FTRs created for the CAISO's original zonal Congestion Management design with "source-to-sink" CRRs appropriate for an LMP-based Congestion Management design. CRRs will allow Market Participants to obtain financial protection for the risk of Congestion Charges associated with the LMP Congestion Management design. Specifically, CRRs provide their holders with protection against Congestion Charges from the Day-Ahead Market, but not against Congestion Charges associated with HASP Intertie LMPs or Real-Time LMPs.

Section 36 of the MRTU Tariff governs CRRs. Key features of the CRRs under the MRTU market design have been described at length in the CAISO's prior MRTU conceptual filings, in particular the July 22, 2003 Filing. These features are also discussed at length in the Direct Testimony of Scott Harvey and Susan Pope, provided as Attachment G to this filing letter. The following discussion highlights features of the CRR design that were finalized for the MRTU Tariff filing, including the rules for allocating and auctioning CRRs.

1. Development of the CRR Allocation Rules

In its October 28, 2003 Order, the Commission supported the adoption of CRRs as a risk management tool for Market Participants as well as the CAISO's proposal to allocate CRRs to

Loads within the CAISO Control Area. October 28, 2003 Order at PP 171, 174. Among other things, that Order directed the CAISO to file "detailed information on the proposed first year allocation when it files its proposed tariff instituting the CRR allocation method" and to "make an initial filing of this allocation information as soon as practicable but at least three months prior to its tariff filing." *Id.* at P 172.

Since the July 22, 2003 Filing, the CAISO, along with stakeholders, and most recently with significant assistance by LECG, has continued to develop its CRR allocation methodology. Recognizing the significance and importance that the rules for allocating CRRs will play in the California energy markets under MRTU, CAISO has gone to significant lengths to closely examine the alternative methodologies for equitably and efficiently allocating CRRs. The CAISO greatly appreciates the degree of stakeholder involvement and participation in this process and believes that the instant filing reflects a just and reasonable result of this extensive process.

From the start, as reflected in its July 22, 2003 Filing, the CAISO envisioned releasing CRRs to LSEs through an allocation process and to a wider group of entities through an auction process. *Id.* at PP 164-165. A review of the rules approved by the Commission for eastern ISOs revealed that there were a number of different acceptable approaches for allocating (or auctioning) CRRs or similar instruments. Since there was no single clear or "correct" answer, the CAISO conducted an extensive stakeholder process to evaluate the alternative methods for releasing CRRs. The final proposal reflected in Section 36 of the MRTU Tariff is the approach that: (1) satisfied the CAISO's own criteria for an acceptable approach to releasing CRRs and (2) garnered the support of a plurality of stakeholders. As noted above, throughout the MRTU stakeholder process, stakeholders generally did not support significant departures from the CRR allocation approach that has now been under development for several years.

Shortly after its July 22, 2003 Filing, the CAISO conducted CRR Study 1 to examine potential approaches for the release of CRRs. During the summer of 2005, the CAISO conducted CRR Study 2, with the assistance of LECG. These studies took into account certain assumptions regarding the nature and characteristics of the transmission system, available resources, known constraints, and Demand on the grid and provided the CAISO and stakeholders with a better understanding of the options for allocating CRRs to LSEs. The results of these studies have been helpful in aiding the CAISO and its stakeholders to better tailor the CRR allocation rules towards an allocation that is both equitable and feasible**.**

In an effort to further educate interested parties on the trade-offs inherent in alternative CRR methodologies, the CAISO has engaged LECG to assist it through this process. LECG issued a series of presentations and white papers.[23] LECG also participated in stakeholder meetings held from May to August 2005. LECG has also provided the CAISO and its stakeholders with the benefits of lessons learned in the eastern ISOs. In addition, LECG performed the analysis for the CAISO's CRR Study 2 and prepared a full report describing their detailed analysis of the CRR Study 2 results, described below, which has enabled the CAISO and

[23] A copy of these presentations and white papers can be found on the CAISO Website at: http://www.caiso.com/docs/2002/08/23/200208231358035858.html

its stakeholders to better evaluate the design choices needed for completing the CRR allocation rules.

Throughout this process the CAISO has been responsive to requests by stakeholders, the Market Surveillance Committee ("MSC") and the CAISO Board of Governors by considering the adoption of alternative methods for releasing CRRs. For example, in response to requests by some stakeholders during the August 31, 2005 stakeholder meetings that the CAISO consider releasing CRRs entirely through an auction rather than allocation, the CAISO issued a Request for Stakeholder Comments on Specific Questions on September 6, 2005.[24] Stakeholder comments made it clear that CRR allocation was a presumption of many stakeholders and that an auction was not favored by the majority of stakeholders.

The CAISO also considered the possibility of a more basic CRR allocation, without many of the specialized elements reflected in the final CRR allocation provisions in the MRTU Tariff. In response to a direction by the CAISO Board of Governors, the CAISO on September 27, 2005 posted a request for stakeholder comments on the interest in such a simplified allocation approach. Again, there was not significant stakeholder support for such an approach.

The CAISO views such stakeholder inquiries as a necessary and productive part of the rules development process, particularly since experience with the eastern ISOs shows that there are a number of acceptable approaches to releasing CRRs. After consultation with stakeholders and gauging support for these various alternatives, the CAISO decided to proceed with the most widely supported allocation rules as described below. The CAISO believes these rules will result in a just and reasonable allocation of CRRs to obtain financial protection congestion costs.

On September 30, 2005, the CAISO submitted to the Commission information (the "September 30, 2005 Filing") concerning the allocation of CRRs in compliance with the October 28, 2003 Order and a notice of extension of time issued on September 1, 2005. The September 30, 2005 Filing included: (1) detailed information on the development of the CRR allocation rules to date, including the whitepapers developed by CAISO illustrating the details of its proposal for discussion during its stakeholder meetings; (2) a discussion of the results of the CRR Study 2 conducted by LECG that provide insights on the expected CRR allocation; and (3) information concerning the CAISO's recent and upcoming CRR rules and software/system development, including the expected time frame for the illustrative and actual CRR allocation. The following is a revised version of the CRR development schedule provided in the September 30, 2005 filing, updated to reflect the new schedule for MRTU implementation.

[24] *See* http://www.caiso.com/docs/2005/09/06/2005090611283821197.pdf.

2. Recent and Upcoming CRR Rules and Software Systems Development

a. Software/Systems Development

October 15, 2005	Pre-Factory Acceptance Testing of the CRR software was completed.
December 1, 2005	Factory Acceptance Testing of the CRR software was completed.
December 22, 2005	Site Acceptance Testing of the CRR software was completed.
Mid-January 2006	Site Integration of the MRTU systems was started, which is divided into three phases. CRR is in Phase 2.
April 1 through May 30, 2006	Site Integration (Phase 2), including CRR.

b. CRR Illustrative and Actual Allocations

April 27 through May 2, 2006 (approximate dates)	Market Participant training for using the CRR Market User Interface.
June to November 2006 (approximate dates)	CRR Study 3 – Full illustrative allocation based on CRR allocation methodology approved by FERC with filing of expected allocation of CRRs with FERC within a reasonable time following the completion of the study.
July to October 2006 (approximate dates)	Actual CRR allocation/auction with filing of actual allocation with a reasonable time following the completion of the actual allocation.

3. Overview of CRR Release Process

As provided in Section 36.8 of the MRTU Tariff, the CAISO will conduct an annual process that releases Seasonal CRRs each year. The CAISO will also conduct a separate process each month for the release of monthly CRRs. In each of these processes, the CAISO will release CRRs applicable to two Time of Use ("TOU") periods: (1) the conventional 6-by-16-hour Peak Period and (2) the Off-peak Period comprised of all other hours of the week. In the annual CRR release, the CAISO will release sets of Seasonal CRRs for each of the seasons defined by the WECC and the two TOU periods.

There will be two major components of each annual and monthly CRR release process – the CRR allocation and the CRR auction. Participation in the allocation component of the process will be limited to those entities that are eligible for CRR allocation under the rules described below. The objective of this CRR allocation is to provide LSEs with protection

against Congestion costs they may incur to serve Demand under an LMP-based market system. Once each CRR allocation is completed, the CAISO will conduct an auction for the remaining CRRs to be released. Participation in the auction will be open to all entities that satisfy certain criteria, such as credit requirements.[25]

The CAISO will determine each LSE's eligibility to receive CRRs through the annual allocation, *i.e.*, the maximum quantity of CRRs (in MW) each LSE can request for allocation in the annual allocation process. *See* MRTU Tariff, Section 36.8.1. LSE eligibility for CRR allocation in the annual process will be calculated separately for each season and TOU period and each LAP in which the LSE serves Demand. Each LSE's annual eligibility will equal 75 percent of the 99.5 percentile point on its historical Demand duration curves for that season and TOU period, with appropriate adjustments to reflect any migration of retail Load from one LSE to another. *See* MRTU Tariff, Sections 36.8.2 and 36.8.2.1. The annual allocation process will therefore require an entire year's historical hourly Demand data, from which will be calculated a set of seasonal/TOU historical Demand duration curves for each LAP in which the LSE serves Demand.

Determination of eligibility for Monthly CRRs in the monthly allocation will be based on forecasted Demand rather than historical Demand. An LSE's eligibility in the monthly process will be based on the 99.5 percentile point on the applicable monthly/TOU forecasted Demand duration curve. Each LSE's eligibility for monthly CRRs will equal its monthly eligible quantity minus its allocation of annual CRRs for that month. *See* MRTU Tariff, Section 36.8.2.2. The MRTU Tariff allows for changes in CRR eligibility to reflect Load migration between LSEs to ensure that CRR eligibility stays closely tied to actual Load served. *See* MRTU Tariff, Section 36.8.5.1.

The annual CRR release process will make 75 percent of the grid's transfer capacity available in the network model used in the Simultaneous Feasibility Test ("SFT"). *See* MRTU Tariff, Section 36.4.1. The CAISO will assume that all lines are in service when calculating the grid's transfer capacity for purposes of the annual CRR release process.[26] The monthly CRR allocation process, conducted approximately 15-30 days prior to the start of each month, will allow LSEs to request CRRs for up to 100 percent of their eligibility for the month/TOU period minus their awarded annual CRRs, and will make 100 percent of the grid's transfer capacity available in the SFT. *See* MRTU Tariff, Sections 36.8.3.2 and 36.8.3.6. The network model for the SFT used in the monthly CRR release process will, however, account for planned transmission outages and derates. *See* MRTU Tariff, Section 36.4. As discussed in Section VI.D of this filing letter, this is the reason why the CAISO is requiring that outages of Transmission Facilities be scheduled 45 days in advance of the outage under the MRTU Tariff.

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[25] Because the auction will be open to entities other than Scheduling Coordinators, the CAISO intends to develop the details of a *pro forma* agreement to bind entities other than SCs that purchase CRRs to the relevant terms of the MRTU Tariff. The CAISO intends to submit this *pro forma* agreement for Commission review in a separate Section 205 filing.

[26] The CAISO may make an exception to the "all lines in service" assumption in situations where there is known to be a transmission outage or derate that could significantly affect CRR revenue adequacy during the relevant period.

In extreme cases, the update of the network model may cause the Seasonal CRRs released in the annual process to be infeasible on a particular monthly network model. As provided in Section 36.4.2 of the MRTU Tariff, in the event that transmission outages and derates modeled for the monthly CRR Allocation and CRR Auction render previously-issued Seasonal CRRs infeasible, the CAISO will increase the transfer capacity on the overloaded facilities just enough to render all Seasonal CRRs issued for the month feasible without creating any additional capacity beyond what is needed for the feasibility of the Seasonal CRRs. This will ensure that auction revenues in the monthly auction are always non-negative. The CAISO will announce these adjustments to the market prior to conducting the monthly CRR Allocation and CRR Auction so that Candidate CRR Holders can take these facts into consideration in preparing their nominations and bids

In general, the source of a CRR will be either a single injection node or intertie point or a CAISO-defined Trading Hub. Section 36.8.4 of the MRTU Tariff, establishes the specific rules for which sources and sinks are eligible for the CRR Allocation.[27] Sources for CRR nominations in the annual and monthly CRR Allocation processes can be either PNodes or Trading Hubs. Sinks for CRR nominations in the annual and monthly CRR Allocation processes can be either LAPs, or sub-LAPs to the extent permissible under Section 36.8.3 of the Tariff, or MSS-LAPs for those MSS that elect net settlement consistent with Section 11.2.3.2 of the Tariff.

A Scheduling Point (*e.g.*, at the point of interconnection between a neighboring Control Area utility and the CAISO Controlled Grid) can also be a CRR Source for the annual and monthly CRR Allocation to the extent certain requirements set forth in Section 36.8.4.1 of the MRTU Tariff are satisfied. This will allow LSEs to obtain CRRs to provide protection against Congestion costs associated with imports up to certain limits. The remaining 50% of the residual intertie capacity will be reserved in Tiers 1, 2 and 3 of the CRR allocation to make it available in the annual CRR auction. This will ensure that marketers and other entities participating in the CRR auction will have an opportunity to obtain CRRs associated with imports.

The CAISO will also allow LSEs to request CRRs that will enable LSEs that can serve their Load from multiple Supply nodes to obtain a bundle of CRRs that provide an optimal congestion hedge at least cost. *See* MRTU Tariff, Sections 36.2.4. In the July 22, 2003 Filing, these specialized CRRs were referred to as "Network Service CRRs" or "NS-CRRs." In the MRTU Tariff, however, these specialized CRRs are referred to as Multi-Point CRRs or "MPT-CRRs" to avoid any potential confusion with the more conventional uses of the term "network service" in the electric utility industry.

Under the MRTU Tariff, revenues from the auction of CRRs will be distributed to Participating Transmission Owners ("PTOs") to offset their Transmission Revenue Requirements and thereby reduce access charges. *See* Section 11.2.4.3 of the MRTU Tariff.

4. Source Verification and Grandfathering

[27] Section 36.13.5 of the MRTU Tariff has a list of eligible sources and sinks for the CRR auction.

The CAISO will use a different allocation and auction process for the first year of the MRTU market operations.[28] As provided in Section 36.8.3.4 of the MRTU Tariff, in CRR Year One, nominations for Tier 1 and Tier 2 of the annual CRR Allocation and Tier 1 of the monthly CRR Allocations must be source verified. The source verification process will require an LSE to demonstrate that, during a historical reference period, the LSE had an entitlement to receive energy from the nominated sources to serve its Demand. Source verification will use data for the period beginning September 1, 2004 and ending August 31, 2005 as the basis for verification. The CAISO recognizes that some parties may suggest a more recent source verification period in response to the modified MRTU implementation date. The CAISO believes that the September 1, 2004 to August 31, 2005 period is appropriate for source verification. As explained in the Direct Testimony of Scott Harvey and Susan Pope, the consideration underlying the choice of the historical period is that, by basing the CRR allocation on a period that has already occurred, the CAISO avoids the potential for the allocation process to distort going-forward contracting or operating incentives. The end date of the historical period was therefore chosen to correspond to the time frame in which the proposed validation rules were described to Market Participants.

The annual CRR allocation for CRR Year One will consist of three tiers for each season, TOU period (on-peak and off-peak), and LAP.[29] *See* MRTU Tariff, Section 36.8.3.1. By running separate, sequential SFTs for each tier, the tier structure enables LSEs to maximize their chances of receiving the CRRs they value most.

As provided in Section 36.8.3.5 of the MRTU Tariff, after CRR Year One, the CAISO will allow LSEs to grandfather a percentage of their previously awarded Seasonal CRRs. This grandfathering process, which is described in the MRTU Tariff as the "Priority Nomination Process," provides multi-year durability to Seasonal CRRs. This long-term durability is needed to support long-term contracting and investment in new generation. Grandfathering also eliminates the need for the CAISO to perform verification of nominated CRR sources after the first year, which simplifies the ongoing allocation process. The monthly CRR release contains no such grandfathering feature.

Under the grandfathering process, an LSE's portfolio of "grandfatherable" CRRs can evolve over time in response to changing needs, or can remain constant over multiple years provided it comprises no more than 33.3% of the LSE's annual eligibility in year 2 of MRTU, and no more than 66.7% in year 3 and thereafter, and the LSE has not lost Load due to retail access migration. *See* MRTU Tariff, Section 38.6.3.5. To receive the grandfathering priority, an LSE is not required to have received the Seasonal CRR in the initial year. Any newly allocated

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[28] CRR Year One is defined in Appendix A of the MRTU Tariff as "The first period of time for which the CAISO conducts an annual CRR Allocation." Because the anticipated launch of the MRTU market will be in November 2007, the first annual CRR Allocation may not coincide with the beginning of a defined season. Therefore, CRR Year One may cover a period of time that covers a month or two more or less than a full year, as long as all proper seasons are represented in order to establish a baseline for the grandfathering of CRRs in subsequent years through the Priority Nomination Process.

[29] In Tier 1, the CAISO will allocate Seasonal CRRs to LSEs up to 50% of their Seasonal CRR Eligible Quantity for each season. In Tier 2, the CAISO will allocate Seasonal CRRs to LSEs up to 75% of their Seasonal CRR Eligible Quantity for each season minus the quantity of CRRs allocated to that LSE in Tier 1. In Tier 3, the CAISO will allocate Seasonal CRRs to LSEs up to 100% of their Seasonal CRR Eligible Quantity for each season minus the quantity of CRRs allocated to that LSE in Tiers 1 and 2.

CRR will be eligible for grandfathering in the next annual process. By sequencing the re-allocation of grandfathered CRRs ahead of the allocation of new CRR requests, the process maximizes the likelihood that LSEs' grandfathered requests will remain simultaneously feasible from year to year. Because the monthly CRR process will not have grandfathering, it needs only two tiers.

There is substantial support among stakeholders for the grandfathering approach. However, several parties do not support grandfathering and expressed a desire for the CAISO to perform source verification on an indefinitely continuing basis. Among the parties who oppose grandfathering there seem to be two main concerns. First, there is a concern that some LSEs will hold onto valuable CRRs even when they no longer serve Load from those CRR sources, thereby limiting the ability of other LSEs to obtain a fair share of valuable CRRs through the allocation process. The second concern is that the key concept that makes grandfathering work under the CAISO's proposal is the fact that grandfathered CRRs are allocated first, before requests for new CRRs, and this could put LSEs gaining Load at a disadvantage.

The CAISO recognizes these concerns, but believes that the overall equities of the proposal are better served by incorporating provisions to mitigate the concerns rather than by eliminating the grandfathering feature. In this regard the CRR grandfathering provisions of the MRTU Tariff limit the quantity of CRRs that can be grandfathered, and includes provisions to ensure that customers who exercise retail choice and change LSEs are not harmed with respect to CRR coverage compared to customers who do not change.

There is an important reason not to perform ongoing verification of the sources LSEs nominate for CRR allocation. Both the LECG consultants, who performed CRR Study 2, wrote the CRR Study 2 Report and assisted the CAISO in developing its CRR allocation proposal, and the CAISO's Market Surveillance Committee, have raised strong concerns about forward-looking verification of CRR sources for allocation eligibility. Specifically, they are concerned about the distortion of incentives to both LSEs and suppliers that is created when contracting parties are aware that their contracts can be used to obtain free allocations of CRRs.

Scott Harvey and Susan Pope explain in their testimony that an "important consideration in the design of the CAISO's CRR allocation process was that the process should not give rise to incentives that could lead to inefficient operation in the CAISO energy market or to inefficient investment in infrastructure in either the short- or long-run. A key to achieving this goal is structuring the allocation process so that future CRR allocations will not be altered by the future operating, contracting or investment decisions of Market Participants. For this reason, the CAISO CRR allocation process does not tie the allocation of CRR awards to the future contracting decisions of LSEs, nor does it tie allocation of CRR awards to the future dispatch of generation or to the scheduling of imports." Exhibit No. ISO-2 at pp. 109-110.

5. Allocation of CRRs to External Load

In accordance with Section 36.9 of the MRTU Tariff, the CAISO will offer those LSEs that serve external Load and that demonstrate a legitimate need as described further below the opportunity to nominate CRRs through the same allocation process the CAISO performs for

LSEs with internal Load, in exchange for pre-paying the Wheeling Access Charge ("WAC") for the period for which the requested CRR is valid. Section 11.2.5 of the MRTU Tariff specifies that the prepayment amount shall equal the MW of CRR requested times the WAC associated with the Scheduling Point corresponding to the CRR Sink times the number of hours in the period for each requested CRR MW amount.

To determine an LSE's "legitimate need" to participate in this allocation process, the CAISO will consider Generation facilities within the CAISO Control Area that are owned or under contract to the LSE serving external Load.

Because the CRR allocation process enforces a Simultaneous Feasibility Test, there is some chance that the LSE will be allocated fewer than the full amount of requested CRRs for which it pre-paid. Within thirty (30) days following the completion of the relevant CRR allocation process, the CAISO shall reimburse such entity representing the Out-of-Control-Area-Load the amount of money pre-paid for any CRRs that were not allocated to the entity. *See* Section 11.2.5 of the MRTU Tariff.

For the amount of CRRs that were allocated to the entity, the CAISO will exempt the Scheduling Coordinator for such entity from the WAC for any Real-Time Interchange export schedules at the Scheduling Point corresponding to the sink of each allocated CRR, on an hourly basis for the period for which the CRR is defined, until the pre-paid funds are exhausted. At the end of the period for which the CRR is defined, any remaining balance will be allocated to the PTOs. *See* Section 11.2.5 of the MRTU Tariff.

As provided in Section 36.9.3 of the MRTU Tariff, the CAISO will apply a MW eligible quantity to the amount of CRRs an LSE with external Load can request in this process, analogous to the MW eligible quantity that will apply to LSEs with internal Load. An LSE with external Load seeking a CRR allocation will have to provide data that will allow the CAISO to calculate the LSE's hourly use of the CAISO grid to export power. The data will have to cover a full year if the LSE wants to participate in the annual allocation process.

LSEs that serve Load outside the CAISO Control Area have argued that they should be allocated CRRs in a manner analogous to LSEs serving Load inside the CAISO Control Area. They argue that, like the LSEs with internal Load, they also support the embedded costs of the CAISO grid through payment of access charges and will be exposed to LMP-based congestion charges for using the grid when MRTU is implemented. Other parties argue that LSEs with external Load should be treated differently than LSEs with internal Load because they are differently situated – specifically LSEs outside the CAISO Control Area have the ability to choose whether or not to use the CAISO grid to serve their Load – and therefore should not be entitled to CRR allocation. The CAISO proposal balances these two positions. The CAISO does provide an opportunity for LSEs serving Load outside the CAISO Control Area to receive CRRs through the allocation process, but recognizes the differences between external Loads and internal Loads with respect to their need to rely on the CAISO Controlled Grid and the level of certainty that such LSEs will pay CAISO access charges and Congestion Charges.

This approach is consistent with the Commission's order in *New England Power Pool, et al.*, 100 FERC ¶ 61,287 (2002), where the Commission determined that the Long Island Power Authority ("LIPA"), a load-serving entity outside of the New England control area, should be entitled to receive an allocation of FTR Auction Revenue Rights ("ARRs") under New England's standard market design if LIPA made a significant contribution to the embedded costs of the New England transmission system by paying for firm transmission service on a prospective basis for a period of at least one year:

> In response to LIPA's comments, we do not agree that it is appropriate to allocate ARRs to *any* entity that pays congestion costs. However, we would expect that parties making a significant contribution to embedded transmission costs through taking long-term (*i.e.*, at least one year) firm service would receive ARRs. We find that entities paying for the embedded costs of the system through taking long-term firm service, including long term through and out transmission service, should be entitled to receive ARRs.

Id. at P 85.

6. Allocation of CRRs to Sponsors of Merchant Transmission Projects

Under MRTU, the CAISO may allocate CRRs to sponsors of merchant transmission facilities that do not have alternative methods for recovery of their upfront network upgrade costs. The details of this allocation will be subject to further stakeholder review subsequent to this filing letter.

E. Market Power Mitigation.

The CAISO's market power mitigation package is an essential element of the MRTU market design. In an LMP-based market, it is imperative that the CAISO have effective Local Market Power Mitigation ("LMPM") in place. Otherwise, suppliers that are located in transmission-constrained areas will be in a position to exercise locational market power and artificially inflate nodal prices due to the lack of competitive alternatives.

The CAISO's existing protections against locational market power would be inadequate in an LMP-based market[30] and inconsistent with the protections the Commission has approved for other markets. The CAISO's MSC, in its May 2003 LMPM Opinion stated that "[t]he most glaring weakness in the currently operating … [CAISO] market design is the lack of an effective local market power mitigation [LMPM] mechanism." Thus, the MSC strongly supported the need for more effective LMPM measures upon implementation of MRTU. The CAISO also

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[30] Although the MSC has previously supported local market power mitigation measures that are different than those included in the MRTU Tariff, the MSC is generally supportive of the CAISO's use of the PJM local market power mitigation measures. The MSC also has indicated that the PJM approach comes much closer to satisfying the properties of its preferred approach than does an AMP-type local market power mitigation mechanism. *Opinion on the Necessity of Effective Local Market Power Mitigation for a Workably Competitive Wholesale Market* ("May 2003 LMPM Opinion") issued on May 29, 2003, and filed with the Commission as Attachment D to the CAISO's July 22, 2003 Filing at p. 10.

views approval of more effective LMPM measures as a necessary adjunct to implementation of LMP-based markets.

Further, Commission approval of LMPM measures that are more effective than the LMPM measures currently in effect is needed to provide consumers and State policy makers with increased confidence that California markets will not be subject to market manipulation immediately upon implementation of the MRTU market design.

The market power mitigation program reflected in Section 39 of the MRTU Tariff is based on the Commission's guidance in prior MRTU orders, in particular its July 1, 2005 Market Design Order as well as its September 19, 2005 Order. This market power mitigation proposal is described in depth in the Direct Testimony of Keith Casey (Exhibit No. ISO-6), provided as Attachment K to this filing letter. The following is an overview of some of the more salient features of that program.

1. Local Market Power Mitigation

The CAISO believes that effective local market power mitigation should result in nodal prices that approximate the prices that would result in a competitive market (*i.e*. prices should reflect the marginal cost of the highest cost unit dispatched). The CAISO does not believe that nodal prices should reflect a "scarcity premium" except in instances of true physical scarcity, *i.e.,* where there is insufficient Supply to meet Demand and reserve requirements. In such cases, prices should reflect Demand's marginal willingness to pay. The MRTU market design provides for some degree of scarcity pricing. The methodology for LMPM incorporated into the MRTU Tariff reflects these principles, while still offering suppliers an opportunity to earn revenues that can be credited toward fixed cost recovery.

a. The CAISO's Decision to Adopt PJM-Style Mitigation of Energy Bids

In its May 13, 2005 Filing, based in part on guidance from Commission Staff, the CAISO proposed to adopt a "PJM-style" market power mitigation of energy bids. The Commission approved this approach in its July 1, 2005 Market Design Order. Under the PJM-style of LMPM, generator bids that are identified as having potential market power are mitigated to what are termed "Default Energy Bids" or DEBs. The Default Energy Bids used for LMPM will be calculated by the CAISO or an alternative independent entity selected by the CAISO. Similar to the mitigated bids used in PJM, the value of the Default Energy Bids will be based on one of the following four options:

1. **Variable Cost Option -** variable costs plus ten percent (10%).

2. **LMP Option -** a weighted average of the lowest quartile of LMPs at the Generating Unit PNode during the preceding 90-days. To qualify for the LMP Option at least 50% of the MWh dispatched from a unit over the prior 90-day period must not have been mitigated.

3. **Negotiated Option –** a value negotiated with the CAISO or an alternative independent entity selected by the CAISO.

4. **Frequently Mitigated Unit Option –** only available for FMUs and is equal to the Variable Cost Option plus the Bid Adder.

Default Energy Bids will be calculated by the CAISO for the Peak Hours and Off-Peak Hours for both the DAM and RTM. Details on how these DEBs are calculated under each of these options are provided in Section 39.7.1 of the MRTU Tariff and the testimony of Keith Casey.

PJM's local market power mitigation measures have worked effectively for several years. Indeed, Commission has recognized that PJM's measures for mitigating local market power "serve to minimize opportunities for the sustained exercise of market power." *Atlantic City Electric Co., et al.*, 86 FERC ¶ 61,248 at 61,902 (1999).

b. The Market Power Mitigation and Reliability Requirement Determination

The CAISO LMPM process adopts a critical feature of the PJM mitigation package. Under the CAISO mitigation process, as in PJM, there are two passes of the scheduling software – a first pass with only competitive interface constraints enforced, and a second pass with all transmission constraints enforced. Units having higher dispatch levels in the second pass are automatically mitigated to the lower of the Default Energy Bid, or the unit's market Bid, but not lower than the unit's highest Bid price that cleared the first pass.

Under the CAISO's LMPM provisions, system and local market power procedures will occur as part of several processing runs for determining RMR requirements and the units that will be subject to local market power mitigation. These pre-IFM runs are referred to as the Market Power Mitigation and Reliability Requirement Determination (" MPM-RRD") process and will occur after all bids are submitted to the CAISO for each of the sequential markets (*i.e.*, the DAM and the RTM). The MPM-RRD conducted prior to the IFM, will be based on the CAISO's forecasted Demand, rather than the scheduled and bid Demand and will involve two runs— one in which only competitive network constraints are enforced, the Competitive Constraint Run ("CCR"), and a second run in which all network constraints are enforced, the All Constraints Run ("ACR"). Comparing the unit Dispatch levels between the first and the second run will determine RMR requirements and the units that will be subject to local market power mitigation. *See* MRTU Tariff, Section 31.2.

The CAISO acknowledges that use of Forecast Demand rather than bid-in Demand as the basis for the Day-Ahead MPM-RRD is inconsistent with the Commission's most recent finding on this issue. In its May 13, 2005 Filing, the CAISO proposed to base the Day-Ahead MPM-RRD on Forecast Demand as opposed to bid-in Demand. In its July 1, 2005 Market Design Order, the Commission approved the CAISO's revised market optimization process, which included this approach.[31] However, in response to a rehearing request, the Commission reversed

[31] 112 FERC ¶ 61,013 at P 162.

course and directed the CAISO to base the Day-Ahead LMPM procedures on bid-in Demand. [32] The CAISO requested rehearing of this issue. In the instant filing, the CAISO again requests the Commission to revisit this issue and allow the CAISO to base the MPM-RRD on Forecast Demand for MRTU Release 1. The CAISO will consider basing the procedures on bid-in Demand in a subsequent release of MRTU.

The reasons for this request are two-fold. First, the CAISO cannot incorporate this change into MRTU Release 1 without substantially delaying MRTU implementation. As explained in the testimony of Brian Rahman, provided as Attachment M to this filing letter, it will be challenging for the CAISO to meet the proposed implementation date of November 2007 for the current design of MRTU Release 1. The CAISO's evaluation of this issue shows that MRTU Release 1 would likely be delayed by as much as 10 to 14 months after the targeted November 2007 MRTU implementation date if the CAISO is required to base the Day-Ahead MPM-RRD on bid-in Demand. Second, as explained in the testimony of Keith Casey, the Commission's findings in the September 19, 2005 Order appear to be based on the erroneous premise that the CAISO's proposed approach for MRTU Release 1 contains a systemic bias toward over-mitigation and that significant over-mitigation will occur if the CAISO identifies the Supply Bids subject to mitigation during the pre-IFM runs based on CAISO forecasted Demand rather that bid-in Demand. The fact that any mitigated energy bids that are not dispatched in the IFM can be re-bid in the HASP should address any concerns Market Participants have with basing the Day Ahead LMPM on forecasted Demand. For these reasons, the CAISO requests that the Commission approve the use of Forecast Semand as the basis for the Day-Ahead MPM-RRD in MRTU Release 1.

In the July 1, 2005, Market Design Order, the Commission held that "a unit having market power in the Pre-IFM should not be allowed to 're-bid' its energy price at a level above its mitigated price" and indicated that "the CAISO upon making its tariff filing should expressly note the limitations of re-bidding day RUC energy prices." 112 FERC ¶ 61,013 at P 163. The CAISO confirms that Energy Bids that are mitigated in the MPM-RRD process prior to the Integrated Forward Market are not permitted to re-bid above the mitigated bid (*i.e.,* the Default Energy Bid) in the Day-Ahead Market. However, any Energy Bids that are not dispatched in the Day-Ahead can be re-bid for the HASP/Real Time Market – even if they were mitigated in the Day Ahead MPM-RRD process. The MPM-RRD process is performed again for the HASP/Real Time Market, ensuring that Bids submitted in the HASP/Real-Time process have been appropriately mitigated to prevent the exercise of local market power.

c. Recovery of Fixed Costs Under LMPM

Certain suppliers have argued that less stringent local market power mitigation is warranted in California due to the alleged lack of market opportunities for suppliers to recover their annual fixed costs. The CAISO strongly disagrees with this argument. Most suppliers have ample opportunities to recover their annual fixed costs through long-term bilateral contracts, through short-term bilateral contracts with the three IOUs, through spot-market Energy sales during hours when the unit receives an MCP above its marginal cost (*i.e.* infra-marginal), and

[32] *California Independent System Operator Corp.*, 112 FERC ¶ 61,310 at P 69 (2005) ("September 19, 2005 Order").

through AS capacity sales. In addition the Resource Adequacy requirements established by the CPUC and Local Regulatory Authorities, as reflected in Section 40 of the MRTU Tariff, result in additional opportunities for suppliers to contract with LSEs. These Resource Adequacy issues are discussed in Section V.J of this filing letter and the Direct Testimony of Mark Rothleder (Exhibit No. ISO-5), provided as Attachment J to this filing letter.

The CAISO recognizes that a stable and sustainable wholesale market design must also have sufficient mechanisms for ensuring that units critical for local reliability earn sufficient revenues on average over a reasonable period of time to cover their going forward fixed costs. The primary mechanisms for providing these revenues are the long-term contracts for capacity and Energy from long-term procurement and the RA capacity contracts. The CAISO acknowledges, however, that some critical units may not always receive revenues through such contracts and may have their cost recovery opportunities limited by a high frequency of mitigation for local market power. To the extent that certain Generating Units are not under a long-term contract for their entire capacity and are frequently needed for local reliability, the instant proposal includes a Bid Adder mechanism, similar to an adder applied in PJM, to ensure such Frequently Mitigated Units ("FMUs") that are critical for local reliability earn sufficient revenues to recover their going forward fixed costs. *See* MRTU Tariff, Section 39.8. It is important to note that, as is the case in PJM, the Bid Adder proposed by the CAISO is not intended to compensate a unit for its entire fixed costs, only the unit's avoidable fixed costs on a prospective basis. The Commission conceptually approved this Bid Adder approach for FMUs under in the July 1, 2005 Market Design Order. 112 FERC ¶ 61.013 at PP 144-45.

In addition, the CAISO notes that the majority of units located in significantly constrained areas (*e.g*. San Francisco), *i.e.*, those units that will be most impacted by the LMPM provisions of the MRTU Tariff, are operating under RMR Contracts. The CAISO anticipates that the need for RMR Contracts will remain for certain units in the most constrained regions.

d. Frequently Mitigated Units

As previously noted, units that are frequently mitigated for local market power and not under contract, will be eligible for a Bid Adder. Such units must select the Frequently Mitigated Unit DEB Option to receive the Bid Adder. Eligibility for a Bid Adder will be determined on a monthly basis. To receive a Bid Adder, a generating unit must:

(i) have a mitigation frequency that is greater than 80% in the previous 12 months;

(ii) have run for more than 200 hours in the previous 12 months; and

(iii) have some capacity not under an RA contract and not subject to any CAISO capacity tariff.

See MRTU Tariff, Section 39.8.1.

As described in the Direct Testimony of Keith Casey, the CAISO held monthly open meetings with stakeholders from June through August 2005 to address various market power

mitigation issues, including the value of the Bid Adder. This stakeholder process was consistent with the Commission's directives in the July 1, 2005 Market Design Order. 112 FERC ¶ 61,013 at P145.

The value of the Bid Adder for FMUs will be either: (i) a unit-specific value determined in consultation with the CAISO or an independent entity selected by the CAISO, or (ii) a default Bid Adder of $24/MWh. *See* MRTU Tariff, Section 39.8.3. The first option is a negotiated value that is negotiated between the Scheduling Coordinator for the FMU and either an Independent Entity selected by the CAISO or the CAISO itself. Under this option, Scheduling Coordinators will present cost data reflecting their unit specific avoidable costs to the CAISO or an Independent Entity and negotiate a unit-specific Bid Adder value that adheres to the intent of the Bid Adder, namely compensation for avoidable fixed cost.

The second option is a default value of $24/MWh. This figure was calculated using the same formula used by PJM to calculate PJM's default Bid Adder value, where the per MWh dollar value is calculated as the ratio of Annual Avoidable Fixed Cost / Annual Expected Energy Production. Based on data from characteristic in-service Combustion Turbines within its control area, PJM applied this formula and calculated a $40/MWh Bid Adder. The CAISO had proposed, through the stakeholder process, that owners of Combustion Turbines voluntarily submit to the CAISO avoidable cost data on each of their Combustion Turbines and that this information would be used as the basis for calculating a default Bid Adder value. Only one unit owner responded to this request with avoidable cost data. A larger sample of cost data is required in order to use this source of data as a basis for calculating the default Bid Adder value for all potential FMUs. In the absence of a larger sample of cost data from existing Combustion Turbine owners, the CAISO has based its proposed Default Bid Adder value on the same formula used by PJM applied to Fixed O&M cost figures for a new Combustion Turbine in California, as reported in Appendix D of the California Energy Commission 2003 Final Staff Report titled "Comparative Cost of California Central Station Electricity Generation Technologies". This document reports Fixed O&M costs of $20/kW-Yr for a new 100 MW CT that has a capacity factor of 9.4%. Using these figures, the Annual Fixed O&M Cost is $2,000,000 and the Annual Expected Energy Production is 82,344 MWh. This results in a default Bid Adder value of approximately $24/MWh.

The Commission has previously pointed out that "mitigation measures must work together with measures on resource adequacy to ensure that the measures do not suppress prices below the level necessary to attract needed investment in infrastructure in the region" and the "types of mitigation tools and the triggers and consequences of mitigation should be tailored to the needs of the region." *Southwest Power Pool, Inc.*, 106 FERC ¶ 61,110 at P 173 n.219 (2004). The CAISO believes that the LMPM provisions of the MRTU Tariff, including the Bid Adder for FMUs, will provide appropriate assurances of revenue adequacy for suppliers. Further, the CAISO's LMPM proposal, in conjunction with Resource Adequacy requirements and the CPUC's long-term procurement proceeding will provide a sufficient mechanism to incent local infrastructure investment.[33] Consistent with the Commission's prior statements that

[33] The CPUC's long-term procurement proceedings are designed to ensure that LSEs enter into sufficient long-term contracts to address customer needs.

resources should not rely primarily on the spot market for fixed cost recovery, [34] the CAISO believes that long-term capacity contracts should be the primary vehicle for attracting new investment in locally constrained areas. Suppliers should not be relying on a Real-Time spot market that serves only a *de minimis* percent of total Load in the State for recovery of their fixed costs. Therefore, significant investment decisions that depend on a reasonable opportunity to recover total costs should not be driven by prices in the CAISO's small Real-Time Energy market. In particular, significant infrastructure investment decisions will not be impacted by the level of mitigated prices due to the CAISO's LMPM measures given that such mitigation will occur only in certain limited circumstances.

As such, the LMPM measures in the MRTU Tariff, when viewed in the context of the overall market design and existing levels of long-term forward contracting, are just and reasonable. They successfully balance the need to mitigate the exercise of local market power by suppliers, while providing adequate market opportunities for suppliers to recover their annual fixed costs.

e. Competitive Path Assessment

As provided in Section 39.7.2 of the MRTU Tariff, the designation of transmission paths as "competitive" and "non-competitive" for purposes of applying the LMPM will be done on an annual basis. However, the CAISO may perform additional competitive constraint assessments during the year if changes in transmission infrastructure, Generation resources, or Demand in the CAISO Control Area and adjacent Control Areas suggest material changes in market conditions or if market outcomes are observed that are inconsistent with competitive market outcomes. A transmission constraint will be designated "competitive" if no three unaffiliated suppliers are jointly pivotal in relieving congestion on that constraint. The determination of whether or not the pivotal supplier criteria for an individual constraint are violated will be assessed using a Feasibility Index ("FI") methodology. The CAISO will perform a pivotal supplier test on all suppliers in the CAISO Control Area for frequently congested transmission paths using the FI methodology. The details of this test are set forth in Section 39.7.2 of the MRTU Tariff.[35]

Assessments of competitiveness will be performed assuming various system conditions including but not limited to season, Demand, planned transmission and resource outages. If an individual constraint fails the pivotal supplier criteria under any of these system conditions, the constraint will be deemed uncompetitive for the entire year under all system conditions until a subsequent assessment deems the constraint competitive. For purposes of the competitive assessment, the set of constraints that will be included in the network model are those modeled

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[34] *See Midwest Independent Transmission System Operator, Inc.*, 102 FERC ¶ 61,280, at P 47 (2003) ("With regard to the concern that merchant generators will not be given the opportunity to recover their fixed costs due to the lack of a capacity market, we find that merchant generators should look first and foremost to long-term contracts to recover their capacity costs."); *San Diego Gas & Electric Co.*, 95 FERC ¶ 61,115, at 61,364 (2001) ("Since bilateral contracts should be the principal means by which generators recover their total costs, generators should be willing to sell any residual real-time energy for any price at or higher than their marginal cost.").

[35] The description of the pivotal supplier test provided in this filing letter, the MRTU Tariff, and the Direct Testimony of Keith Casey are responsive to the Commission's directive in the July 1, 2005 Market Design Order to provide details on the proposed pivotal supplier methodology. 112 FERC ¶ 61,013 at P 127.

along with transmission limits to be enforced in the Full Network Model ("FNM") used in clearing the CAISO markets.

Generation owners will be considered as potential pivotal entities for purposes of the competitive assessments. The portfolio of each supplier will be based on ownership information available to the CAISO, taking into account any material transfer of operational control that is of sufficient length that the transfer could have persistent impact on the relative shares of Supply within the CAISO Control Area.

The CAISO will make the initial determination of which constraints are competitive prior to MRTU implementation. This assessment will reflect an assumption that all interfaces to neighboring Control Areas and all Inter-Zonal interfaces for zones that existed prior to the effective date of MRTU are competitive. The set of candidate constraints that will be evaluated for competitiveness in the initial assessment will be limited to Intra-Zonal constraints within current CAISO Congestion Management zones (NP15, SP15, ZP26). For the second competitive path assessment, the 12-month period of historical data will include several months of operation before MRTU and several months after MRTU implementation. The Congestion frequency threshold of 500 hours for designation of competitive constraint candidates will be based on the combination of pre-MRTU real-time Intra-Zonal Congestion hours, and MRTU Congestion in IFM and real-time markets for the 12 months of historical data. Subsequent annual assessments will again consider all pre-existing interfaces to neighboring Control Areas and all Inter-Zonal interfaces to be competitive. These interfaces will not be included in the set of candidate constraints for assessment.

As discussed in Dr. Casey's testimony, the CAISO's proposal is comparable to competitive path assessments by other ISOs. For example, a pivotal supplier analysis is the main criterion used by other ISOs (such as PJM and MISO) that have carried out competitive path assessment studies.

The CAISO's competitive path assessment proposal was widely supported by stakeholders. However, a number of stakeholders expressed concern that the CAISO's proposed competitive path assessment methodology was overly conservative in that the rebuttable presumption is that all paths (except current existing Inter-Zonal constraints) are considered "non-competitive" unless they are shown by the study to be otherwise. A number of suppliers suggested the rebuttable presumption should be reversed (*i.e.*, all paths are considered "competitive" unless found to be otherwise). For the reasons explained in Dr. Casey's testimony, such an approach would be highly risky, in that a "false positive" (designating a path as "competitive" when if fact it is "non-competitive") could expose consumers to price distortions resulting from the exercise of market power.

The MSC, on the other hand, has recommended that the CAISO not attempt to designate any path beyond the current Inter-Zonal constraints as competitive for day one of MRTU implementation and wait until there is a full year of LMP operation before assessing whether additional paths should be designated as competitive. The MSC's recommendation was the CAISO's original position on this issue. However, several stakeholders expressed concerns that such an approach is too conservative and would result in excessive mitigation. In response to

these concerns, the CAISO agreed to perform a competitive path assessment prior to the start of MRTU, but that the assessment will be based on a fairly stringent criterion of "no three pivotal suppliers." The CAISO believes this is a reasonable compromise. As the MSC noted in its September 30, 2005 Opinion, provided as Attachment O to this filing letter, "We acknowledge that the three-pivotal-supplier approach is unlikely to be too lenient (*i.e.*, it is unlikely to falsely designate transmission paths as competitive if they truly are not)."

In summary, the CAISO believes its competitive path assessment provisions are a fair compromise that allows for additional constraints to be designated as competitive if they meet "pivotal supplier" criteria that are comparable to criteria applied by other ISOs.

2. Mitigation of System Market Power

The market power mitigation provisions in the CAISO's MRTU Tariff filing will provide effective protection against market power and are complementary to the overall California market design under MRTU, which includes the long-term procurement framework and RA requirements developed by the CPUC and other Local Regulatory Authorities. Because system market power will be effectively addressed through long-term contracting, the spot market can safely accommodate less stringent system market power mitigation.

System-wide market power mitigation is addressed under the MRTU Tariff through "damage control" bid caps. In its May 13, 2005 Filing, the CAISO proposed a stepped transition for raising the Energy Bid caps under MRTU. Specifically, the CAISO proposed to start MRTU with the $250 soft Bid cap on Energy Bids that was in effect through the end of 2005 and to implement a three-year transition plan for raising the Bid cap to $1,000/MWh in increments of $250 each year subject to an assessment that the Energy markets were sufficiently competitive to warrant raising the cap. The CAISO also proposed to lower the Ancillary Service Bid caps and RUC Availability Bid caps from $250/MW to $100/MW in decrements of $50/MW over the same three-year period to be more in line with the ancillary service bid caps in other ISOs.

In its July 1, 2005 Market Design Order, the Commission rejected the CAISO proposal on Bid caps and directed the CAISO to start MRTU with a $500/MWh hard Energy Bid cap and to automatically increase it to $1,000/MWh in increments of $250 over a two-year period unless the CAISO makes a filing with the Commission showing that it markets are non-competitive and the Commission supports this assessment.[36] The Commission also rejected the CAISO proposal to lower the Bid caps for Ancillary Services and RUC Availability Bids, noting that unlike other ISOs, the CAISO lacks a capacity market and that the CAISO will not initially have the $1,000/MWh Energy Bid cap in effect in other ISOs.[37] This directive was consistent with the Commission's October 28, 2003 and June 2004 orders that indicated that the Bid caps for Ancillary Services Bids and RUC Availability Bids should be $250/MW.[38] The Commission noted that as California and the CAISO progress towards implementation of the CPUC's RA requirements and possible capacity markets, the CAISO should reassess the level of the

[36] 112 FERC ¶ 61,013 at P 104.

[37] *Id.* at PP 109-111.

[38] October 28, 2003 Order, 105 FERC ¶ 61,140 at P 123; June 17, 2004 Order, 107 FERC ¶ 61,274 at PP 65-68.

Ancillary Service and RUC Availability Bid caps. Furthermore, the Commission stated the CAISO should propose revised Bid caps for these markets should structural or market issues arise in California that warrant the lowering of the caps.

The Bid caps for the energy, Ancillary Services, and RUC markets in the MRTU Tariff are as directed by the Commission in its July 1, 2005 Market Design Order. *See* MRTU Tariff, Section 39.6.1.

F. Day-Ahead Market

Under MRTU, the Day-Ahead Market consists of the following functions which the CAISO will perform in sequence: the Market Power Mitigation – Reliability Requirement Determination process ("MPM-RRD"), the Integrated Forward Market pricing run ("IFM") and the Residual Unit Commitment process. *See* MRTU Tariff, Section 31. Scheduling Coordinators will submit a single Bid to be used in the Day-Ahead Market, which includes the IFM and RUC. Bids for Ancillary Services that are not Self-Provided Ancillary Services in the DAM must also contain a Bid for Energy. *See* MRTU Tariff, Section 31.1

1. MPM-RRD

As discussed above, the Market Power Mitigation component of the MPM-RRD process determines whether Energy Bids should be mitigated due to the ability of the bidder to exercise local market power. The Reliability Requirement Determination component determines the minimal and most efficient use of RMR resources to address local reliability in meeting the forecast of CAISO Demand forecast over the Trading Day. The MPM and RRD functions are performed simultaneously. As set forth in Section 31.2 of the MRTU Tariff, the MPM-RRD process consists of the following steps, which include two Security-Constrained Unit Commitment runs:

Step 1) Operator pre-specifies certain RMR requirements that are not modeled in the FNM, such as requirements for Voltage Support;

Step 2) SCUC Pass 1: In the Competitive Constraint Run, transmission paths determined to be competitive are modeled to determine a competitive dispatch level;

Step 3) SCUC Pass 2: In the All Constraint Run, all constraints are modeled and the dispatch level of the ACR is compared to the dispatch level of the CCR.

Step 4) Reliability Requirement Determination and Bid Mitigation.

The MPM-RRD process is essentially the same in the Day-Ahead Market and the HASP and Real-Time Market. The differences between the MPM-RRD in the Day-Ahead Market and the MPM-RRD in the HASP and Real-Time Market relate to: (i) when the runs are performed each day, (ii) the time horizon of the optimization, (iii) the duration of the Demand forecast time, and (iv) the market intervals in which the runs are performed and the mitigation is applied. In the Day-Ahead Market, the MPM-RRD process: (i) is run immediately after the close of the

Day-Ahead Market at 10:00 AM; (ii) the time horizon of the optimization is 24 hours, (iii) the Demand forecast is hourly, and (iv) the Energy Bid mitigation is performed hourly. In the Real-Time Market, the MPM-RRD process: (i) is run after the close of the Real-Time Market at 75 minutes before the trading hour, (ii) the time horizon of the optimization is 105 minutes, (iii) the Demand forecast is every 15 minutes, and (iv) the Energy Bid mitigation is performed every 15 minutes.

As set forth in Section 31.2.2.1 of the MRTU Tariff, if the Dispatch level produced through the ACR for an RMR unit is greater than the Dispatch level produced through the CCR, the schedule produced as a result of the IFM, and the Dispatch Instructions issued in the RTM, will be flagged as RMR Dispatches. If a Condition 1 RMR unit is dispatched in the CCR and it dispatched at a higher level in the ACR, the entire portion of the unit's bid above the CCR dispatch level and below the Maximum Net Dependable Capacity specified in the RMR Contract,[39] will be set to the lower of the RMR Proxy Bid or the market bid, but not lower than the unit's highest bid price that cleared the CCR for purposes of being considered in the IFM. For Condition 1 RMR units, the market bid at and below the CCR dispatch level will be retained in the IFM. If the dispatch level produced through the ACR for a Condition 1 RMR unit is not greater than the dispatch level produced through CCR the generating unit's original, unmitigated bid will be retained in its entirety in the IFM. For RMR Condition 2 Units, the RMR Proxy Bid will be used in the ACR up to the Maximum Net Dependable Capacity specified in the RMR Contract because RMR Condition 2 Units are prohibited from submitting market Bids prior to receiving an RMR Dispatch and, therefore, are not considered in the CCR.

For non-RMR resources, the resource will be subject to the local market power mitigation procedures discussed in Section V.E of this filing letter if the dispatch level in the ACR is greater than the dispatch level determined in the CCR. In such cases, the entire portion of the unit's Bid curve that is above the CCR dispatch level will be mitigated to the lower of the Default Energy Bid, or the unit's market Bid, but not lower than the unit's highest Bid price that cleared the CCR.

2. IFM

The IFM pricing run is the intermediate step in the Day-Ahead Market, following the MPM-RRD process and preceding the RUC process. *See* Section 31.3 of the MRTU Tariff. The IFM is the primary Day-Ahead Market for Energy and Ancillary Services.

a. Energy

As set forth in Sections 31.3 and 31.3.1.1 of the MRTU Tariff, the IFM optimally commits and schedules resources to balance Supply and Demand subject to resource and network constraints. Supply Bids and Demand Bids are submitted to the DAM, which are used in the IFM, and the result is a Day-Ahead Schedule. The Day-Ahead Schedule includes pairs of financially-binding LMPs and MWhs for each resource for which Economic Bids or Self-

[39] RMR Condition 1 Units will be treated like non-RMR Units for available capacity above the Maximum Net Dependable Capacity.

Schedules were submitted. Resources are committed and scheduled in the IFM for each hour of the next operating day.

Self-provided AS capacity is not co-optimized to provide Energy. RMR resources that are manually pre-dispatched before the DAM are put into the IFM as a high priority Self-Schedule in the relevant Trading Hours. Resources with outages are modeled as "unavailable" in the relevant Trading Hours. Resources with multi-part Energy Bids and/or AS Bids are modeled as "cyclable" in the relevant Trading Hours, which means that these resources are available for optimal commitment in these hours, subject to applicable inter-temporal constraints and initial conditions.

The IFM employs the Full Network Model and thus calculates LMPs for energy at each network node. Generating Units and import resources are paid the nodal LMP at their location for their Energy schedules. Load and export resources are charged for their energy schedule the aggregated LMPs at their location. As discussed above in Section V.C of this filing letter, Demand generally is settled at Load Aggregation Points.

b. Ancillary Services

Scheduling Coordinators may submit to the IFM Economic Bids for resources certified for provision of Ancillary Services. *See* MRTU Tariff, Section 8.5. An AS Bid is an offer to provide one of the four types of Ancillary Services capacity, *i.e.*, Regulation Up, Regulation Down, Spinning and Non-Spinning Reserves, in a given Trading Hour at a single price. *See* MRTU Tariff, Section 30.5.2.6; MRTU Tariff, Appendix A (definition of "AS Bid"). In addition, Scheduling Coordinators may submit with a Bid the amount of MWs the Scheduling Coordinator will be self-providing for specific hours of the operating day. *See* MRTU Tariff, Section 8.6.2. This amount is not optimized through the IFM but is used to offset the Scheduling Coordinator's Ancillary Services Obligation. *See* MRTU Tariff, Sections 8.6.1 to 8.6.2. Resources may both submit bids for the provision of Ancillary Services and also submit for AS self-provision in a given Trading Hour as long as the total offered Ancillary Services capacity from both self-provision and the Bids does not exceed the applicable certified maximum AS capacity. *See* MRTU Tariff, Section 8.6.2.

Self-provided Ancillary Services are evaluated for feasibility with respect to the relevant resource operating characteristics and regional constraints, and are then "qualified" or accepted prior to AS Bid evaluation. *See* MRTU Tariff, Section 8.6.2. Self-provision of Ancillary Services from resources under a contractual obligation to make their capacity available for energy is conditional. *Id*. If RMR units or units obligated to provide Resource Adequacy Capacity are permitted to self-provide Ancillary Services without condition, the MRTU treatment of self-provided AS could theoretically lead to local Energy Bid insufficiency in the Integrated Forward Market. Any such capacity would no longer be available to resolve local constraints in pre-IFM runs. Consistent with the contractual obligations associated with this capacity, the CAISO believes that "protected" status should not be accorded to RMR and RA capacity that is indispensable to prevent load curtailment. As such, self-provision of Ancillary Services from such resources will only be permitted from capacity that is not determined to be needed, following Pass 2 of the MPM-RRD, to meet anticipated Demand in the Day Ahead. *Id*. The

MRTU Release 1 software will not have the capability to automatically apply this condition, so the CAISO will implement a work-around to achieve the same result. If the pre-IFM Pass 2 determines that local constraints cannot be met and load shedding will result, then the CAISO will re-run the IFM and will convert AS self-provision Bids (*i.e.,* price taker Bids) from RMR units or units obligated to provide Resource Adequacy Capacity into AS Bids at the bid floor. *See* MRTU Tariff, Section 31.3.1.2. This bid-in AS will then optimized along with other bid-in AS. As a result, some of these Bids will be chosen for Energy (to satisfy the local constraint), some for Ancillary Services, and conceivably some not picked up at all. The initially self provided AS capacity that is not picked up as AS in this re-run will be disqualified. The qualified and disqualified values, as determined in this process, will be communicated to the Scheduling Coordinator for such capacity.

AS Bids are evaluated simultaneously with Energy Bids in the IFM to clear bid-in Supply and Demand, and to meet the AS requirements net of qualified AS self-provision. *See* MRTU Tariff, Section 31.3. Thus, the capacity of a resource with Energy and AS Bids is optimally used for Energy or reserved for AS in the form of Ancillary Service awards. AS Bids from resources over the interties compete with Energy Bids for intertie transmission capacity.

Ancillary Services are co-optimized with Energy through the IFM to meet 100% of the CAISO's Ancillary Service requirements, net of qualified AS self-provision and subject to resource operating characteristics and regional constraints.[40] *See* MRTU Tariff, Section 8.3.1. The IFM employs a *cascaded* AS optimization where Regulation Up Bids may be used to meet Spin and Non-Spin requirements, and Spin may be used to meet Non-Spin requirements, if this AS substitution results in a more efficient overall procurement of Ancillary Services. AS substitution is performed optimally among AS Bids, but no such substitution takes place for qualified self-provided AS. *See* MRTU Tariff, Section 8.2.3.5.

3. Residual Unit Commitment (RUC)

The following is an overview of the RUC process as set forth in Section 31.5 of the MRTU Tariff. This process is described in greater detail in the Direct Testimony of Farrokh Rahimi, provided as Attachment I to this filing letter. The CAISO will perform the RUC process immediately after the IFM has run and has established a feasible final Day-Ahead Schedule. The Residual Unit Commitment process commits additional resources to meet the CAISO's forecast of CAISO Demand (which does not include exports) not scheduled in the IFM to meet the difference between the CAISO Demand forecast and the Demand that is Bid in and scheduled in the IFM for each hour of the next Trading Day. The RUC process will be based on RUC Availability Bids submitted to the CAISO for consideration in the Day-Ahead Market. *See* Section 35.1.1.1 of the MRTU Tariff. RUC Availability Bids indicate the price at which a resource is offering to provide additional capacity for the next operating day. *See* Section 35.1.1.2 of the MRTU Tariff. In the event that the IFM closes below the CAISO's forecast of CAISO Demand and does not commit adequate resources to meet that forecast, RUC provides a

[40] In the current CAISO market design, the CAISO procures less than 100% of its AS requirements in some circumstances through the application of the "Rational Buyer" mechanism Under the MRTU market design, the CAISO will obtain 100% of its AS requirements, as determined based on its Demand forecast, in the Day-Ahead Market. This is discussed in greater detail in the Direct Testimony of Farrokh Rahimi.

reliability backstop for the CAISO to commit additional Supply resources if needed to meet the system Demand forecast. RUC Capacity is selected through the use of a SCUC optimization process that uses the same Full Network Model used in the IFM to help ensure the Energy associated with the RUC Capacity selected is deliverable.

The procurement target for the RUC process is based on the next day's hourly CAISO forecast of CAISO Demand, less energy scheduled in the final Day-Ahead Schedule. *See* MRTU Tariff, Section 31.5.3. The RUC procurement target setting functionality is designed to ensure that the CAISO can operate the grid reliably without unnecessary over- or under-procurement of capacity. Therefore, through the RUC procurement target the CAISO will also account for factors such as Demand forecast error and a forecast of expected incremental HASP schedule changes.[41] The CAISO will also adjust the RUC procurement target to account for schedule changes by Participating Intermittent Resources to ensure that it does not over- or under-commit resources. The CAISO will be further developing the procedure for setting the RUC procurement target with its stakeholders.

The RUC commits resources based on the submitted RUC Availability Bids, and the Start-Up and Minimum Load Bids submitted by the Scheduling Coordinator in the DAM. MRTU Tariff, Section 31.5.5. The RUC process will commit capacity that was not committed through the IFM and will commit capacity from import suppliers, provided adequate transmission capacity is available on the interties to accommodate the Energy.[42]

Any Energy procured in the RUC, *i.e.*, the minimum Demand Energy of internal resources committed by RUC, will be submitted to the HASP and RTM as a price taker (*i.e.*, a Self-Schedule) and, if cleared against CAISO forecast of CAISO Demand, will earn the appropriate Market Clearing Price.

All resources that intend to offer to supply RUC Capacity must also submit an Energy Supply Bid in the IFM. *See* MRTU Tariff, Sections 30.5.2.7, 31.5.1.1, and 35.5.1.2. As discussed below, resources under contract for Resources Adequacy are required to participate in the IFM and RUC processes.

The RUC provisions of the MRTU Tariff are designed to achieve the objectives: of ensuring that sufficient generating capacity will be on-line in the right locations and available for Real-Time to meet CAISO-forecasted Load and providing a reasonable bid-based payment mechanism for non-RA and non-RMR capacity that is scheduled in RUC.

The CAISO's revised RUC procedure is an integral element of the MRTU market design and is fully consistent with the implementation of LMP by other ISOs. A RUC process is an

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[41] Also, to the extent that metered subsystems ("MSS") within the CAISO Control Area under-schedule in the Day-Ahead Market, but have designated adequate resources under their control to meet their own Load and reserve needs, the RUC will not procure capacity to cover their share of the next day's forecast, nor will the CAISO allocate a share of RUC commitment costs to these entities. *See* Section V.Q of this filing letter for a discussion of the treatment of MSSs under the MRTU Tariff. *See also* Section 31.5.2 of the MRTU Tariff.

[42] However, capacity from Non-Dynamically Scheduled System Resources that has not been designated as RA Capacity is not eligible to participate in RUC. *See* MRTU Tariff, Section 31.5.1.1

absolute necessity for the CAISO to perform its core, NERC-mandated function of reliable grid operation. Notably, every other ISO in operation has a Day-Ahead unit commitment process designed to commit sufficient units to meet the ISO's forecasted Demand and minimize total costs.[43]

a RUC Costs Compensation

All capacity selected in RUC is eligible for the RUC Availability Payment, except for capacity from RMR Units that has been flagged as an RMR Dispatch in the Day-Ahead Market and Resource Adequacy Capacity. *See* Section 31.5.6 of the MRTU Tariff. Resources may submit a Bid for RUC availability as a component of their IFM Bids, up to a cap of $250/MWh. *See* Sections 30.5.2.7 and 39.6.1.2 of the MRTU Tariff. The resource's entire RUC Availability Payment for a given hour will be rescinded if the resource engages in uninstructed deviations beyond the CAISO's allowable tolerance band or is not available to respond to a CAISO dispatch instruction.

Resources committed in RUC, including RMR Units that are not subject to an RMR Dispatch in the Day-Ahead Market, and Resource Adequacy resources, are also eligible for recovery of Start-Up and Minimum Load Cost compensation, as further discussed below in Section V.I of this filing letter. The CAISO will ensure units recover all such costs net market revenues and will allocate any such uplift costs as described below and in Section 11.8 of the MRTU Tariff.

b. RUC Self-Provision

In response to stakeholder comments earlier in the MRTU development process, the CAISO developed a conceptual proposal for RUC self-provision, whereby LSEs that want to schedule less Demand in the Day-Ahead Market than their forecasted Demand for the next day would be able to self-provide RUC Capacity rather than rely on the CAISO's RUC procedure to procure such capacity and be subject to RUC cost allocation. This proposal was submitted for Commission consideration in May 2004. The Commission's June 17, 2004 Order accepted the CAISO's conceptual proposal and directed the CAISO "to address the functional concerns raised by intervenors as well as any other issues through the stakeholder process." 107 FERC ¶ 61,274 at P 57. As the June 2004 Order suggests, RUC self-provision was a market feature that has been developed primarily in response to stakeholder requests and has not been identified by either the Commission or the CAISO as an essential feature of the MRTU market design. In the Commission's September 19, 2005 Order, the Commission clarified that the CAISO is not required to include RUC self-provision in the MRTU Tariff, but stated that "we expect that the CAISO will address reasons for the inclusion or exclusion of RUC self-provision in a transmittal letter to its tariff filing." 112 FERC ¶ 61,310 at P 50.

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[43] *See New England Power Pool*, 88 FERC ¶ 61,147 at 61,491 (1999) (independent system operator commits sufficient reserves to ensure that it has adequate supply committed to meet forecasted Load); *Central Hudson Gas & Electric Corporation, et al.,* 86 FERC ¶ 61,062 at 61,222 (1999) (NYISO commits sufficient capacity to meet the Load forecast and provide ancillary services); *see also* PJM West Reliability Assurance Agreement, Article 8.

Based on stakeholder input received over the course of the 2005 MRTU stakeholder process, it is apparent to the CAISO that most stakeholders now do not believe that the RUC self-provision feature is a priority for MRTU Release 1. Because RUC self-provision is no longer responsive to stakeholder priorities, and because the CAISO does not believe this feature is an essential element of the MRTU market design, the CAISO has decided not to include RUC self-provision in MRTU Release 1.

4. Extremely Long-Start Resources

There are a number of resources with long start-up times, for which commitment in the DAM does not provide sufficient time to start-up and be available to supply Energy during the next Trading Day. The CAISO has explored a multi-day unit commitment process to be incorporated into the IFM and the associated MRTU software. After consultation with the CAISO's software vendor, however, the CAISO has determined that a multi-day unit commitment could not be implemented for MRTU Release 1. In accordance with Section 27.4.1 of the MRTU Tariff, however, the CAISO will utilize the SCUC algorithm on a two-day-ahead basis to commit these resources, called "Extremely Long-Start Resources." The CAISO also intends to explore a multi-day unit commitment IFM and/or longer than 48-hour RUC commitment after the initial MRTU release. This approach will allow for a coordinated evaluation of the software systems prior to implementing a multi-day IFM unit commitment.

G. Hour-Ahead Scheduling Process and the Real-Time Market

1. HASP

The Direct Testimony of Lorenzo Kristov (Exhibit No. ISO-1), provided as Attachment F to this filing letter, explains the development of the CAISO's Hour-Ahead Scheduling Process and why the CAISO chose the HASP design for MRTU Release 1, rather than a complete Hour-Ahead settlement market. The CAISO submitted its HASP proposal for Commission approval in its May 13, 2005 Filing, which included support for the CAISO's proposal in the May 12, 2005 Comments of Scott M. Harvey and William W. Hogan on the California ISO's Proposed Hour-Ahead Scheduling Process. These comments are also provided as Attachment P to this filing letter. The Commission conceptually approved the HASP design in its July 1, 2005 Market Design Order. 112 FERC ¶ 61,013 at PP 65-66.

The HASP consists of a several processes during the "Real-Time" set of processes that occur during the hour prior to the actual operating hour. HASP includes a Bid submission process that applies to market processes during the HASP and the RTM, an hourly run of the Real-Time Unit Commitment ("RTUC") process, which is one of the component processes of the RTM, MPM-RRD[44] for Bids submitted to the HASP and RTM and hourly pre-dispatch of

[44] The MPM and RRD functions of the RTM are analogous to the same functions of the DAM. They are both performed hourly, 7½ minutes after the close of the RTM for a Trading Hour, i.e., 67½ minutes before the start of that Trading Hour. The MPM performs a test to determine that the bids do not reflect local market power based on specific criteria. If the test fails, the MPM mitigates the affected bids for that Trading Hour. The resultant mitigated bids are then used by all other RTM applications. The RRD determines the minimal and most efficient use of RMR resources to address local reliability in meeting the CAISO demand forecast over that Trading Hour. As discussed in more detail in Section V.F above, the MPM and RRD functions are performed simultaneously.

imports and exports at Scheduling Points. Bids submitted in the HASP are used for the MPM-RRD and RTUC processes conducted during the HASP and also the RTUC, Short-Term Unit Commitment ("STUC") and Real-Time Dispatch conducted in the RTM. Bids may be submitted for the HASP and RTM any time after the Day-Ahead Schedules are posted up to 75 minutes before each operating hour (T-75).[45] *See* MRTU Tariff at Section 33.1. The HASP and the RTM accept Bids for Supply only.

The HASP provides an opportunity for SCs to Self-Schedule additional Supply resources and wheeling transactions and, to the extent SCs wish to Bid to supply Energy, such Bids will be treated as Bids to supply Energy to the CAISO's Real-Time imbalance market. *See* MRTU Tariff, Section 33.1. Self-Schedules that clears HASP constitute a feasible dispatch for the RTM at the time HASP is run, but are not financially binding until the RTM has run. *See* MRTU Tariff, Section 33.3. Self-Schedules processed through HASP are posted. *See* MRTU Tariff, Section 33.6. HASP Self-Schedules will not be modified by the RTM so long as there are Economic Bids available to clear the RTM. To the extent that the CAISO does perform non-economic adjustments in Real-Time and the CAISO must decrease Supply schedules, Self-Schedules will have a higher priority than Economic Bids submitted for the HASP and RTM, but a lower priority than Day-Ahead Schedules, Participating Load increases, RMR Self-Schedules, ETCs and TORs and non-Participating Load increases. *See* MRTU Tariff, Section 34.10

In particular, the differences between the final Day-Ahead Schedules and these pre-dispatches are not subject to any Real-Time Uninstructed Deviation Penalties ("UDP"). If implemented, the UDP would, of course, still apply to any uninstructed deviations, outside of allowable tolerance bands, from the pre-dispatches and other Real-Time Dispatch Instructions.

Bids submitted in the HASP for imports and exports at Scheduling Points that clear in the HASP will be issued binding pre-dispatch instructions by 45 minutes before each operating hour through HASP Intertie Schedules. *See* MRTU Tariff, Section 33.6. These include non-dynamic System Resources, whether or not they are attached to specific physical resources. Once these pre-dispatch instructions are issued, they become the reference for System Resources for measuring Real-Time deviations, so that differences between Day-Ahead Schedules and HASP pre-dispatch levels are not subject to any Real-Time Uninstructed Deviation Penalties. *See* MRTU Tariff, Section 11.23. Supply resources that submit energy bids to the HASP/Real-Time process and are dispatchable within the hour will simply roll to the RTD process that issues dispatch instructions every five minutes within the operating hour. *See* MRTU Tariff, Sections 33.1 to 33.2. These include dynamically scheduled resources. Only Energy and AS from Imports will be priced using LMPs produced by the HASP.[46] *See* MRTU Tariff, Sections 33.2, 33.8.

The CAISO runs the SCUC optimization to simultaneously clear Congestion and Energy and identify the optimal sources of any incremental AS that may be needed. The Demand used

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[45] While the HASP and the Real-Time Market are distinct procedures, they are interrelated by design, and often referred to as one process (HASP/RT).

[46] Intertie resources that are dynamically scheduled will be dispatched economically by the 5-minute RTD and settled based on real-time prices. All other intertie resources will be dispatched on a 60-minute basis in the HASP and settled based on HASP prices.

in this optimization is the CAISO's Demand forecast, distributed to nodes based on Load Distribution Factors.[47] *See* MRTU Tariff, Section 33.2. Hourly pre-dispatches of intertie Energy supplies and procurement of AS imports are also determined in this process. *See* MRTU Tariff, Sections 33.2, 33.7. The RTUC runs automatically every 15 minutes , at the middle of each quarter of each hour, i.e., at 7½ minutes , 22½ minutes, 37½ minutes, and 52½ minutes into each hour. The RTUC Time Horizon is composed of a variable number of 15-minute intervals that span the current and next Trading Hours. *See* MRTU Tariff, Sections 34.2. The first 15-minute interval starts 22½ minutes after RTUC execution, *e.g.*, when RTUC runs at 7½ minutes into an hour, its Time Horizon starts at 30 minutes into that hour. The Ancillary Service awards for the first 15 minutes interval of the Time Horizon are binding; the rest are advisory. *See* MRTU Tariff, Sections 33.7, 34.2.2. The Bids used in the next Trading Hour are the mitigated Bids from the last execution of the MPM-RRD. The Bids used in the current Trading Hour are the mitigated Bids from the previous execution of the MPM-RRD. The RTUC execution at 52½ min into a given hour coincides with the HASP execution at 67½ minutes before the start of the latest Trading Hour for which Bids are submitted.

2. Real-Time Market

As set forth in Section 34 of the MRTU Tariff, the RTM will consist of three processes conducted throughout the operating day: the STUC, RTUC and the RTD. Together these processes will optimize Energy and Ancillary Services Bids with an objective of: (i) satisfying Real-Time Energy needs; (ii) mitigating Congestion; (iii) allowing resources providing Regulation service to return to the preferred operating point within their regulating ranges; (iv) allowing recovery of Operating Reserves utilized in Real-Time operations; and (v) procuring Voltage Support required from resources beyond their power factor ranges in Real-Time.

Dispatch Instructions issued through the RTM include Energy from Participating Generators, Participating Loads, System Units and System Resources for Ancillary Services either procured through the CAISO Markets, Self-Scheduled, or Dispatched in accordance with the RMR Contract.

As discussed above, the CAISO uses the same Supply Bids submitted in the HASP to clear the RTM and does not accept Demand Bids. *See* Section 34.1 of the MRTU Tariff. As is the case in HASP, the processes conducted in the RTM optimize submitted Supply Bids against the CAISO forecast of CAISO Demand plus the net HASP Intertie Schedules.

Pursuant to Section 34.4 of the MRTU Tariff, at the top of each hour, immediately after the RTUC run is completed, the CAISO will perform an approximately five (5) hour STUC run using SCUC and the CAISO Demand Forecast to commit Medium Start Units and Short Start Units with start-up times greater than the Time Horizon covered by the RTUC. The RTUC will

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[47] Performing the HASP optimization based on the CAISO's Demand forecast rather than submitted Demand Bids and Self-Schedules has the additional benefit of solving the problem of trying to prevent capacity procured in the Day-Ahead RUC process from scheduling Hour-Ahead exports. Under this HASP proposal, it is no longer a problem because the HASP is simply an extension of the Real-Time imbalance market and, just like in the original design of the CAISO's Real-Time Unit Commitment, Supply Bids are cleared against forecast Demand, which is not price-elastic and therefore will be served before any export Bids can be cleared.

run every fifteen minutes, also using SCUC, to commit Fast-Start and some Short-Start resources. *See* Section 34.2 of the MRTU Tariff. In addition, the RTUC ensures that additional Ancillary Services are procured. The RTD will run every five minutes, using a SCED algorithm to determine the optimal Dispatch Instructions to balance Energy Supply and Demand and maintain required Ancillary Services quantities. *See* Section 34.3. The RTD optimizes over a Time Horizon of 65-minutes, but would only issues Dispatch Instructions for the next five minutes. *See* Section 34.3.1. The CAISO would not necessarily issue Start-Up instructions for medium, fast-start or short start resources committed through the RTUC and STUC immediately. Instead the software allows CAISO the flexibility to issue such instructions only at the latest possible time that would be necessary to allow the resource to be ready for the targeted Dispatch Interval. The Direct Testimony of Lorenzo Kristov provides more details on this process.

The RTM will use an updated Full Network Model in clearing the market and will utilize the state estimator to evaluate the most current status of the grid. *See* MRTU Tariff, Section 34.1

During normal operating conditions, the CAISO will Dispatch those resources that have contracted to provide Spinning and Non-Spinning Reserve, except for those reserves designated as "Contingency Only," in conjunction with the normal Dispatch of Energy. *See* MRTU Tariff, Section 34.8. Contingency Only reserves are operating reserve capacity that has been designated, either by the Scheduling Coordinator or the CAISO, as available to supply Energy in the Real-Time only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency. *See* MRTU Tariff at Sections 34.8 and 30.5.2.6.2 to 30.5.2.6.3. In MRTU Release 1, due to software design limitations, the AS Contingency Only Flag for a resource is a daily selection. In other words the "Contingency Only" status for a resource must be set to the same value for all hours of an operating day; it cannot vary hourly. The CAISO will explore provisions for hourly designation of the Contingency Only Flag in MRTU Release 2.

The normal mode of RTD is the Real-Time Economic Dispatch, which runs every five minutes. The RTED in general will not utilize Contingency Only Operating Reserves except when there is a shortage of Energy Bids to meet Real-Time Demand and the CAISO is facing an imminent System Emergency but there is no transmission or generation contingency, which means a significant outage or derate of a facility. In such cases the Contingency Only Operating Reserves will be included in the RTED with Energy Bid prices at the system Bid cap rather than their submitted Bid prices, to reflect the scarcity conditions. These Bid-cap Bid prices will be eligible to set Real-Time LMPs and thus provide a mechanism for scarcity pricing of Energy.

The second mode of RTD is the Real-Time Contingency Dispatch ("RTCD"), which is invoked when there is a transmission or generation contingency, which means a loss or significant derate of a facility. The RTCD can be invoked by the CAISO operators immediately upon identifying the need for it; the operators do not have to wait for the appointed time of the next RTED run. The RTCD incorporates the Contingency Only Operating Reserves at their actual Bid prices because circumstances are not scarcity conditions, but reflect the explicit intended use of such reserves. It should be noted that, under such conditions, the CAISO operators may also issue a commitment instruction to a Generating Unit that is needed to address the contingency, rather than having to wait for the next RTUC run.

The third mode of RTD is the Real-Time Manual Dispatch ("RTMD"), which is a fall-back Dispatch tool for CAISO operators in cases where the RTED or RTCD fail to arrive at a solution in a timely manner. The RTMD is a very limited tool, however, in the sense that it simply provides a price-quantity Supply stack for the system, issues Dispatch Instructions and determines system-wide Energy clearing prices for each five-minute interval without enforcing internal transmission constraints. It is intended to be used extremely rarely.

As set forth in the MRTU Tariff, Section 34.9, the CAISO may also conduct Exceptional Dispatches in the Real-Time process that are not part of the RTD dispatch process and may therefore require the issuance of forced shut-down or start-up instructions. Energy dispatched pursuant to an Exceptional Dispatch shall not be eligible to set the LMP at the applicable PNode and is settled differently depending on the type of Exceptional Dispatches that apply. Much like today, under MRTU the CAISO would have the ability to issue Dispatch Instructions pursuant to an Exceptional Dispatch for the following purposes:

1. During a System Emergency;
2. To prevent an imminent System Emergency or a situation that threatens reliability that cannot be addressed in the RTM optimization and system modeling;
3. To dispatch in the Real-Time process any non-dynamically scheduled system resources that were not or would not have been selected in the RTM but for which the SC has submitted a bid in the HASP;
4. To perform Ancillary Services testing;
5. To provide for voltage support;
6. To accommodate ETCs or TORs Self-Schedule changes after the HASP bidding process closes; or
7. To reverse a commitment instruction issued through the IFM that is no longer optimal as determined by RUC.

H. Ancillary Services

While differences in the procurement of AS under MRTU are discussed below, several aspects of the procurement of AS under MRTU are unchanged from the existing regime: (i) the amount of AS procured is based on the same WECC and NERC criteria as under the current tariff; (ii) the CAISO will procure AS on a system-wide basis and ensure the appropriate locational dispersion of the services as under the current Tariff; (iii) the CAISO retains the flexibility to procure on a regional basis within the CAISO Control Area if system conditions merit doing so; (iv) the CAISO retains a similar ability to use higher quality AS to meet requirements for lower quality AS if substitution results in lower costs overall; (v) SCs may bid or self-provide AS; (vi) providers of AS will receive a clearing price for their Ancillary Services; and, (vi) as under the existing Tariff, the allocation of the CAISO procurement costs are to metered Demand.

Differences in Ancillary Service procurement relate to and include the following MRTU elements: (a) the co-optimization of Energy and Ancillary Service in the IFM, HASP, and RTM; (b) the absence of the balanced schedule requirement; and (c) differences in the timing of

Congestion Management as it relates to AS procurement. The effects of these differences are discussed below.

1. Procurement and AS Regions

The CAISO will procure the following four types of Ancillary Services under the MRTU market design: Regulation Up ("Reg-Up"); Regulation Down ("Reg-Down"); Spinning Reserve ("Spin"); and Non-Spinning Reserve ("Non-Spin"). MRTU Tariff, Section 8.3.5. The CAISO will no longer procure Replacement Reserves under MRTU.[48]

In the Day-Ahead Market, the CAISO will procure one hundred (100) percent of its AS requirements based on the day-ahead Demand Forecast net of self-provided AS. *See* MRTU Tariff, Section 8.3.1. After the Day-Ahead Market, the CAISO will procure additional AS needed to meet system requirements from: (a) imports in the HASP, and (b) generation internal to the CAISO Control Area in the RTM. The amount of AS procured in the HASP and in the RTM is based upon the CAISO Demand Forecasts for the operating hour net of self-provision.

As noted above, and as detailed in Section 8.2.3.5 of the MRTU Tariff, the CAISO, whenever possible, will increase its purchases of an AS that can substitute for a lower quality AS when doing so is expected to reduce its total cost of procuring AS and Energy while meeting reliability requirements. The substitution can only occur with Bid-in AS; it may not take place with self-provided AS. AS Bids are evaluated simultaneously with Energy Bids in the IFM, HASP, and RTM to clear Bid-in Supply and Demand, and to meet the AS requirements net of qualified AS self-provision. The co-optimization of Energy and AS means that the capacity of a resource with Energy and AS Bids is optimally used for an Energy schedule, or it is reserved for AS in the form of AS awards.

Under the MRTU Tariff, the CAISO will procure AS for the CAISO Control Area as it does today and will have a similar ability to procure based on Regions within the CAISO Control Area.[49] *See* Sections 8.2.3 and 8.3.3 of the MRTU Tariff. The CAISO Control Area is referred to as the "System Region." The term "Expanded System Region" is used to refer the CAISO Control Area and the Interties with the adjacent Control Areas. The CAISO can impose constraints in order to ensure that the required amounts of AS are reasonably distributed across the system. As it does today, if system conditions merit, the CAISO also may identify Sub-Regions within the System Region to ensure appropriate distribution and effectiveness of the procured AS.

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[48] A few parties have argued that the CAISO should rely on Replacement Reserves (as already provided in the CAISO Tariff) rather than RUC. The Replacement Reserve, in its current form, is not an adequate substitute for unit commitment because, other than No-Pay, there is no explicit obligation to provide the service. In addition, the CAISO will procure Ancillary Services in real time (every 15 minutes) under MRTU. To the extent entities request a service in addition to both RUC and the proposed procurement of Ancillary Services in IFM, HASP, and RTM, such a request will be discussed with stakeholders as part of the prioritization process for Release 2 items.

[49] Today the CAISO has the ability to procure AS on a zonal basis (*i.e.*, NP15, SP 15 and ZP 26); under MRTU, the CAISO will have a similar ability to define "sub-regions" for AS procurement if required by system conditions and constraints. *See* MRTU Tariff, Section 8.3.3.

Within the Expanded System Region, the System Region, and any Sub-Regions, the CAISO can establish limits on the amount of AS that can be provided from or within the regions. *See* Section 8.3.3 of the MRTU Tariff. When used, these limits identify either a maximum or a minimum (or both a maximum and a minimum) amount of AS to be obtained within the region. The minimum AS limit in the Expanded System Region shall be the quantities of each Ancillary Service required to meet the WECC and NERC requirements for the CAISO Control Area.[50]

2. Self-Provision of AS

Scheduling Coordinators are allowed to self-provide AS by making a submission to self-provide AS in the IFM, HASP, or RTM in accordance with Section 8.6.2 of the MRTU Tariff. Prior to evaluation of Bids in the IFM, HASP, and RTM, the CAISO will determine if a submission to self-provide an AS is feasible with regard to resource operating characteristics and regional constraints and is qualified to provide the AS in the market for which it was submitted. A submission to self-provide AS is a submission that contains all of the bidding requirements for the AS with the exception of capacity price information.[51]

If a regional constraint imposes a limit on the total amount of Reg-Up, Spin, and Non-Spin, and if the total self-provision of these AS in that region exceeds that limit, self-provided AS are qualified pro rata in three tiers: Reg-Up first, followed by Spin, and then by Non-Spin. *See* Section 8.6.2 of the MRTU Tariff. AS self-provision accepted by the CAISO (defined as an "Ancillary Service Schedule") effectively reduces the AS requirements that need to be met by AS Bids.[52] Self-Provided AS Schedules also reduce the AS obligation for each SC in the AS cost allocation.

The software for MRTU Release 1 does not allow for imports of Self-Provided AS. MRTU Tariff, Section 8.1. The provision of AS over the interties with adjacent Control Areas is limited to AS Bid into the IFM, HASP, and RTM. Currently, the CAISO runs Congestion Management prior to running the AS markets and, therefore, knows the amount of transmission capacity that is available on the interties and can accept self-provision of AS accordingly. Under MRTU, however, Congestion Management and the AS markets are performed simultaneously and both Energy and AS compete for transmission capacity on the interties. Under these circumstances, if CAISO were to accept Self-Provided AS, it would give AS self-provision a higher priority of use on the intertie than Bid Energy and AS imports that are co-optimized, effectively reserving transmission capacity for imported AS self-provision. The result would be an inefficient allocation of intertie transmission capacity. This issue is scheduled to be addressed in Release 2 software enhancements. For the time being, Scheduling Coordinators that want to

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[50] For example, the CAISO also may establish a restriction on the amount of Ancillary Services to be procured from outside the CAISO Control Area by establishing a minimum limit for the System Region.

[51] The CAISO notes that a submission to self-provide an AS does not require Energy price information in the IFM; however, such information is required for all selected Self-Provided AS Schedules in the HASP because it is need to dispatch the Energy associated with the AS Bid in real time.

[52] The term "Ancillary Service Schedule" is defined as the notification by the CAISO indicating that a Submission to Self Provide an Ancillary Service has been selected to provide such service in the Day-Ahead, HASP, or Real-Time Market. The term "Ancillary Services Award" is used to refer to an AS Bid that has been selected to provide such service in the Day-Ahead, HASP, or Real-Time Market. *See* MRTU Tariff, Appendix A (at definitions of "Ancillary Service Schedule" and "Ancillary Services Award").

satisfy their AS obligations through AS imports have the option of bidding their AS imports at a low price (*e.g.*, at $0 or a negative price).[53]

3. AS Pricing and Cost Allocation

Ancillary Service Marginal Prices ("ASMPs") will be used to pay the Ancillary Service providers for providing the AS through market Bids. *See* Section 11.1 and 11.10.1.1 of the MRTU Tariff. An ASMP will be calculated for each resource for each type of AS in each market. The ASMP compensates resources for their AS Awards; the ASMP for a given resource and Ancillary Service would not be lower than the submitted AS Bid. Furthermore, the ASMP would also reflect any opportunity costs in reserving capacity for AS instead of scheduling that capacity as Energy in the same market. The ASMP at a given location is the sum of the AS Bid price and the opportunity cost of the unit that is marginal, *i.e.*, the unit that provided the last increment of AS (or will be providing the next increment of AS).

The ASMP is not unit-specific, but location-specific (similar to LMP). If there is a single AS Region, all units in that Region will have the same ASMP set by the marginal unit. *See* MRTU Tariff, Section 11.10. While the AS pricing system is similar to today's system with marginal clearing AS prices, it is important to note that under MRTU (and in contrast to the current AS markets), a bidder with an AS Bid price lower than that of the marginal AS bidder may not be selected to provide the AS if it has a higher opportunity cost as determined in the co-optimization of Energy and AS. If the co-optimization can save more money by having the lower bidder supply Energy and not AS, it will do so. *See* MRTU Tariff, Section 31.3.1.1.

AS imports compete with Energy imports by virtue of their Bid prices. AS imports that are selected in the IFM will be paid the ASMP at the relevant intertie Scheduling Point, but are charged for Congestion across the intertie. The Congestion Charge rate for these imports is the shadow price of the intertie transmission constraint.

a. AS Pricing in the HASP and RTM

As described above, the HASP is a scheduling process that is part of the RTM. However, there is a financial settlement for certain hourly transactions in the HASP, *i.e.*, those transactions that involve Energy and AS imported over the interties with adjacent Control Areas. *See* Section 33.7 of the MRTU Tariff. This aspect of the HASP is an hourly run of the Real-Time Unit Commitment process with the time horizon that spans all of the next Trading Hour. The procurement of the AS is for the entire operating hour and hourly pre-dispatch schedules, awards, and prices are established in HASP optimization.

Suppliers of imported AS in HASP are paid the product of the simple average of the ASMPs computed in the four 15-minute intervals for the each AS times the quantity of the capacity awarded for the AS for the Settlement Period.[54] MRTU Tariff, Section 11.10.1.2. The

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[53] Due to a similar software limitation, MRTU Release 1 will not automatically reserve transmission capacity to export AS, except for ETC or TOR schedules at the interties. Extending this functionality to all Market Participants and automating it will be considered as a feature for MRTU Release 2.

[54] The simple average of the four, fifteen-minute ASMPs is computed at each Scheduling Point.

payment of the average of the four 15-minute ASMPs guarantees not only that Ancillary Service imports will be paid their AS Bid cost, but also ensures recovery of any Congestion charges that they incur as a result of providing AS across the interties. To recover the cost of CRR payments on CRRs across congested Interties, AS Awards are charged explicitly for the marginal cost of Intertie congestion at the relevant shadow price.[55]

Suppliers of Ancillary Services from internal resources as well as dynamically scheduled physical external resources that are selected to provide Ancillary Services in Real-Time are paid a price equal to the relevant 15-minute ASMP at the resource location multiplied by the amount of the capacity awarded for the Ancillary Service in the relevant Ancillary Service Region. *See* Section 11.10.1.3 of the MRTU Tariff.

b. AS Cost Allocation

The cost of procuring Ancillary Services by the CAISO will be allocated based on each SC's obligation for each service, as determined by its Measured Demand, and its import and export schedules. As set forth in the MRTU Tariff, Section 11.10.2, the hourly user rates calculated for each AS includes the cost incurred by the CAISO to procure the service collectively across the DAM, HASP, and the RTM. The net cost of AS procurement, *i.e.*, all the AS payments for AS Awards for each AS in the DAM and RTM net of "No-Pay" tier 1 charges, is recovered through an AS user rate charged to Scheduling Coordinators in proportion to their AS obligation, adjusted by Inter-SC AS trades. Each SC's AS obligation is determined by the Metered Load, with some AS-specific modifiers, and is then reduced by the SC effective AS self-provision.

If Ancillary Service Awards and Self-Provided AS capacity are unavailable during the relevant Settlement Interval, then payments will be rescinded as described in Section 8.10.8 of the MRTU Tariff.[56] The rescission of payments applies to AS provided in the IFM, HASP, or RTM, and the rescission is in proportion to the amount of capacity sold in each market. The No-Pay AS capacity is charged back to the relevant SC in two tiers: In the first tier, No-Pay AS capacity up to the total AS Award from selected AS Bids in the DAM and RTM is charged back at the weighted average of the relevant ASMPs. In the second tier, any remaining No-Pay AS capacity up to the total AS Award for the Self-Provided AS in the DAM and RTM reduces the relevant SC effective AS self-provision in the AS cost allocation, effectively charging it back at the relevant AS rate.

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[55] The congestion cost is reflected in the "shadow price" of a congested intertie, where congestion is caused by competing Energy schedules and AS transmission capacity reservations. The shadow price of a congested intertie is the cost sensitivity of the binding inter-tie constraint at the optimal solution, *i.e.*, the marginal reduction of Energy-AS procurement cost for a marginal relaxation of that constraint.

[56] Undispatchable Capacity is selected AS capacity that is not available for use due to a derate or outage of the resource. *See* MRTU Tariff, Section 8.10.8.1. Unavailable Capacity is selected AS capacity that was not dispatched by the CAISO but where all or a portion of the capacity is not available for dispatch in real time. *See id.*, Section 8.10.8.2. Undelivered Capacity is selected AS capacity that was dispatched by the CAISO but where the Dispatch Instruction was not followed and a certain percentage or more of the expected energy was not provided in real time. *See id.*, Section 8.10.8.2.

I. Bid Cost Recovery

1. Calculation of Bid Cost Recovery Costs and Payments

Section 11.8 of the MRTU Tariff includes a Bid Cost Recovery ("BCR") mechanism by which Bid Cost and market revenues associated with a resource are netted over a Trading Day across all CAISO Markets, and any revenue shortfalls are paid out to the relevant resources, subject to several conditions and rules. Dr. Rahimi describes this mechanism in detail in his Direct Testimony, provided as Attachment I to this filing.

The CAISO proposes to implement the BCR mechanism in order to ensure that resources that are committed by the CAISO in the IFM, RUC, and Real-Time Market are able to recover their Start-Up Costs, Minimum Load Costs, and Energy and Ancillary Services Bid Costs. The BCR mechanism also ensures that regardless of whether or not a resource is committed by CAISO, to the extent its market Bids are accepted by CAISO, it recovers its Bid Costs. Bid Cost Recovery is necessary to ensure that resources that are committed by the CAISO recover their Minimum Load and Start-Up Costs to the extent market revenues are not sufficient to cover such costs. In addition, due to physical constraints of resources, such as ramping times, resources may be operating during time periods where their Energy Bids for the specific time interval was above the LMP for that time interval. If market revenues over the day are not sufficient to recover such costs, resources will not receive sufficient compensation for the Energy provided pursuant a CAISO commitment.

The CAISO believes that netting market revenues against costs for a 24-hour period is appropriate. In all of the CAISO Market Processes, the constraints that result in prices in some intervals being insufficient for certain resources to recover their Bid Costs ultimately results in a less economic solution overall than where the constraint had not been present. However, a resource that might be constrained in some intervals will be provided an opportunity to benefit in other intervals that increase the price, or both the price and the amount of infra-marginal Energy dispatched and settled from that resource.

Therefore, it is appropriate that if a resource is being compensated via an uplift payment when the resource is extra-marginal (*i.e.*, not recovering its costs), that the resource internalize such payments before spreading such costs to the rest of the market. Since the effects of a constrained resource has impacts beyond one interval or one hour, and the fact that the optimization horizon is continuously shifting from one hour to the next, a 24-hour netting period for purposes of calculating BCR is reasonable. Moreover, this daily compensation approach is consistent with other ISOs with regards to Bid Cost Recovery. Finally, it should be noted that the Commission approved a 24-hour netting approach for BCR under the CAISO's current market design. *S*ee California Independent System Operator Corp., 105 FERC ¶ 61,091 at P 94 (2003).

All internal generators, Participating Loads, and System Resources, under certain conditions, are eligible for Bid Cost Recovery. Internal generators and Participating Loads are eligible for recovery of their Energy and AS Bids, and RUC Bids, if any, as well as the

Minimum Load and Start-Up Costs. System Resources are also eligible for BCR for their Energy Bids to the extent their market revenues over the Trading Day are insufficient to recover such costs. But not all System Resources are eligible for recovery of Start-Up and Minimum Load Costs. Only those System Resources that are representative of actual physical external resources are eligible to submit Start-Up and Minimum Load Bids, and all other System Resources must submit zero-Bids for Start-Up and Minimum Loads.

Resources are only eligible for BCR for their Start-Up and Minimum Load Costs to the extent that they are committed by the CAISO. MRTU Tariff, Section 11.8. Thus, if a resource is providing Energy pursuant to a Self-Schedule, or Self-Provided Ancillary Services, then the resource is not eligible to receive BCR for its Start-Up and Minimum Load Costs during such time intervals for those transactions.[57] The reasoning for this is that resources that are self-committed are presumed to be operating pursuant to a bilateral contract through which the resource is likely to be receiving compensation for its Start-Up and Minimum Load Costs. The CAISO does not believe that it is equitable to allocate to its Market Participants charges relating to the Start-Up and Minimum Load Costs for resources when those costs are recovered through bilateral transactions and already allocated to the counterparties to such contracts. The rules for determining whether a resource is operating pursuant to a CAISO commitment are set forth in Section 11.8.1 of the MRTU Tariff.

In determining whether eligible resources will receive a BCR payment, the CAISO will compare the Bid Costs and the market revenues of each eligible resource in each CAISO Market for each Settlement Interval.[58] The CAISO will apply a separate formula for each CAISO Market (IFM, RUC, and Real-Time) to calculate the Bid Costs and market revenues. Generally, Bid Costs in the various markets will include: (1) qualified Start-Up Costs, (2) qualified Minimum Load Costs, (3) Energy costs, (4) Ancillary Services costs, and (5) RUC costs. The reference to "qualified" Start-Up and Minimum Load Costs means that the CAISO will not necessarily count all of a resource's Start-Up and Minimum Load Costs in its total Bid Costs. Instead, the CAISO will apply a set of sequential rules to determine whether a resource's Start-Up and Minimum Load Costs will be qualified for BCR payment during a particular Settlement Interval. The purpose of these rules is to ensure that resources do not receive multiple recoveries of their Start-Up and Minimum Load Costs. The amount of BCR for each resource is determined over the operating day by netting all revenues and eligible costs for that resource across IFM, RUC, and RTM, excluding revenues from Self-Scheduled Energy and Self-Provided A/S. Only resources with non-negative BCR amounts are paid uplift. For purposes of allocating

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[57] Resources will be eligible to recover their Bid Costs regardless of whether they were committed by the CAISO or operating pursuant to a Self-Schedule.

[58] The CAISO recognizes that the Commission, in the context of the CAISO's current market design, denied the CAISO's proposal to net a must-offer resource's Minimum Load Costs against other market revenues. *See California Independent System Operator Corp.*, 111 FERC ¶ 61,207, at P 24 (2005). However, netting Minimum Load Costs against market revenues for purposes of BCR under MRTU is appropriate. Under MRTU, the must-offer obligation will no longer exist, except with respect to units under an RA contract. With respect to units not under an RA contract, there is no reason to deny the netting of their Minimum Load Costs against market revenues, as these units have the freedom to choose when they wish to participate in the CAISO markets. With respect to units under an RA contract, recovery of their Minimum Load Costs will be ensured through their RA contract, and therefore it is reasonable to net their Minimum Load Costs against their market revenues for purposes of determining BCR.

Bid Costs, the positive and negative revenues established for each such resource is netted across each Settlement Interval separately in each market (IFM, RUC, and RTM). To ensure that the uplift charges allocated to Market Participants are not greater than the amounts actually paid to suppliers, the CAISO will set negative uplifts in each Settlement Interval for each market (IFM, RUC, or RTM) to $0 and positive uplifts are reduced accordingly. These rules are explained in detail in Dr. Rahimi's testimony, and are set forth in Section 11.8.2 of the MRTU Tariff.

As Dr. Rahimi also explains in his testimony, a resource will not receive a BCR payment for a Settlement Interval if its Uninstructed Deviations during that Settlement Interval exceed a certain threshold. Specifically, for purposes of calculating BCR, a resource's eligible costs for a Settlement Interval will be set to zero if the amount of Uninstructed Imbalance Energy attributed to that resource during that Settlement Interval is in excess of the greater of: (1) five (5) MWh divided by the number of Settlement Intervals in the Trading Hour; or (2) 3% of its maximum capacity divided by the number of Settlement Intervals in a Trading Hour. *See* MRTU Tariff, Sections 11.8.2.1, 11.8.3.1, 11.8.4.1. Although the Commission denied the CAISO's request to eliminate BCR payments under its current market design for resources whose Uninstructed Deviations exceeded a tolerance band,[59] the proposal to eliminate these payments under MRTU is reasonable, and should be approved. This rule is primarily set forth to create a level playing field for the Market Participants. Absent this rule, a resource owner with a bilateral contract who elects to declares such contractual obligation by Self-Scheduling its resource will be disadvantaged compared to another Market Participant with the same type of contractual obligation that decides not to disclose its obligation, wait to be committed by CAISO, receive compensation for its Start Up and Minimum Load, and the engage in uninstructed generation to meet its contractual obligation.

2. Bid Cost Recovery Uplift Allocation

The CAISO will apply generally accepted cost causation principles in allocating all costs incurred to ensure recovery of Bid Costs as described above. After offsetting such calculated costs with revenues obtained across all markets across the day, the CAISO will determine the remaining uplift for each Settlement Interval for the IFM, RUC, and the RTM. Such uplift will be funded through the application of uplift charges as further explained below. The rules for calculating these uplifts are set forth in Section 11.8.6 of the MRTU Tariff.

IFM uplift is allocated in two tiers. In the first tier, IFM uplift is allocated to Scheduling Coordinators in proportion to their IFM load uplift obligation, which is the difference between their total Demand scheduled in the Day-Ahead Schedule and the scheduled Generation from Self-Schedules in the Day-Ahead Schedule, plus imports scheduled in the Day-Ahead Schedule. The SC's IFM load uplift obligation is further adjusted by the any Inter-SC Trades for IFM load uplift obligations as indicated by the trade so that the IFM load uplift obligation of the transferee is increased by the traded amount and the transferor is decreased by the traded amount. In the first instance, the IFM load uplift obligations are allocated accordingly so that Scheduling Coordinators that Self-Scheduled generation and therefore did not cause any commitment of units through the IFM are no allocated such costs. However, this tier 1 rate is capped at a rate reflecting the amount of IFM BCR paid per MWh of Bid-in Supply (Energy and AS) that cleared

[59] *See California Independent System Operator Corp.*, 108 FERC ¶ 61,1141, at P 67 (2004).

the IFM for the Trading Hour. Any remaining IFM load uplift is allocated to Scheduling Coordinators in proportion to their metered CAISO Demand plus Real-Time interchange export schedules (*i.e.*, Measured Demand).

The RUC uplift costs are also allocated in two tiers. In Tier 1, costs associated with the RUC process will be borne by Scheduling Coordinators whose metered CAISO Demand is not fully scheduled in the Day-Ahead Market. However, this tier 1 rate is capped at a rate reflecting the amount of RUC BCR paid per MWh of the RUC Schedule above IFM Schedule that cleared RUC for the Trading Hour. These RUC uplift BCR costs should not be confused with RUC costs that are also allocated to metered CAISO Demand not fully scheduled in the Day-Ahead Market. The latter may have come from resources that did not have non-negative BCRs and were not even included in computing the BCR cost for RUC. In Tier 2, any excess of RUC costs not recovered in this manner (*i.e*., if the total MWh of underscheduled Load is less than the total MWh of RUC procurement) will be allocated, *pro rata*, to all Measured Demand.

In Real-Time, all RTM uplift costs are allocated to Scheduling Coordinators in proportion to their Measured Demand.

The separation of uplift allocation in this way allows CAISO to allocate such costs to parties that are responsible for causing the specific costs and limiting the allocation of such costs to Measured Demand to Real-Time commitment Bid Costs.

J. Resource Adequacy

As demonstrated by the 2000-2001 energy crisis in California, no market can function reliably, with reasonable prices and with limited volatility, in the absence of adequate infrastructure or resources. In order to maintain the reliability of the California electric grid and to serve customer needs, the CAISO must have the ability to serve Demand when and where it is needed.

The CAISO has acknowledged that a resource or capacity obligation (*i.e.*, the rules and activities for resource procurement) are matters best addressed at the state or local level. In November 2002, the CAISO Governing Board directed management to defer implementation of the CAISO's original "Available Capacity" or "ACAP" proposal intended to address resource adequacy issues and to instead actively participate in state-initiated resource adequacy-related proceedings. Since that time, the CAISO has collaborated with Market Participants and the CPUC in the CPUC's extensive process to establish resource adequacy requirements for utilities subject to its jurisdiction. The CAISO has also solicited stakeholder input on how the Resource Adequacy requirements should be reflected in the MRTU Tariff.

As discussed below, Section 40 of the MRTU Tariff requires that Scheduling Coordinators for all LSEs demonstrate that they meet standards concerning forward capacity and Energy procurement established by their Local Regulatory Authority, including the CPUC. The CAISO does not impose any obligation on LSEs or their regulators to specifically address local market power and reliability concerns. However, the CAISO will perform a study on an annual basis of the CAISO Controlled Grid, which applies established reliability criteria, to identify the

minimum quantity of capacity required in transmission-constrained areas to meet those reliability requirements. *See* Section 40.3.1 of the MRTU Tariff. The CAISO anticipates that its study will be performed based on assumptions, *i.e.*, load forecast, developed in conjunction with the CPUC and other Local Regulatory Authorities.[60] Accordingly, the CAISO expects that the quantity of capacity needed by each LSE to meet the CAISO's local capacity needs will be coextensive with the procurement obligation imposed on the LSE by the CPUC or other Local Regulatory Authority. Although unlikely, to the extent the resource adequacy programs of the CPUC or other Local Regulatory Authorities fail to incorporate the outcome of the study, or otherwise fail to permit the CAISO to meet its minimum Applicable Reliability Criteria,[61] or where a Scheduling Coordinator fails to satisfy its capacity obligation, the CAISO will utilize its procurement authority and allocate the costs of such CAISO procurement to Scheduling Coordinators that fail to demonstrate procurement of their proportionate share of local capacity. *See* Sections 40.3.4 and 42.1.8 of the MRTU Tariff. The integration of Resource Adequacy into the MRTU market design and the MRTU Tariff is described in the Direct Testimony of Mark Rothleder (Exhibit No. ISO-5), included as Attachment J to this filing letter.

1. Resource Adequacy and MRTU

As Mr. Rothleder explains, the CAISO is proposing to end the current Commission-imposed must-offer obligation and transition to a capacity-based obligation in which the CPUC and other Local Regulatory Authorities establish procurement requirements that require all LSEs within their jurisdiction to obtain sufficient resources to meet their Load with an adequate Reserve Margin and to ensure appropriate resources will be made available to the CAISO in the Day-Ahead Market, in the RUC process, and in HASP and Real-Time based on a unit's operating characteristics. The CAISO expects that each Local Regulatory Authority will develop a program that includes the following elements:

1. A Demand forecast;

2. Criteria as to the appropriate Resource Adequacy standards, including the Reserve Margin;

3. Criteria for what types of resources will qualify and how much capacity will count toward meeting the Reserve Margin;

4. Plans - Annual and Monthly - of how that Demand will be served;

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[60] The CPUC has initiated a proceeding that proposes to adopt by June 2006 local capacity requirements, including study assumptions (CPUC Docket No. R.05-12-013).

[61] This could generally occur under two scenarios. The first is where the procurement standards adopted by the CPUC for determining procurement obligations fail to incorporate the CAISO's mandated planning and operating standards. Under the CAISO Tariff, the CAISO must plan and operate the CAISO in accordance with Applicable Reliability Criteria, which include "Local Reliability Critera." *See* Appendix A of the MRTU Tariff. Second, even if all Scheduling Coordinators demonstrate compliance with their procurement obligations, it could be that the aggregate portfolio of all LSEs is not dispersed in a manner that fully meets the CAISO's reliability needs. The CAISO will attempt to minimize this outcome by identifying those resources that must be procured in any particular transmission constrained area. The CAISO's backstop procurement authority will serve as a mechanism to mitigate market power in this circumstance.

5. Requirements on how the resources will be available to the CAISO that are consistent with MRTU Tariff requirements; and

6. A program to ensure compliance so that the CAISO system Demand can be met and no one SC inappropriately leans on other participants.

a. Resource Adequacy Responsibilities of All Scheduling Coordinators

It is not necessary that one entity control each and every aspect of the Resource Adequacy process. The MRTU Tariff recognizes the extensive Resource Adequacy program adopted by the CPUC for LSEs under its jurisdiction. The CAISO has tried to accord entities that are not subject to the CPUC's jurisdiction similar deference in assuring that their customer needs are met. The CAISO has tried to balance this deference with its own standards designed to ensure that sufficient resources must be available in both the forward time-frames and in Real-Time in order to ensure system reliability. The CAISO believes the Resource Adequacy provisions delineated in Section 40 of the MRTU Tariff are consistent with general Good Utility Practice and will ensure that the CAISO will have resources available in when and where needed in a manner that is consistent with MRTU design.

Accordingly, the CAISO proposes that each SC scheduling for LSEs with Demand in the CAISO Control Area must demonstrate that it satisfies the standards set forth in Section 40 of the MRTU Tariff, either as: (1) a Reserve Sharing LSE, (2) a Modified Reserve Sharing LSE, or (3) a Load-Following MSS. Elements of the Resource Adequacy program applicable to each of these categories are described below.

The CAISO believes the tiers of respective obligations applicable to Reserve Sharing LSEs, Modified Reserve Sharing LSEs, and Load-Following MSSs are appropriate to prevent one party from leaning on the procurement practices of another given the different obligations (including penalties) imposed on each category. For example, the significant surcharge imposed on a Load-Following MSS if it does not fully meet its own Demand will provide the CAISO (and other affected parties) with greater confidence that the MSS Operator will, in fact, fully provide sufficient Energy and capacity to meet its needs. This confidence reduces the need for stringent information requirements and for CAISO control over the resources of the MSS Operator. Finally, the CAISO recognizes that the State Water Project within the California Department of Water Resources presents unique circumstances. Because of these characteristics, the CAISO proposes to develop a program in collaboration with the State Water Project that achieves the fundamental objective of Resource Adequacy to ensure that resources are available when and where needed and that no entity can lean on others.

b. Information Requirements

Scheduling Coordinators for Reserve Sharing LSEs or Modified Reserve Sharing LSEs – whether they represent IOUs, other entities subject to the jurisdiction of the CPUC, or entities not subject to the jurisdiction of the CPUC – are to provide the CAISO with certain categories of

information related to the basic elements of a Resource Adequacy program. For LSEs under CPUC jurisdiction, this information will be provided pursuant to the standards adopted by the CPUC. For LSEs not under CPUC jurisdiction, the CAISO outlined the general information requirements to ensure greater consistency among the submissions, while preserving the autonomy of the Local Regulatory Authority to determine specific substantive standards. *See* Section 40.2 of the MRTU Tariff.

Scheduling Coordinators representing a Load-Following MSS are to provide the CAISO with an annual Resource Adequacy Resource Plan that, at a minimum, sets forth the resources, if any, procured by the Load-Following MSS to meet local capacity requirements. *See* Section 40.3 of the MRTU Tariff.

c. Local Capacity Requirements

In addition, all Scheduling Coordinators serving Load in the CAISO Control Area will be subject to the CAISO's Local Capacity Area Resource demonstration requirements. On an annual basis, the CAISO will publish a study that determines the minimum amount of generation capacity that must be available to the CAISO within each Local Capacity Area. Local Capacity shall mean capacity from Generating Units, as specified by the CAISO in its study, and Participating Load capable of contributing toward the amount of generation capacity needed in a Local Capacity Area. *See* Section 40.3.1 of the MRTU Tariff. The responsibility for Local Capacity Area Resources will be allocated to all LSEs that serve Load in the Transmission Access Charge ("TAC") Area in which the Local Capacity Area is located in accordance with the LSE's proportionate share of Load within the TAC Area. *See* Section 40.3.2 of the MRTU Tariff. The MRTU Tariff does not, however, obligate any LSE to procure Local Capacity Area Resources. *See* Section 40.3.3 of the MRTU Tariff. Instead, the CAISO allocates this responsibility for purposes of allocating the cost of its own backstop procurement. *See* Section 40.3.4 of the MRTU Tariff. That cost allocation mechanism will incorporate the outcome of the CPUC's pending proceeding (R.05-12-013) related to local capacity procurement for CPUC-jurisdictional LSEs.

d. Determination of Qualifying Capacity and Net Qualifying Capacity

As defined in the MRTU Tariff, Qualifying Capacity is the maximum capacity from a resource that can be used to satisfy an LSE's Resource Adequacy demonstration. *See* Appendix A of the MRTU Tariff. The criteria for determining the types of resources that may be eligible to provide Qualifying Capacity and for calculating Qualifying Capacity for eligible resource types may be established by the applicable Local Regulatory Authority. The MRTU Tariff requires that, to provide Qualifying Capacity, a resource must:

(1) Be available for testing by the CAISO to validate Qualifying Capacity and determine Net Qualifying Capacity;

(2) Provide any information requested by the CAISO to apply the performance criteria to be adopted by the CAISO pursuant to Section 40.4.5;

(3) Be Bid into the CAISO Markets as required by the MRTU Tariff;

(4) Be in compliance with the criteria for Qualifying Capacity established by the relevant Local Regulatory Authority and provided to the CAISO; and

(5) Be subject to sanctions for non-performance as specified in the CAISO Tariff.

See Section 40.4.3 of the MRTU Tariff.

The term "Net Qualifying Capacity" recognizes that resources cannot always be relied on to deliver their maximum output. The CAISO will make the determination as to Net Qualifying Capacity based on: (1) testing and verification; (2) application of performance criteria; and (3) deliverability restrictions. *See* Sections 40.6.4, 40.4.5, and 40.4.6 of the MRTU Tariff. At this time, the CAISO is not proposing to impose any reductions to Qualifying Capacity due to the failure of a unit to meet performance criteria. Instead, the CAISO commits to preparing a report within one year of the effective date of the Resource Adequacy section of the Tariff that outlines a proposal with respect to performance criteria that will be implemented upon acceptance by the CPUC and other Local Regulatory Authorities. *See* Section 40.4.5 of the MRTU Tariff.

As to deliverability, the CAISO will determine that a Resource Adequacy Resource is available to serve the aggregate of Load by means of a deliverability analysis. The deliverability analysis will focus on peak Demand conditions. The CAISO will update the deliverability analysis on an annual basis, or more frequently if necessary. To the extent the deliverability analysis shows that the Qualifying Capacity is not deliverable to the aggregate of Load under the conditions studied, the Qualifying Capacity of the Resource Adequacy Resource will be reduced on a MW basis for the capacity that is undeliverable. The CAISO will utilize its Large Generator Interconnection Procedures and process to ensure that future generator interconnections do not degrade the deliverability of existing resources. *See* Section 40.4.6.1 of the MRTU Tariff. With respect to imports, the CAISO proposes to allocate the total import capacity for each import path to LSEs serving Demand in the CAISO Control Area for Resource Adequacy planning purposes. *See* Section 40.4.6.2 of the MRTU Tariff. This is intended to prevent over-reliance or an infeasible reliance on imports to serve customers.

The CAISO proposes to produce an annual report, which will be posted on the CAISO Website, setting forth the Net Qualifying Capacity of all Participating Generator Resource Adequacy Resources. All other Resource Adequacy Resources may be included in the annual report upon their request. Any disputes as to the CAISO's determination are to be subject to the CAISO's ADR Procedures. *See* Section 40.4.2 of the MRTU Tariff.

e. Availability

To ensure that resources are available when and where they are needed while respecting the physical capabilities of different sources, the MRTU Tariff specifies the manner in which Scheduling Coordinators must make their Resource Adequacy Resources available to the CAISO for dispatch. These requirements differ slightly depending on whether the Scheduling

Coordinator representing LSEs in conjunction with their respective Local Regulatory Authority elects to be a Reserve Sharing LSE or a Modified Reserve Sharing LSE. Scheduling Coordinators are to inform the CAISO on an annual basis as to whether they will be performing as a Reserve Sharing LSE or a Modified Reserve Sharing LSE. An MSS that follows its own Load in accordance with Section 4.9.9 of the MRTU Tariff will not be considered as either a Reserve Sharing LSE or a Modified Reserve Sharing LSE. *See* Section 40.1 of the MRTU Tariff.

(i) Reserve Sharing LSEs

Scheduling Coordinators for Reserve Sharing LSEs are to make the Resource Adequacy Capacity listed in their monthly Resource Adequacy Plans available to the CAISO in each hour of each day of the report-month in accordance with Section 40.6 of the MRTU Tariff. Special provisions for Use-Limited Resources are discussed below. In the Day-Ahead Market, Resource Adequacy Resources are to be made available Day-Ahead by submitting a Self-Schedule or otherwise bidding the Resource Adequacy Capacity into the IFM and RUC, with any inter-temporal constraints such as Minimum Run Times not being more restrictive than those pre-specified in the Master File limitations or as otherwise required by the MRTU Tariff or by Good Utility Practice. *See* Section 40.6.1 of the MRTU Tariff.

Any Resource Adequacy Resources that do not submit a Bid or Self-Schedule for all of their Resource Adequacy Capacity would be subject to the CAISO's optimization for the remainder of their Resource Adequacy Capacity Bid into the Day-Ahead Market. If the Resource Adequacy Resource submits a Bid for Ancillary Services, the Energy Bid associated with the AS Bid will be optimized by the CAISO. *Id.*

Resource Adequacy Resources not scheduled for Energy or AS in the IFM market-clearing process will be considered in the RUC process with a RUC Availability Bid equal to $0/MW. Resource Adequacy Capacity selected in RUC would not be eligible to receive an availability payment from the CAISO (since its fixed costs will be covered under its Resource Adequacy contract). *Id.*

Resource Adequacy Resources that have been committed by the CAISO in the Day-Ahead Market or the RUC process for part of their Resource Adequacy Capacity or have submitted a Self-Schedule for part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time for the scheduled and non-scheduled portions of their Resource Adequacy Capacity. *See* Section 40.6.2 of the MRTU Tariff.

Short Start Resources

Short Start Units (*i.e.*, Generating Units, System Units, and Dynamic System Resources with start times plus minimum run times of less than five hours) must Bid in the HASP or submit an Economic Bid into the Real-Time Market. The CAISO may waive these availability obligations for Short Start Units not Self-Scheduled or selected in the IFM or RUC. *See* Section 40.6.3 of the MRTU Tariff.

Long Start Resources

The original MRTU design contemplated a multi-day unit commitment process. However, as discussed in Section V.F of this filing letter, complexities in developing the software to implement a multi-day unit commitment process have eliminated this functionality in the IFM design for MRTU Release 1.

Long Start Units (*i.e.*, Generating Units, System Units, and Dynamic System Resources that have start times plus minimum run times of five hours or greater) not committed in the Day-Ahead IFM or RUC will be released from any further Resource Adequacy availability obligation for the relevant operating day. *See* Section 40.2 of the MRTU Tariff. Scheduling Coordinators for such resources are not precluded from self-committing the unit after the Day-Ahead Market and Self-Schedule a wheel-out in the HASP, unless precluded by terms of its contract or other restrictions. *See* Section 40.6.7.1 of the MRTU Tariff.

Use-Limited Resources

The CAISO recognizes that use-limited facilities are valuable resources to meet system needs and should count towards meeting a Resource Adequacy requirement, even if they cannot be available at all times. The MRTU software will support Use-Limited Resources so long as the use limitation can be expressed in terms of a limited quantity of Energy available over 24 hours of a day. The HASP and RTM software also will have features to track and manage a limited quantity of Energy. For resources that have use limitations that cannot be expressed in terms of Energy or limited numbers of starts per day, the software will not have an explicit feature to manage other types of use limitations other than what can be converted and expressed within one's Bid.

Under the MRTU Tariff, Scheduling Coordinators for Use-Limited Resources, other than hydro resources, must provide the CAISO an application in the form specified on the CAISO Website requesting registration of a specifically identified resource as a Use-Limited Resource. This application shall include specific operating data and supporting documentation including: (1) a detailed explanation of why the unit is not able to run at full output for 24 hours; (2) historical data to show attainable MWhs for each 24-hour period during the preceding year; and (3) further data or other information as may be requested by the CAISO to understand the operating characteristics of the unit. Within five days, the CAISO will respond to the Scheduling Coordinator as to whether or not the CAISO agrees that the facility is eligible to be a Use-Limited Resource. *See* Section 40.6.4.1 of the MRTU Tariff. Hydro resources will be presumed to be use-limited.

With regard to Use-Limited Resources, the Scheduling Coordinator will provide, by September for the following year, a proposed annual use plan. The proposed annual use plan will delineate on a month-by-month basis the total MWhs of generation, total run hours, expected daily Supply capability and the daily energy limit, operating constraints, and the timeframe for each constraint. The CAISO will have an opportunity to discuss the proposed annual use plan with the Scheduling Coordinator and suggest potential revisions to meet reliability needs of the system. The Scheduling Coordinator is to submit its final annual plan by

October of each year. The Scheduling Coordinator will be able to update the projections made in the annual use plan in the monthly Resource Adequacy Plans. The annual use plan must reflect the potential operation of the Use-Limited Resource at a level no less than the minimum criteria set forth by the Local Regulatory Authority for qualification of the resource. *See* Section 40.6.4.1 of the MRTU Tariff.

Use-Limited Resources are provided certain exceptions from the availability requirements outlined above. Scheduling Coordinators utilizing Use-Limited Resources, other than hydro resources, must submit a Supply Bid or Self-Schedule for its Resource Adequacy Capacity in the Day-Ahead Market whenever the Use-Limited Resource is physically capable of operating in accordance with its operating criteria, including environmental or other regulatory requirements. The Use-Limited Resource will also provide a daily Energy limit as part of its Day-Ahead Market offer to enable the CAISO to schedule the Use-Limited Resource for the period in which it is capable of providing the Energy. To the extent that the daily Energy limit has been Self-Scheduled, no further action is necessary by the CAISO, unless rescheduling of the Energy is necessary for system reliability. The Use-Limited Resource will attempt to reschedule the Energy in recognition of the system reliability concern, to the extent that the change is possible without violating the resource's operating criteria. *See* Section 40.6.4.3.1 of the MRTU Tariff. Each Use-Limited Resource remains subject to Section 7.7.2.3 of the MRTU Tariff regarding System Emergencies to the extent the Use-Limited Resource is owned or controlled by a Participating Generator. *See* Section 40.6.4.3.3 of the MRTU Tariff.

Some Use-Limited Resources, such as certain Qualifying Facilities, are unable to respond to a CAISO instruction to increase or decrease their Energy supplies or Demand. Such Non-Dispatchable Use-Limited Resources and hydro units are required to Self-Schedule or submit Bids in the Day-Ahead Market for their expected Energy to be delivered the next Trading Day or their expected as-available Energy during the next Trading Day, as applicable. In addition, these categories of resources also are required to revise their Self-Schedules or submit additional Bids in HASP and the Real-Time Market based on the most current information available regarding expected delivered Energy. Non-Dispatchable Use-Limited Resources and hydro resources will not be subject to commitment in the RUC process. *See* Section 40.6.4.3.2 of the MRTU Tariff. The CAISO will retain discretion as to whether a particular resource should be considered a Non-Dispatchable Use-Limited Resource, and this decision will be made in accordance with the provisions of Section 40.6.4.1 of the MRTU Tariff.

Imports

In the IFM, the CAISO will schedule consistent with the multi-hour block constraint of the System Resource. The CAISO anticipates that multi-hour block System Resources that are Resource Adequacy Resources must be capable of hourly selection by the CAISO if not fully committed in the IFM. If selected in the RUC process, the System Resource must be dispatchable in those hours in the HASP and Real-Time Market. *See* Section 40.6.5 of the MRTU Tariff.

Exports

Resource Adequacy Capacity from Resource Adequacy Resources may be utilized to serve an Export Bid. An Export Bid may be scheduled into the CAISO Markets and be cleared by the Energy being provided by Resource Adequacy Capacity. At its sole discretion; however, the CAISO may curtail exports from a Resource Adequacy Resource to prevent or alleviate a System Emergency. *See* Section 40.6.11 of the MRTU Tariff.

Failure to Bid

Prior to the completion of the Day-Ahead Market, the CAISO will determine if the Resource Adequacy Capacity from Resource Adequacy Resources has been Bid. If it has not been Bid and no outage has been reported, the CAISO will insert an Energy Bid established in the Master File. Similarly, the CAISO will determine if all dispatchable Resource Adequacy Capacity from Short Start Units, not otherwise selected in the IFM or RUC, has been Bid into the HASP process and will insert an Energy Bid established in the Master File for any remaining dispatchable Net Qualifying Capacity that is not Bid and for which the CAISO has not received notification of an Outage. *See* Section 40.6.8 of the MRTU Tariff.

Availability Requirements for Firm Liquidated Damages Contracts

Net Qualifying Capacity represented by a Firm Liquidated Damages Contract and relied upon by a Scheduling Coordinator in a monthly or annual Resource Adequacy Plan shll be Self-Scheduled or Bid in the Day-Ahead Market to the extent permitted under the terms of the bilateral contract. For purposes of the CAISO's Resource Adequacy Requirements, the MRTU Tariff defines "Firm Liquidated Damages Contracts" as those transactions utilizing or consistent with Service Schedule C of the Western Systems Power Pool Agreement or the Firm Liquidated Damages product of the Edison Electric Institute pro forma agreement, or any other similar firm energy contract that does not require the seller to source the energy from a particular unit, and specifies a delivery point internal to the CAISO Control Area. *See* Section 40.6.9 of the MRTU Tariff.

(ii) Modified Reserve Sharing LSEs

Scheduling Coordinators for Modified Reserve Sharing LSEs serving Load within the CAISO Control Area for whom they schedule Load must submit each day: (1) hourly Demand Forecasts for each Trading Hour and (2) a Self-Schedule and/or IFM Bid equal to 115% of the hourly Demand Forecasts. Local Capacity Area Resources that are not fully Self-Scheduled will be subject to the CAISO's optimization for the remainder of their capacity, which must be Bid into the Day-Ahead Market. If a Bid for Ancillary Service(s) is submitted to be provided by the Resource Adequacy Resource of a Modified Reserve Sharing LSE, the Energy Bid associated with the AS Bid from that resource will be optimized by the CAISO. *See* Section 40.5.2 of the MRTU Tariff.

A Resource Adequacy Resource of a Modified Reserve Sharing LSE must participate in the RUC process to the extent that the resource has not been Self-Scheduled or already committed to provide Energy or capacity in the IFM. Such Resource Adequacy Resources will

be considered in the RUC process based on a $0 RUC Availability Bid and will not be eligible to receive a RUC Availability Payment. *Id.*

Resource Adequacy Resources of Modified Reserve Sharing LSEs that do not clear in the IFM or are not committed in RUC shall have no further offer requirements in HASP or Real-Time, except for under System Emergencies. Upon a warning or emergency notice of an actual or imminent System Emergency, Scheduling Coordinators for all other Modified Reserve Sharing LSEs are required to make available to the CAISO all resources not otherwise Self-Scheduled or Bid in the IFM that: (1) were listed in the Modified Reserve Sharing LSE's monthly Resource Adequacy Resource Plan, and (2) are physically capable of operating without violation of any applicable law. *Id.*

There are substantial financial consequences if a Modified Reserve Sharing LSE fails to fulfill its scheduling obligations. If the SC for the Modified Reserve Sharing LSE fails to Self-Schedule and/or Bid equal to 115% of its hourly Demand Forecasts, the SC will be charged three times the price of the relevant Day-Ahead Hourly LAP. The SC for the Modified Reserve Sharing LSE is also required to replace as a result of a loss of Supply reported to the CAISO as a forced outage the lesser of (i) the committed resource suffering the Forced Outage, (ii) the quantity of Energy committed in the Day-Ahead Market, or (iii) 107% of the hourly forecast Demand no later than the next HASP plus one-hour. If the SC for the Modified Reserve Sharing LSE cannot fulfill its Day-Ahead IFM and RUC commitments in the next available HASP, that SC will be charged two times the average of the six Settlement Interval LAP prices for the hour. Any Energy surcharges received by the CAISO as a result of the failure of SCs under these provisions would be allocated to metered Demand served by the other SCs representing LSEs during the relevant Trading Hours. *See* Section 40.5.5 of the MRTU Tariff.

On a monthly basis, the CAISO will review meter data to evaluate the accuracy or quality of the hourly Demand Forecasts submitted by SCs for Modified Reserve Sharing LSEs. If the CAISO determines that the Demand Forecasts systematically or materially under-forecast the Demand of the Modified Reserve Sharing LSEs for whom the SC schedules, the CAISO will notify the SC of the deficiency and will cooperate with the SC and the Modified Reserve Sharing LSE(s) to revise its Demand Forecast protocols or criteria. If the deficiency persists for three consecutive months with respect to the monthly Demand Forecast or ten hourly occurrences over a minimum of two non-consecutive weekdays within a month, the CAISO may (1) inform State authorities including, but not necessarily limited to the Legislature, and identify the Modified Reserve Sharing LSE(s) represented by the SC, and (2) assign to the SC responsibility for all Tier 1 RUC charges related to the CAISO's good-faith commitment of resources to address the uncertainty caused by any deficient hourly Demand Forecasts until the deficiency is addressed. *See* Section 40.5.3 of the MRTU Tariff.

(iii) Load-Following MSSs

Load-Following MSSs do not elect. Load-Following MSSs will be subject only to the local capacity obligations of Section 40 of the MRTU Tariff. As with other LSEs, a Load-following MSS is not obligated to procure local capacity, but will be allocated costs related to the CAISO's backstop procurement as necessary to preserve grid reliability. In order to

minimize the CAISO's potential backstop procurement role, the CAISO requests that Load-Following MSSs identify their procured Local Capacity Area Resources in an annual report. *See* Section 40.2.1.4 of the MRTU Tariff.

(iv) Supply Plans for Generators

To provide added assurance that Resource Adequacy Resources identified in the Resource Plans of Scheduling Coordinators for LSEs will actually be available if and when the CAISO needs them, the CAISO is proposing that Scheduling Coordinators representing Generating Units, System Units, or System Resources supplying Resource Adequacy Capacity provide the CAISO with an annual and monthly plan verifying their agreement to provide the Resource Adequacy Capacity. *See* Section 40.4.7 of the MRTU Tariff. This will enable the CAISO to validate the LSE Supply plans.

f. Compliance

If the CAISO's review of an annual or monthly Resource Adequacy Plan reveals deficiencies, the CAISO will report the deficiencies to the CPUC or other Local Regulatory Authority and SC scheduling for the LSE and will coordinate with the Local Regulatory Authority to request that the Scheduling Coordinator revise the plan, as appropriate. For CPUC-jurisdictional LSEs, a failure to correct the deficiency will be penalized according to the rules adopted by the CPUC. *See* Section 40.7 of the MRTU Tariff. However, to the extent the CPUC or other Local Regulatory Authorities elect Modified Reserve Sharing LSE status, the CAISO Tariff sets forth additional compliance elements given the operational, *i.e.*, Day-Ahead, timeframe of the obligation. If a Scheduling Coordinator representing resources supplying Resource Adequacy Capacity fails to provide the CAISO with an annual and/or monthly plan, it will be subject to Enforcement Protocol Section 6.1 of the MRTU Tariff. *See* Section 40.7.1 of the MRTU Tariff.

Moreover, failure of a Scheduling Coordinator for a Resource Adequacy Resource to make the resource itself available to the CAISO in accordance with the requirements of Sections 40 of the MRTU Tariff and/or failure to operate the Resource Adequacy Resource by placing it online and/or in a manner consistent with a submitted Bid or Default Energy Bid would be conduct subject to the sanctions set forth in the Enforcement Protocol, Section 37 of the MRTU Tariff, as well as any other financial consequence under the Tariff. *See* Section 40.7.2 of the MRTU Tariff.

g. CAISO Backstop Provisions

While the primary responsibility for Resource Adequacy rests with SCs for LSEs complying with the programs established by the Local Regulatory Authority, the CAISO Tariff does contain backstop authority to ensure that the reliability requirements for the Control Area are maintained.

First, the CAISO anticipates it will continue to enter into annual RMR Contracts for units that are critical for local reliability. RMR Contracts are a means to ensure that Generating Units

required to meet local reliability criteria remain economically viable and are not able to exercise local market power.

Under Section 2.3.5 of the current CAISO Tariff (Section 40.3 of the Simplified and Reorganized Tariff), if the CAISO's forecast shows capacity is inadequate to meet the applicable Reliability Criteria during peak Demand periods, then the CAISO is authorized to facilitate the development of market mechanisms to bring the CAISO Controlled Grid during peak periods into compliance with the Applicable Reliability Criteria (or such more stringent criteria as the CAISO may impose). The CAISO can engage in contracts for Ancillary Services, short-term Generation supply contracts with Generators, and Load curtailment contracts.

Moreover, if the CAISO concludes that it may be unable to comply with the Applicable Reliability Criteria, the CAISO is authorized under Section 2.3.5 of the current Tariff to take such steps as it considers to be necessary to ensure compliance, including the negotiation of contracts through processes other than competitive solicitations.

The CAISO believes it is critical to retain this authority under MRTU. These provisions have therefore been transferred to Section 42 of the MRTU Tariff. There have been a number of circumstances in recent years where the CAISO has been required to rely upon this authority in order to ensure that it will continue to comply with Applicable Reliability Criteria. While the CAISO would not expect to have to use its authority under these sections, it is crucial that the CAISO have this emergency ability to ensure reliability criteria are satisfied.

To the extent that this authority is to be used as a backstop to the Resource Adequacy requirements of the CPUC and other Local Regulatory Authorities, however, the MRTU Tariff provides for an allocation consistent with that use. Costs incurred by the CAISO pursuant to these backstop contracts to meet local capacity are allocated in two tiers: first to Scheduling Coordinators representing a deficient Load-Serving Entity proportional to their deficiency of Local Capacity responsibility up to the aggregate local capacity deficiency, and any remainder to each Scheduling Coordinator that serves Load in the TAC Area in accordance with the Load-Serving Entity's proportionate coincident share, on a gross Load basis, of the previous annual peak Demand in the TAC Area. Costs incurred by the CAISO pursuant to these backstop contracts to meet other than Local Capacity Reliability Criteria will also be allocated in two tiers where the first tier is allocated to any Scheduling Coordinator representing a deficient Load-Serving Entity proportional to their non Local Resource Adequacy deficiency up to the aggregate non-local deficiency and any remainder will be allocated to each Scheduling Coordinator pro rata based upon the same proportion as the Scheduling Coordinator's metered hourly Demand bears to the total metered hourly Demand served in that hour. *See* Section 42.1.8 of the MRTU Tariff.

Lastly, the CAISO notes that it is considering the development of an alternative backstop capacity mechanism, such as some type of capacity service tariff rate or a local capacity market.[62] If developed, such a capacity mechanism would be another tool that would allow the CAISO to ensure that reliability requirements are satisfied.

[62] Recently, IEP filed a complaint in Docket No. EL05-147 in which it argued that the current must-offer provisions are not just and reasonable and proposed an alternative reliability capacity service tariff. In its Answer to

2. Partial Resource Adequacy Resources

The CAISO has made a number of modifications to the MRTU design in response to stakeholder feedback concerning how Resource Adequacy should be reflected in the MRTU Tariff. One of the most significant changes is in the design of the MRTU software to allow a resource to have only part of its MW capacity designated for Resource Adequacy purposes within the CAISO Markets. *See* Section 40.6.6 of the MRTU Tariff. The CAISO believes it can accommodate the notion of Resource Adequacy Resources having an obligation to offer only portions of their capacity as Resource Adequacy Capacity, subject to the requirement that a resource be represented (scheduled) by a single Scheduling Coordinator. The MRTU design is premised on the single Scheduling Coordinator assumption and the CAISO believes this assumption is critical because it allows Scheduling Coordinators to enter into multi-party arrangements but simplifies the CAISO operation/administration by establishing a single interface party for each resource. The Partial Resource Adequacy Resource will have offer obligations only on the Resource Adequacy Capacity. For the non-Resource Adequacy Capacity portion of its total capacity, the resource will be allowed to offer a non-zero RUC availability Bid and be eligible for a RUC Availability Payment.

K. Existing Transmission Contracts

For its entire history, the CAISO has worked diligently to provide uniform, non-discriminatory, and open access transmission service while still honoring the special provisions of Existing Transmission Contracts. Providing transmission service to ETC rights holders under a different set of market rules than those applicable to all other grid users has led to significant inefficiencies, including the well documented problem of paper or "phantom" congestion. However, the Commission has identified 54 Existing Transmission Contracts that will be in effect on the MRTU implementation date. July 1, 2005 ETC Order at P 14. Therefore, the CAISO has been mindful to develop its MRTU market design in such a way that respects and integrates ETCs and that minimizes any inefficiencies associated with such contracts.

1. Background of the ETC Proposal

The Commission's October 28, 2003 Order required the CAISO to demonstrate that its proposal would accommodate valid ETC schedule changes without diminishing existing contractual rights. The CAISO's demonstration that its ETC proposal does not abrogate existing contractual rights is based on the following: (1) a review of all ETCs and the ETC submissions made by parties in response to the Commission's June 17, 2004 Order; (2) a review of the PTO instructions that were provided to the CAISO at the CAISO's start-up setting forth the ETC terms that the CAISO was required to honor; (3) an explanation of how the scheduling rights accorded to ETCs under the ETC Proposal are consistent with the PTOs' treatment of ETCs prior

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IEP's filing, the CAISO agreed that it was appropriate to develop, as a replacement for the must-offer obligation, an appropriate backstop mechanism for the CPUC Resource Adequacy requirements that commence in 2006. The CAISO has been engaged in settlement discussions with IEP and others to see if agreement can be reached on these issues. To the extent that such a backstop mechanism for Resource Adequacy in 2006 is developed, the CAISO may consider using a similar mechanism under MRTU.

to formation of the CAISO; (4) an explanation of how ETC rights holders submitting Valid ETC Schedules and schedule changes will be able to schedule up to 100 percent of the ETC capacity through Real-Time (*i.e.*, the ETC Proposal will accommodate valid Real-Time ETC schedule changes); (5) a demonstration that the ETC Proposal will not have an adverse financial impact on ETC rights holders; and (6) a review of the Commission's treatment of MISO's grandfathered agreements.

On December 8, 2004, the CAISO submitted to the Commission a conceptual filing on treatment of ETCs under MRTU. The Commission issued an order on February 10, 2005 in response to the December 8, 2004 Filing, in which the Commission approved in concept most of the CAISO's ETC proposal and requested additional detail on the "perfect hedge" proposal contained herein. The Commission found that the CAISO's proposal does not diminish existing scheduling rights in the February 10, 2005 Order, in which it stated: "[W]e find that the CAISO's proposal fully preserves the ETC holders' scheduling rights." *Id.* at P 34. On March 14, 2005, the CAISO submitted to the Commission a compliance filing providing additional details on the perfect hedge proposal. The tariff language included in the instant filing reflects the ETC proposal that the CAISO previously submitted in concept to the Commission.

Further, the CAISO's proposed approach to accommodating ETCs is consistent with the Commission's definition of firm service. In that regard, firm service:

> implies certainty with respect to delivery and price. Once a customer taking firm service . . . agrees to pay the transmission rates and schedules service, it has the full assurance that it will be able to transmit power between its chosen receipt and delivery points without service interruption (absent *force majeure* or curtailment) and without being subject to any additional costs.

Remedying Undue Discrimination Through Open Access Transmission Service and Standard Electricity Market Design, 100 FERC ¶ 61,138, at P 143 (2002). That is exactly what the CAISO is doing in the instant filing. Valid ETC Schedules and schedule changes will be honored. Moreover, ETC rights holders will not be responsible for Redispatch costs on the internal network that are incurred to relieve constraints or accommodate ETC schedule changes. Thus, the CAISO is honoring the firm nature of ETCs. Indeed, the service the CAISO will be providing ETCs on the internal network is equal or superior to the firm service described in the Order No. 888 *pro forma* Open Access Transmission Tariff and superior to new firm use under the CAISO Tariff. *See Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, FERC Statutes and Regulations, Regulations Preambles 1991-1996, ¶ 31,036, at 31,938 (1996) ("Order No. 888").

In developing its ETC provisions of the MRTU Tariff, the CAISO was guided by the following principles. MRTU should:

(1) Fully honor the contractual rights of ETC holders to utilize the CAISO grid;

(2) Establish, as much as possible, a single set of rules and procedures for allocating and pricing transmission capacity applicable to all grid users;

(3) To the extent any differential treatment is required for ETCs, minimize any adverse impacts on the MRTU market design and other grid users;

(4) Place responsibility for managing ETC rights on a day-to-day basis on the most appropriate entities, *i.e.*, the sellers of the contracts;

(5) Ensure full transparency of the costs associated with ETC schedules, consistent with treatment of the schedules of other Scheduling Coordinators; and

(6) Allocate CAISO charges associated with ETC schedules in an appropriate manner, consistent with cost causation, the flow of benefits from the contracts and the contract provisions.

With these goals in mind, the CAISO's proposal for honoring ETCs has three main components: (1) scheduling the use of ETC rights in the CAISO Markets; (2) settlement and allocation of CAISO charges associated with ETC schedules; and (3) validating that ETC schedules submitted to the CAISO are consistent with the ETC holders' contractual rights. These provisions are described in greater detail in the Direct Testimony of Lorenzo Kristov, provided as Attachment F to this filing letter.

2. ETC Scheduling

As provided in Section 16.5 of the MRTU Tariff, the CAISO will "set aside" unscheduled ETC capacity on the interties in the Day-Ahead. However, the CAISO will not "set aside" unscheduled ETC capacity on the CAISO Controlled Grid, including Paths 15 and 26. This aspect of the CAISO's approach to ETC scheduling is crucial in order to avoid the substantial adverse impacts on the effectiveness of the entire MRTU design, as well as the complexity that would result from withholding transmission for capacity for unscheduled ETC rights under the Full Network Model. This approach is similar to the way the PTOs honored ETC rights prior to the formation of the CAISO and is consistent with the LMP Congestion Management paradigm. The ETC provisions of the MRTU Tariff will continue to honor ETC scheduling rights fully, and would do so without withholding unscheduled ETC capacity on the internal network from the market, and without any potential need to reduce the firmness of accepted non-ETC schedules.

Under Section 16.6 of the MRTU Tariff, ETC rights holders will continue to submit balanced schedules[63] to the CAISO Markets. SCs who schedule for ETCs, TORs, and Converted Rights will need to submit Settlement Quality Meter Data that identifies and distinguishes the Demand served under their relevant rights. *See* MRTU Tariff, Section 10.3.2.

[63] It is important to note that the balanced schedules required of ETCs under MRTU are not the same as the balanced schedules required of all Scheduling Coordinators under the CAISO's existing market design.

Consistent with the Commission's February 10, 2005 Order accepting the CAISO's proposal for treatment of capacity associated with ETCs under MRTU, the CAISO will fully honor all valid schedule changes associated with ETC capacity after the close of the Day-Ahead Market. February 10, 2005 Order at P 34. ETC holders will not have the ability to submit Demand Bids in the HASP or RTM, but ETC rights holders will still have the right to adjust their generation in the HASP and RTM to the extent such changes are consistent with the associated ETC right. *See* MRTU Tariff, Sections 30.5.1, 30.5.3, 33.1.

ETC rights holders will be a given scheduling priority over other users of the CAISO Controlled Grid in the Day-Ahead and HASP and RTM to the extent such schedules conform to the ETC rights holders' contractual rights. In particular, in the Day-Ahead Market, Valid ETC Schedules will be the last to be adjusted in the event that non-economic adjustments are required to relieve Congestion. *See* MRTU Tariff, Section 31.4.

The CAISO will continue to "set aside" unscheduled ETC capacity on all interties (*e.g.*, COI, Palo Verde, *et al.*) in the Day-Ahead Market in a manner similar to how it does today. The Commission has approved in concept this treatment of ETCs over the interties and on the internal CAISO Controlled Grid. *See* February 10, 2005 Order at PP 34 and 37. Section 16.5 of the MRTU Tariff reflects this Commission-approved approach.

3. Settlement and Allocation of CAISO Charges

With respect to the settlement component, the MRTU Tariff incorporates the CAISO's perfect hedge settlement mechanism that fully and accurately exempts Valid ETC Schedules from *all* CAISO Congestion charges (*i.e.*, both Day-Ahead and Real-Time Congestion charges). Thus, ETC rights holders will be held financially harmless from Congestion charges associated with the implementation of LMP and the ETC Proposal. The CAISO first submitted the details of the perfect hedge proposal to the Commission in the December 8, 2004 Filing. The Commission requested additional details on the perfect hedge proposal in its February 10, 2005 Order. The CAISO provided this additional detail its March 14, 2005 Filing, which provided illustrative examples of the proposal.

The essence of the perfect hedge proposal is to apply an exact reversal in CAISO settlements of the Congestion charges associated with a Valid ETC Schedule in the Day-Ahead Market or a valid post-Day-Ahead ETC schedule change. Because of the exact reversal of the Congestion charges, the proposal is called the "perfect hedge" mechanism.

There are two primary aspects of how the perfect hedge mechanism will work – one pertaining to Day-Ahead ETC schedules (and Day-Ahead Congestion charges) and the other pertaining to post-Day-Ahead ETC schedule changes (*i.e.*, Real-Time changes, which would accrue Real-Time Congestion charges). From the viewpoint of the SC for the ETC, there are no practical differences between the Day-Ahead and post-Day-Ahead aspects. The difference lies in how the costs are re-allocated to the market.

In the Day-Ahead Market, the Congestion charges associated with a valid Day-Ahead ETC schedule will be reversed in settlement on an hourly basis. *See* MRTU Tariff, Sections

11.2, 11.2.1.5. Because Day-Ahead Congestion charges are paid out to CRR holders, this failure to collect such charges from some Day-Ahead schedules could result in a revenue shortfall for CRR holders unless some corrective measure is put in place. To ensure that the non-collection by the CAISO of these Congestion charges does not create systematic revenue inadequacy for non-ETC CRR holders, the CAISO will model ETC CRR obligations along with other LSE CRR requests in the simultaneous feasibility test in the CRR allocation process. *See* MRTU Tariff, Section 36.4.2. Thus, the CRR allocation process will create CRRs corresponding to the ETC holders' usage of the grid. However, the CAISO will not release these ETC CRRs; rather, the creation of these CRRs will constrain the release of non-ETC CRRs in a manner that anticipates ETC grid usage and therefore supports the revenue adequacy of the non-ETC CRRs. Further, under this proposal, ETC Congestion charges that are negative (*i.e.*, when the ETC schedule creates a counter-flow that reduces grid Congestion) will also be reversed in settlement, *i.e.*, will not be paid by the CAISO. Thus, the proposal keeps the SC submitting schedules using ETC rights financially neutral with respect to Congestion charges.

In the Real-Time Market, the Congestion charges associated with a valid post-Day-Ahead ETC schedule change (including changes submitted to the Hour-Ahead Scheduling Process and changes submitted closer to Real-Time where allowed by the contract) will be reversed in settlement on the standard Real-Time 10-minute interval basis. *See* MRTU Tariff, Sections 11.5, 11.5.7. Because Congestion charges are implicitly collected by the CAISO in the Real-Time settlement and there are no holders of rights to receive Real-Time Congestion revenues under the MRTU design, all charges for Real-Time Congestion will be accumulated in a special and separate neutrality account to be distributed back to non-ETC Control Area metered Demand and exports on a per-MWh basis. The reversal of Real-Time Congestion charges for ETCs will reduce the amount of funds going into this neutrality account and, thus, the Congestion costs of these post-day-ahead ETC changes will be spread to all non-ETC Load in the system and exports. This impact should be limited, however, by the facts that ETC Load and exports do not receive a share of this account nor do they pay into it. As in the Day-Ahead Market, negative Real-Time Congestion charges as well as positive ones will be reversed for ETCs in settlement.

Because the ETC schedules will not be subject to any Congestion charges under the ETC provisions of the MRTU Tariff, it will not be necessary for the CAISO to allocate CRRs to any Market Participant – ETC holder, PTO, or other – to hedge these charges. As noted above, the CAISO will create such CRRs on paper, will not release them as a means to ensure revenue adequacy for CRRs allocated or auctioned to other parties.

ETCs are also an exception to the general rule that Load is settled at the Default LAP level. Load served under ETCs, TORs, or Converted Rights will be settled at prices that reflect their actual locations on the CAISO Controlled Grid, rather than at the Default LAP.

4. Converted Rights

In Amendment No. 27 to the CAISO Tariff, the CAISO proposed a revised Transmission Access Charge. As approved by the Commission, Amendment No. 27 granted New PTOs – those entities that turned their facilities and entitlements over to the CAISO's Operational Control and "converted" any ETCs with any of the Original Participating Transmission Owners

(PG&E, SCE, and SDG&E) – the right to receive Firm Transmission Rights commensurate with the capacity turned over to the CAISO for a ten-year transition period. After the end of the transition period, which expires in 2010, the New PTOs were to be treated the same as the Original Participating Transmission Owners. Under MRTU, the FTRs used under the CAISO's current market design are being replaced by CRRs. The CAISO considered giving CRR options to the PTOs that had joined the CAISO after Amendment No. 27. After discussion with certain of these entities, however, the CAISO has decided not to give CRR options but instead to apply to the New PTOs the "perfect hedge" protection against Congestion costs accorded ETCs, but only for the Day-Ahead Market (as this is equivalent to the protection under FTRs). This treatment would extend through the previously-established 2010 date. The CAISO is proposing this treatment in recognition of the commitment already made under Amendment No. 27. After that time, any New PTO will be treated just like the Original Participating Transmission Owners – in that they will receive protection against Congestion costs by means of an allocation of CRR obligations.

5. Validation of ETC Schedules

With respect to the validation component of the CAISO's treatment of ETCs, the CAISO will provide an automated procedure for verifying that submitted schedules utilizing ETC rights are consistent with a set of parameters submitted to the CAISO in the form of Transmission Rights and Transmission Curtailment ("TRTC") Instructions. This automated procedure can relieve the PTO of the need to validate ETC schedules on a day-to-day basis, while still holding the seller responsible for providing validation parameters to the CAISO that correctly reflect contractual rights.

There are two aspects of the MRTU ETC provisions for which validation is important – scheduling priority and settlement – because Valid ETC Schedules and schedule changes will receive special treatment with respect to both aspects. If it were only a matter of settlement treatment, validation could be performed after the operating day, in the course of processing the scheduling and operating data for the settlement process. However, because scheduling priority is involved, there must be *ex ante* validation, *i.e.*, validation at the time of the relevant scheduling deadline prior to the running of each CAISO Market, to ensure that the CAISO Market software does not provide priority to schedules that do not comply with contractual rights.

The CAISO will validate the ETC Self-Schedules to ensure that the schedules are consistent with the TRTC Instructions submitted by the PTO. *See* MRTU Tariff, Section 16.6.1. Except for the reasons listed below, if the CAISO finds that the ETC Self-Schedule is not consistent with the TRTC Instructions, the CAISO will find that the ETC Self-Schedule is not valid and will notify the Scheduling Coordinator and the ETC Self-Schedule. *See* MRTU Tariff, Section 16.6.2.1. The ETC Self-Schedule will be converted to an ordinary Self-Schedule and will be treated as such for terms of scheduling priority and settlements. As provided in Section 16.6.2.2 of the MRTU Tariff, if the CAISO finds that the ETC Self-Schedule is not balanced, the ETC Self-Schedule will not be valid and the CAISO will: (i) remove any scheduling priority for the entire ETC Self-Schedule; (ii) apply the ETC settlement treatment pursuant to Sections 11.2.1.5 and 11.5.7 of the MRTU Tariff to the valid balanced portions only; and (iii) assess any charges, and make any payments consistent with the treatment of ordinary Self-Schedules for the

unbalanced portions. As provided in Section 16.6.2.3 of the MRTU Tariff, if the ETC Self-Schedule exceeds the capacity limits in Existing Contracts as reflected in TRTC Instructions, the ETC Self-Schedule will not be a Valid ETC Schedule and the CAISO will: (i) remove any scheduling priority for the entire ETC Self-Schedule; (ii) apply the ETC settlement treatment pursuant to Sections 11.2.1.5 and 11.5.7 of the MRTU Tariff to the valid balance portions within the Capacity limits of the Existing Contract as reflected in the TRTC Instructions; and (iii) assess any charges, and make any payments consistent with the treatment of ordinary Self-Schedules for the portions in excess of the capacity limits of the Existing Contract as reflected in the TRTC Instructions.

L. Transmission Ownership Rights

As provided in Section 17 of the MRTU Tariff, the CAISO generally defines a Transmission Ownership Right as a right to utilize, for the purpose of electric transmission service, transmission facilities that are located within the CAISO Control Area but are either wholly or partially owned by an entity that is not a PTO. At the July 13-14, 2005 stakeholder meeting, the CAISO worked with stakeholders to identify entities that are expected to have a right to use such facilities within the CAISO Control Area in 2007.

The CAISO's treatment of TORs under MRTU is described in the Direct Testimony of Lorenzo Kristov. The following is an overview of certain salient features of the CAISO's treatment of TORs.

Under MRTU TORs will have the second-highest scheduling priority in the CAISO Markets (second only to RMR Schedules needed to ensure local grid reliability).

For TOR capacity on Control Area boundary interties that are modeled radically in the FNM, the CAISO will reduce the available transmission capacity of the intertie by the amount of the TOR. This effectively prevents scheduling by other CAISO Market Participants on the TOR capacity.

For TOR capacity that is internal to the CAISO Control Area and modeled as part of the looped network, the CAISO will not set aside capacity on the facility, but will instead provide highest priority source-to-sink scheduling rights to the TOR holder. The source and sink points for such scheduling rights will be determined by the TOR holder and the CAISO, consistent with the TOR holder's rights, in a manner that ensures the ability of the TOR holder to fully utilize its rights.

Generally, the settlement treatment for TORs under MRTU will be similar (but not identical) to the treatment of ETCs. *See* MRTU Tariff, Sections 11.2.1.5, 11.5.6.6, and 11.5.7. The CAISO will institute the following settlement features for TORs:

1. Full reversal of Congestion charges through the perfect hedge mechanism.

2. The SC for TORs would be charged for losses like SCs for ETCs and other entities. This would include charges for the full marginal losses on transmission service between nodes, and a *pro rata* share of the refunds associated with excess losses that are refunded

for the period of each Settlement Statement. SCs representing all Loads and exports, including ETC and TOR schedules, would benefit from this direct refund.

3. The current practice of exempting TOR schedules from access charges would continue.

4. The current practice of exempting TOR schedules from Unaccounted for Energy ("UFE") and neutrality charges would continue.

5. Load under TORs will be settled at prices that reflect their actual locations on the CAISO Controlled Grid, rather than at the Default LAP.

M. Inter-Scheduling Coordinator Trades

1. Inter-SC Trades of Energy

Unlike the existing market design in which the CAISO operates only a real-time market for Energy and requires balanced schedules for managing Inter-Zonal Congestion in the forward market, the CAISO's new market design includes a forward Energy market. Thus, Scheduling Coordinators under the new market design can purchase and sell Energy in the forward market. Under the existing market design, Inter-SC Trades are necessary to enable Market Participants to balance their forward Energy schedules by trading imbalances among themselves. Under MRTU, this balancing function is no longer required and, accordingly, it is not essential that the CAISO offer Inter-SC Trade settlement services to its Market Participants in the new market design to facilitate balanced schedules.[64] However, under the new market design Inter-SC Trades serve a number of other important objectives.

a. Settlement of the Seller's Choice Issues

The design of Inter-SC Trades of Energy under the MRTU Tariff are critical to address the "Seller's Choice" problem associated with certain bilateral energy contracts entered into by the State of California. Many of these contracts, which were entered into during the California energy crisis, extend beyond the planned 2007 implementation date of MRTU and have delivery provisions that, prior to recent settlements, could have been construed to give the seller the choice of delivering power at any node within the CAISO existing zones. If the contracts were implemented in such a manner under an LMP-based market, they would potentially have a significant and detrimental financial impact to the State of California and ultimately California ratepayers. The potential financial impact to ratepayers of not addressing the potential incompatibility of the Seller's Choice delivery provisions with an LMP-based market design was so great that CAISO management and the CAISO Board of Governors publicly indicated that resolution of this issue was a pre-requisite for proceeding with the MRTU market design.

[64] The NYISO operates forward and real-time LMP energy markets without offering any bilateral contract settlement services.

Inter-SC Trade design is integrally linked with the settlement of the Seller's Choice issues.[65] The key element of MRTU that resolved the Seller's Choice problem was the addition of a physical validation rule for Inter-SC Trades at specific nodes. *See* MRTU Tariff, Section 28.1.6. This requirement allows sellers the flexibility to deliver at any location that is physically feasible and at which the sellers has secured Supply, while eliminating the ability of a seller to create counter-flow revenues by designating low cost nodes for delivery that is physically infeasible. The other element of the Inter-SC Trade design that is central to the settlements in the Seller's Choice proceedings is the commitment of the CAISO to create Existing Zone Generation Trading Hubs ("EZ Gen Hubs") for each of the pre-existing Congestion Management zones (NP15, SP15, ZP26). Inter-SC Trades submitted for delivery at an EZ Gen Hub or any other aggregated pricing node will not be subject to the physical validation rule. The EZ Gen Hub prices will be calculated based on an average price of generation pricing nodes within each zone. *See* MRTU Tariff, Section 27.3. Section V.N of this transmittal letter discusses the determination of EZ Gen Hubs under MRTU.

By limiting the settlement of Inter-SC Trades at generation nodes to trades that can be physically validated, the CAISO will ensure that the seller has scheduled resources at the node and that the seller's resources do not exceed the physical limitations of the grid at the delivery node. While it will not eliminate the accrual of Congestion charges by buyers, the physical validation requirement will reduce the Congestion charges associated with Inter-SC Trades to a level commensurate with the actual Congestion in the forward Energy market. It does this by limiting the settlement of Seller's Choice contracts at individual nodes to the physical capacity of the grid at those nodes. Because the CAISO will issue CRRs that reflect the physical capacity of the grid, it should be possible for buyers under Seller's Choice contracts to obtain sufficient CRRs to obtain financial protection for the Congestion charges resulting from delivery under those contracts.

The proposed design for Inter-SC Trades of Energy and EZ Gen Hubs was presented for Commission approval on March 15, 2005. On June 10, 2005, the Commission issued an order approving in principle the CAISO's conceptual proposal to establish settlement services for bilateral energy transactions at generation nodes within the CAISO Control Area and at aggregated pricing points. June 10, 2005 Order at PP 28-29. The Commission also approved the physical validation procedure under which Scheduling Coordinators trading at individual generation nodes must demonstrate that they have a physical resource schedule at the same generation node at a level not less than the amount of the trade. Finally, the Commission approved the proposed creation of EZ Generation Hubs as successor delivery points under Locational Marginal Pricing for the CAISO's existing internal Congestion zones.

The Direct Testimony of Keith Casey describes in detail how the CAISO's rules for Inter-SC Trades of Energy are a critical component of the Seller's Choice settlements.

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[65] On June 10, 1005, the settlements entered into by parties to the Seller's Choice contracts were approved by the Commission. *See California Independent System Operator Corp.*, 111 FERC ¶ 61,385 (2005), and *California Independent System Operator Corp.*, 111 FERC ¶ 61,386 (2005). These settlement agreements are intricately linked with and conditioned upon the Inter-SC Trade design conceptually approved by the Commission on the same day. *California Independent System Operator Corp.*, 111 FERC ¶ 61,384 (2005).

b. Facilitation of Bilateral Contracts

Inter-SC Trades also can provide a delivery mechanism for other bilateral contracts under MRTU, as they do today. Under MRTU, Inter-SC Trades can assist in settling bilateral Energy contracts in several respects. First, contracting parties can use the Inter-SC Trade as the instrument for effectuating contractual delivery of Energy. Second, an Inter-SC Trade provides a counter payment to offset the double Energy settlement that occurs from scheduling bilateral contracts in the CAISO's forward Energy market. The double Energy settlement arises because schedules resulting from bilateral contracts are settled in the CAISO's forward Energy market, but the parties also perform a bilateral settlement under the contract outside of the CAISO Markets. Thus, absent a third settlement to counter the CAISO's market settlement, a supplier would be paid twice for its delivered power (once in the CAISO's forward Energy market and once under the bilateral contract) and similarly, the buyer would be charged twice. The Inter-SC Trade provides this counter settlement, in which the buyer under a bilateral contract receives, and the seller under the contract pays, the LMP at the location selected for the Inter-SC Trade. The third role of Inter-SC Trades is to allocate Congestion costs for contractual delivery between the two counter-parties. The CAISO Market prices at the location of the Inter-SC Trade, and at the points where the counter-parties schedule Load and generation, determine the allocation of Congestion costs.

Although the existing Seller's Choice contracts that are or most concern *must* be settled through the Inter-SC Trade mechanism in accordance with the Seller's Choice settlements, parties to other bilateral contracts (existing or new) are free to settle their contracts without using this service. If two contracting parties agreed to settle the delivery of their contract outside of the CAISO Inter-SC Trade mechanism, they could simply agree contractually on a counter settlement pricing point (*e.g.*, Node A). When the buyer sends the seller a payment for the bilateral energy contract price, it would subtract from it the price at Node A. Thus, if Market Participants have or wish to enter into bilateral contracts with settlement provisions that are different from the CAISO's proposed Inter-SC Trade mechanism, they can agree not to use the CAISO's settlement service. Therefore, the MRTU Tariff is not restricting Market Participants from settling bilateral contracts in any manner they deem appropriate. Because of this flexibility, the CAISO believes this facet of the MRTU Tariff is just and reasonable.

The MRTU Tariff also provides for Inter-SC Trades at Trading Hubs and LAPs. The CAISO will not, however, physically validate those trades. *See* MRTU Tariff, Section 28.1.6. The ability of parties to use the Inter-SC Trade mechanism at Trading Hubs and Load Aggregation Points without the need to provide physical validation is similar to the zonal Inter-SC Trade mechanism available today, which validates physical delivery only on a system aggregated basis (*i.e.*, scheduled Demand and exports equals scheduled generation and imports).

2. Inter-SC Trades of Ancillary Services

The CAISO's current (pre-MRTU) design functionality allows for the trade in Ancillary Services by Scheduling Coordinators. The process is simple in that two SCs each submit a trade for an individual service. The trades are validated and the purchasing SC then has an increased amount of AS to set against its AS obligation. In turn, the selling SC has a reduced amount of

AS (or increased amount of AS obligation). The trade is for a fixed quantity of a specific service, *e.g.*, 30 MW of Spinning Reserve. Also under the current market, when an LSE imports firm power from a neighboring Control Area, the AS that is attached to the import is set against the LSE's Load obligation. When a no-Load SC imports firm energy it can also sell the attached AS as well as the energy onto another SC or another LSE. This is done via an inter-SC trade of AS.

When the CAISO first presented the issue of Inter-SC Trades of Ancillary Services to stakeholders it identified several improvements to the AS trading methodology for MRTU, the most significant of which was a move from trading fixed quantities to trading Load obligations. However, after extensive stakeholder consultation that made clear such a change garnered little support among stakeholders, the CAISO has decided against this change. Instead, the MRTU Tariff retains the CAISO's current program of trading fixed quantities of AS. *See* MRTU Tariff, Section 28.2. However, under Section 11.10.2 of the MRTU Tariff, Operating Reserve Obligations will be allowed to be negative and settled with the CAISO appropriately to the extent they do not exceed the CAISO Operating Reserve requirements. In addition, the CAISO will no longer strip imports of their AS when imported by a no-Load SC.

The Direct Testimony of Dr. Farrokh Rahimi addresses this issue and the related decision-making process in considerable detail.

3. Inter-SC Trades of IFM Demand Uplift Obligations

With respect to allocation of Bid Cost Recovery costs in the Day-Ahead IFM, Scheduling Coordinators can trade their IFM Demand Uplift Obligations in accordance with Section 28.3 of the MRTU Tariff.

N. Trading Hubs

The CAISO has conducted an extensive stakeholder process on the topic of Trading Hubs. Existing Zone Generation Trading Hubs is the term given to the successor delivery points under MRTU for existing bilateral energy contracts that specify delivery based on the CAISO's current zones, which will cease to exist under MRTU. Trading Hubs are also expected to facilitate future bilateral Energy transactions in the CAISO Control Area. The three EZ Gen Hubs will correspond geographically to the CAISO's three existing internal congestion management zones ("Existing Zones"). As discussed in Section V.M of this filing letter, on June 10, 2005, the Commission issued an order approving in principle the CAISO's conceptual proposal for EZ Gen Hubs, in connection with a proposal related to the settlement of the treatment of Seller's Choice contracts under MRTU. June 10, 2005 Order at PP 28-29.

Each EZ Gen Hub will be comprised of an aggregation of PNodes for Generating Units within the Existing Zone, whose associated LMPs will be used to establish an EZ Gen Hub price representing the weighted-average price paid to units in that Existing Zone. The weights applied to the constituent nodal LMPs in each Existing Zone will be determined annually and separately for each season and On-Peak and Off-Peak period based on the ratio of the prior year's total output of Energy at that Generation PNode to the total Generation output in that Existing Zone,

for the corresponding season and On-Peak or Off-Peak period. The seasons used for this purpose will be based on the WECC definition of seasons and will therefore be identical to the seasons used for the CRR allocation process described above.

Stakeholders raised some concerns with the CAISO's Trading Hub proposal. Many stakeholders sought a more detailed definition of Trading Hubs in the MRTU Tariff, expresses a preference for a definition that specifies the nature of the average (simple, weighted, subset, etc.) and the nature of the weighting if any (annual or dynamic). In response, the CAISO added additional detail to Section 27.3, specifying a weighted average approach determined on an annual basis. As discussed in the Direct Testimony of Keith Casey, the CAISO believes this is the most appropriate approach among the options considered by stakeholders. Some Market Participants would even have liked the names of the nodes to be specified in the tariff. The CAISO's review of tariff language for the eastern ISOs revealed that no other ISO has specified the actual nodes in its tariff. The proposed definition of Trading Hubs, which contains comparable detail to the definitions in other ISO tariffs, contains sufficient information for consideration of the CAISO's proposal, and should be accepted without modification.

O. Constrained Output Generators

1. Development of the COG Proposal

As described below, the MRTU accommodates the use of Constrained Output Generators ("COGs") in the CAISO Markets. A COG is a Generating Unit that, due to its operational characteristics, can only be dispatched inflexibly in one of two states: either turned completely off, or turned on and run at a fixed capacity level. *See* MRTU Tariff, Appendix A (at definition of "Constrained Output Generator"). It is constrained because it cannot be operated at any intermediate operating level. In the CAISO's SCUC optimization, by comparison, prices can be set only by resources that are flexible, *i.e.*, able to move up and down in small increments so the resources can be adjusted as needed for optimum unit commitment and dispatch.

The CAISO has explained to the Commission in past filings the challenges of incorporating the use of COGs into the CAISO Markets. In its July 22, 2003 Filing, the CAISO stated that it was inappropriate for a COG to set the Energy price in the forward markets because: (1) if the COG were treated as a flexible unit it would lead to acceptance of an infeasible schedule with the knowledge that the COG would have to be re-dispatched in Real-Time, or (2) if the COG were treated as constrained, the resulting prices would not be consistent with the dispatch and would not be true marginal prices in the economic sense, because Energy would be priced based on the COG; whereas, the actual marginal price for serving the next increment of Load would be the price of the lower-priced generator that was decreased to make room for the COG. In its October 28, 2003 Order, the Commission noted that each of the eastern ISOs has developed mechanisms that allow non-dispatchable units to set the clearing price in the Day-Ahead Market. October 28, 2003 Order at P 89. Accordingly, the Commission directed the CAISO to:

> review its approach to setting prices in the forward market and develop a pricing mechanism for Constrained Output Generators that is consistent with its approach

to real-time pricing (*i.e.*, a constrained output generator can set the market clearing price for those dispatch intervals in which any portion of its output is needed to serve real-time load) and promotes the convergence of prices in the forward and real-time markets. *Id.*

After stakeholder input, the CAISO developed a revised proposal for the treatment of COGs to allow them to set prices in the forward markets. That proposal was based on treating COGs as constrained in the pre-IFM "dispatch runs" and then treating them as flexible in the subsequent IFM "pricing run" (described further below). Additional stakeholder discussions revealed the potential for an inappropriate outcome when a COG is located within an import-constrained area (*i.e.*, a Load pocket). Specifically, in such situations, the pricing run of the IFM could "export" the high Load-pocket LMP set by the COG to a larger area of the CAISO Control Area. This can occur because the COG, by running at its P-max rather than its optimal dispatch point if it were flexible, eliminates the Congestion into the Load pocket. With the transmission line into the Load pocket no longer congested, there is no price difference between the Load pocket and the neighboring area. Thus, the COG would "export" the Load-pocket price outside the Load pocket, even though the COG is really needed only to serve the Load pocket. The CAISO believes this is an unreasonable result that is contrary to the objectives of the MRTU market design. Upon further exploration of possible outcomes of the revised approach, the CAISO identified another type of undesirable outcome. Namely, if there is price-responsive Load bidding in the IFM, that Load may be scheduled in the pre-IFM dispatch runs and then charged a price higher than its Bid in the pricing run. The Commission conceptually accepted the CAISO's revised COG proposal. June 17, 2004 Order at PP 115-22.

2. Treatment of COGs Under the MRTU Tariff

Pursuant to Section 27.7 of the MRTU Tariff, in the IFM, COGs will be modeled as flexible resources and will be eligible to set prices just like any other flexible resources. The three-part Bids that a COG submits will include Start-Up and Minimum Load Bids but not an Energy Bid. The CAISO's software will "construct" an Energy Bid that has a single price for all of the MW of a COG's P-max by dividing the Minimum Load Bid by the P-max. The IFM will then use the Energy Bid to optimize each COG as if it could operate at any point between zero and its P-max.

In RUC, COGs will be treated as constrained because RUC is a reliability procedure that must make procurement decisions based on an accurate representation of resource operating parameters. As a result, RUC will either select the entire capacity of a COG or none of that capacity. If the COG was scheduled in the IFM, its RUC schedule will equal its P-max. If the COG was not scheduled in the IFM, RUC will either optimally commit it (in which case the COG's RUC schedule will be its P-max) or not commit it at all (in which case the COG's RUC schedule will be zero). Due to the RUC's use of actual resource operating parameters, a COG will not be eligible to receive the RUC Availability Payment even if it is not a Resource Adequacy Resource.

In all of the processes of the RTM (the RTUC, the RTD, and the STUC), a COG will be treated as constrained for purposes of unit commitment and dispatch because, in the actual

Operating Hour, all Dispatch Instructions must be feasible. The RTM will therefore dispatch a COG either to zero or to its P-max. This will not prevent the COG from setting prices in the RTD, however, because the RTD has a separate "pricing run" that follows each "dispatch run," and in the pricing run the COG is modeled as a flexible resource using the Energy Bid calculated from its Minimum Load as described above.

A COG is subject to the same rules regarding bidding of Start-Up and Minimum Load as other resources, *i.e.*, those Bids can be either cost-based, in which case the Bids are adjusted to reflect current gas prices, or bid-based, in which case the resource can submit any values it likes for those Bids but they are required to be fixed for a six-month period and cannot be varied on a day-to-day basis. As an alternative to the treatment described above, a COG that wants more flexibility to change its Bid on a daily basis can choose to be treated the same as other flexible units by specifying a P-min value that is less than its P-max value, in which case the COG would still be subject to the normal rules for the Start-Up and Minimum Load Bids, but would also be able to submit a separate Energy Bid for the dispatch range between P-min and P-max.[66]

P. Participating Intermittent Resources

An Eligible Intermittent Resource is a Generating Unit that is powered solely by wind, solar energy, or hydroelectric potential derived from small conduit water distribution facilities that do not have storage capability. *See* definition of "Eligible Intermittent Resources" in the MRTU Tariff, Appendix A. If an Eligible Intermittent Resource meets the requirements of certain CAISO technical standards, it qualifies as a Participating Intermittent Resource. *Id.* Such a resource requires special treatment under MRTU, because: (1) its output depends on prevailing environmental or weather conditions and therefore it has only a limited ability to respond to Dispatch Instructions, and (2) it is not possible to reliably forecast the resource's output on a Day-Ahead basis.

The CAISO proposes to accommodate Participating Intermittent Resources in MRTU as follows. First, the Participating Intermittent Resource Program ("PIRP"), which was first implemented in 2004, will be continued under MRTU. The purpose of the PIRP is to alleviate a Participating Intermittent Resource's exposure to charges for Real-Time Imbalance Energy and Uninstructed Deviation Penalties resulting from the fact that the resource operator cannot control the output of the resource to stay on its Hour-Ahead schedule. A Participating Intermittent Resource that chooses to take part in the PIRP takes on certain responsibilities, including primarily the responsibilities to: (i) pay fees to support the cost of an independent entity, a Forecast Service Provider ("FSP"), who produces forecasts of output for each Participating Intermittent Resource, and (ii) submit a Self-Schedule to the HASP and RTM that equals the FSP's forecast for the Participating Intermittent Resource. In return, the Participating Intermittent Resource is exempted from Uninstructed Deviation Penalties, and the Participating Intermittent Resource's Real-Time deviations are summed over each month, monthly deviations are netted against positive deviations, and the net result is settled at the monthly weighted average Real-Time LMP at the Participating Intermittent Resource node. Second, the CAISO intends to address, in the coming months, the issue of how to account for Participating

[66] The COG bidding options described above were described in the CAISO's January 13, 2006 Notice of Clarification of MRTU Design Features (contained in Attachment N to the instant filing).

Intermittent Resources that take part in the PIRP in establishing the RUC procurement target. *See* MRTU Tariff, Section 31.5.3. The CAISO will address that problem as part of its development of a Business Practice Manual on the RUC procurement target.

Q. Metered Subsystems

A Metered Subsystem is a geographically contiguous system located within a single zone that has been operating as an electric utility for a number of years prior to the CAISO operations date as a municipal utility, water district, irrigation district, State agency or Federal power administration subsumed within the CAISO Control Area and encompassed by CAISO certified revenue quality meters at each interface point with the CAISO Controlled Grid and CAISO certified revenue quality meters on all Generating Units or, if aggregated, each individual resource and Participating Load internal to the system, which is operated in accordance with a MSS Agreement. A MSS Operator is the entity that owns the MSS and has executed a MSS Agreement. *See* definitions of "Metered Subsystem" and "Metered Subsystem Operator," Appendix A of the MRTU Tariff.

The CAISO intends to provide maximum flexibility in attempting to integrate Metered Subsystems into the MRTU structure. For each of the elements of the CAISO's proposed comprehensive market design, MSS operators have the option of being treated like any other Market Participant. However, to the extent that the MSS Operator wants treatment that recognizes its unique features and functions, the CAISO proposes to accommodate MSS Operators accordingly. Further, MSS Operators will make an annual election either to opt into or opt out of RUC with respect to their Load. The CAISO intends to respect and update the existing MSS Agreements between the CAISO and the Northern California Power Authority, City of Roseville and Silicon Valley Power that were approved in connection with the Commission's approval of CAISO Tariff Amendment No. 46 and the MSS Agreements with the Cities of Anaheim and Vernon that have subsequently been approved by the Commission.[67] Finally, a MSS Operator also may elect to accept the special treatment proposed for one element of the MRTU design and not another, where it is logically consistent and practically feasible to do so.

Specifically, under MRTU, three initial decisions must be made for each MSS Agreement. They are:

1. Will the MSS Operator follow its own Load?

2. Does the SC for the MSS Operator select gross CRRs and gross settlements, or net CRRs?

3. Will the MSS Operator opt into or opt out of the RUC procurement process?[68]

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[67] Amendment No. 46 involved revisions to the CAISO Tariff to accommodate MSS Operators.

[68] Opting into or out of RUC means that the MSS Operator will or will not take part in the RUC procurement process. If the MSS Operator opts into the RUC procurement process, the CAISO will consider the forecasted MSS Demand in setting the RUC procurement target. If the MSS Operator opts out of the RUC procurement process, the CAISO will not consider the forecast of MSS Demand in setting the RUC procurement target and will not commit

The CAISO believes that these decisions are not independent, but interrelated from the perspective of both the MSS Operator and the CAISO. As an example, if the MSS Operator were to choose the Load-following option, it is expected to use its Generating Unit capacity for Load-following and therefore would be considered to have opted out of the RUC process. In this case, settlements based on the use of the CAISO Controlled Grid (*i.e.*, net settlement) would be consistent with the CAISO economic dispatch, which would not necessarily have included the MSS units used for Load-following. Under the MRTU design, however, Loads settling on a net basis must be settled at an MSS-specific LAP.[69] *See* Section 11.2.3.2.1 of the MRTU Tariff. Because limiting Load-following MSS Operators to net settlements would prevent Load-following MSS Operators from participating in the large area Default LAP pricing, MRTU therefore allows Load-following MSS Operators to choose gross settlements. In order to address the inconsistency of this policy with economic dispatch, if the Load-following MSS Operators chooses gross settlements, the cost of the Load-following dispatches are not included in the price of the LAP.

Load-Following MSSs that choose gross settlements are subject to the Load-following Deviation Penalty ("LFDP") for Load-Following MSSs, a penalty that is distinct from, but somewhat analogous to, the CAISO's Uninstructed Deviation Penalty that applies to non-MSS resources. Calculation of the LFDP for a Load-Following MSS is intended to discriminate between resource deviations that actually follow MSS Load deviations or CAISO Dispatch Instructions and those that do not, and to penalize the latter but not the former. *See* Section 4.9.9.2 of the MRTU Tariff. All MSS resources that elect Load-following resources (regardless of gross or net settlement election) are subject to the LFDP. All MSS resources not designated as Load-following resources (regardless of gross or net settlement election) are not subject to the LFDP. Non-load-following resources of the MSS will be subject to the same resource-specific Uninstructed Deviation Penalty provisions that apply to non-MSS resources under the CAISO Tariff.

If the MSS Operator elects net settlement, then CRRs would be allocated on the MSS's net Load, whereas if the MSS Operator elects gross settlement, then CRRs would be allocated on a gross Load basis. *See* Section 36.10 of the MRTU Tariff.

A MSS Operator may make an annual election of the three decisions discussed above and direct its SC to implement such decisions. The election will be coincident with, or just prior to it, the annual CRR allocation process for the monthly CRRs to allow the alignment of CRR allocation with the implementation of the chosen Energy settlement option. *See* Section 4.9.13 of the MRTU Tariff.

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resources to serve MSS Demand. *See* Sections 31.5.2.1 and 31.5.2.2 of the MRTU Tariff. With respect to MSS supply resources, RUC opt-out relieves the SC for the MSS Operator of any obligation to offer its resources in the Day-Ahead IFM and RUC processes, but does not preclude them from participating on a voluntary basis by submitting a supply available for RUC. *See* Section 31.5.2.3 of the MRTU Tariff.

[69] The CAISO, in consultation with its consultants and stakeholders, determined that settling such Loads at the Default LAP price would create a disincentive to using high-priced Generation to relieve Congestion.

The CAISO has not had the opportunity to fully address how DAM and RTM Bid Cost Recovery cost should be allocated to an MSS based on the different elections. The CAISO intends to address how the allocation of BCR will apply to MSS and to address such in a subsequent filing.

R. Miscellaneous Issues

1. Pumped Storage

During the development of the MRTU market design, the California State Water Project ("SWP") expressed concern about their pumps, which participate in the CAISO Markets to provide demand response, having to schedule and settle at the Default LAP level. In MRTU Release 1, the CAISO will model Participating Loads that are pumps and pump storage facilities as generators with negative generation capabilities, and will therefore schedule and settle them at nodal prices. Pump storage facilities can perform either as generators by supplying Energy or as Loads by consuming power from the grid, and therefore they are modeled in the CAISO Markets as generators whose output can go negative when they are functioning as pumps. For Release 1 other Participating Loads, including pumps, which are always functioning as Loads, will be modeled in the same manner as pump storage facilities. As a result, SWP's participating pump resources will be scheduled and settled at the individual nodal level rather than at the Default LAP level.

The CAISO will incorporate a "Pumping Conversion Factor" in MRTU that allows an entity to indicate how much of the Energy expended to pump water into storage can then be used to produce energy. A 0% conversion factor implies that no Energy generating capability is produced, while a 100% conversion factor implies that the full amount of Energy expended is available for generating. For example, if a factor other than 0% is elected, and the resource is an Energy-limited pumped storage, the pumped Energy will increase the generation Energy quota for the rest of the current scheduling period based on the specified % of pumped Energy. Market participants will have the option of using the factor in the optimization process. The Pumping Conversion Factor is submitted to the CAISO with the Master File and need not be physically verifiable with the actual conditions of the resource.

2. Combined Cycle Modeling

Combined cycle units are modeled in the CAISO's current (*i.e.*, pre-MRTU) market as a composite resource across various sequential combined cycle configurations. Since the composite resource must have a monotonic incremental heat rate, some heat rate segments are exaggerated in this design. This is because the incremental heat rates of a combined cycle unit can vary at various configurations. In fact, the incremental heat rate at a given operating point may drop largely after a configuration change. Thus, composite modeling of combined cycle resources results in unnecessary increase in the modeled incremental heat rates.

The CAISO explored changes to this modeling approach which would allow combined cycle units to be modeled as a separate generation resource for each configuration. Such an approach would require a different resource registration for each combined cycle configuration.

After further consultation with its software vendor, the CAISO concluded that such an approach was too complex to implement for MRTU Release 1. The complexity of developing this software is highlighted by the fact that no ISO currently has software in place that allows combined cycle units to be modeled as a separate generation resource for each configuration. Rather than rushing an untried software revision into development for MRTU Release 1, the CAISO has therefore decided to continue with the existing (Phase 1b) modeling of combined cycle units as a composite resource. As a result, in MRTU Release 1, combined-cycle Generating Units may only be registered under a single Resource ID. *See* MRTU Tariff Section 30.5.2.2. The CAISO plans to consider software modifications to address the treatment of combined cycle units for MRTU Release 2.

VI. CONFORMING CHANGES TO THE CAISO TARIFF

A. Reliability Must-Run Provisions

The MRTU Tariff provides for the dispatch of RMR Units through a process that takes into account the MRTU market structure. The CAISO has contractual authority to dispatch units under RMR Contracts to meet "local reliability" needs and to manage "intra-zonal" congestion. Section 4.1(b) of the *Pro Forma* RMR Contract. The CAISO may also dispatch RMR Units for Ancillary Services in the event of a bid insufficiency in the CAISO Markets. Section 4.1(c) of the *Pro Forma* RMR Contract. Under MRTU, the CAISO will continue to issue RMR Dispatch Notices consistent with the RMR Contract for all of the products and services that the CAISO is entitled to under the RMR Contract. The biggest difference under MRTU relates to dispatch of RMR Units through the Market Power Mitigation and Reliability Requirement Determination ("MPM-RRD") process in the Day-Ahead and in the HASP and Real-Time Markets and the elimination of "Inter-Zonal Congestion" and "Intra-Zonal Congestion" as defined terms under the CAISO Tariff.

As discussed in the Direct Testimony of Keith Casey, RMR Units will be dispatched through the MPM-RRD described in Sections 31.2 and 33.4 of the MRTU Tariff. This process results in issuances of RMR Dispatches under MRTU for local reliability and for the equivalent of managing Intra-Zonal Congestion in the CAISO's prior zonal market design consistent with the RMR Contract. Whether in the Day-Ahead or in Real-Time, the first run of the MPM-RRD is the Competitive Constraint Run ("CCR") under which only transmission lines pre-designated as "competitive" are considered. The second run of the MPM-RRD is the All Constraints Run ("ACR") during which all transmission constraints are enforced. As discussed in the Direct Testimony of Keith Casey, at the start of MRTU, all constraints formerly designated as "Intra-Zonal" are enforced in the ACR.[70] As provided in Sections 31.2.2.1 and 33.4 of the MRTU Tariff, the CAISO will flag a dispatch as an RMR Dispatch when the dispatch level of an RMR Unit following the ACR is greater than the dispatch level for an RMR Unit following the CCR. Dispatches flagged as RMR Dispatches shall constitute RMR Dispatch Notices pursuant to the RMR Contract. Accordingly, RMR Dispatches issued as a result of the MPM-RRD process are consistent with the CAISO's dispatch authority under the RMR Contract since dispatches

[70] Through further Competitive Path Assessment studies, additional transmission paths may be determined to be competitive, in which case the constraints modeled in the ACR will represent a smaller set of transmission constraints compared to the model that includes all Intra-zonal constraints.

generated by the MPM-RRD process are for the purpose of meeting local reliability needs and managing "intra-zonal" congestion. The CAISO may also issue manual RMR Dispatch Notices outside of the RMR-RRD process at any time consistent with the RMR Contract.

A related modification in light of MRTU is set forth in Section 41.5.1 of the MRTU Tariff. This section provides that a market Bid submitted in the Day-Ahead Market or HASP, for dispatch in Real-Time, shall be deemed to be a notice of intent to substitute a Market Transaction for the amount of MWh specified in each bid for each Trading Hour pursuant to Section 5.2 of the RMR Contract. Whenever the CAISO flags a dispatch as an RMR Dispatch, any MWh quantities dispatched in the ACR in either the pre-IFM or HASP runs of the MPM-RRD shall be settled as a Market Transaction under the RMR Contract and be paid the relevant LMP.

One other conforming change to the Tariff related to RMR Units warrants discussion. The CAISO has preserved its right to issue an out-of-market dispatch for reasons other than to meet local reliability needs or to manage Intra-Zonal Congestion under the RMR Contract, known as an Exceptional Dispatch in the MRTU Tariff, of an RMR Condition 2 Unit in the event no other units are available and physically capable of meeting the identified requirement. *See* Section 41.9 of the MRTU Tariff. These are not dispatches pursuant to the RMR Contract, but rather Exceptional Dispatches under the CAISO Tariff. These dispatches will be paid and allocated in accordance with Section 11.5.6 of the CAISO Tariff.

Finally, the CAISO has deleted tariff language implemented following the demise of the California Power Exchange concerning the "contract path" and "market path" options. The introduction of a Day-Ahead market as part of the MRTU Tariff and the issuances of RMR Dispatches through the MPM-RRD process renders numerous tariff sections anachronistic or inconsistent and they have been proposed for deletion.

B. Credit Policy

Section 12 of the CAISO Tariff sets forth the CAISO's credit policies. Nothing in the CAISO's MRTU market design changes the overarching principle behind the CAISO's credit policies,[71] namely that all Market Participants must have an Approved Credit Rating[72] or provide the CAISO with security, in a form acceptable to the CAISO, in an amount sufficient to cover the entity's "estimated aggregate liability" as set forth in Section 12.3. The introduction of CRR Obligations and monthly CRR auctions, however, requires certain conforming changes to the CAISO's credit policies that are reflected in amendments to Section 12.

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[71] With the introduction of the Day-Ahead Market as part of MRTU, net buyers can expect to see higher total estimated aggregate liability calculations as compared to the zonal market design with only a real-rime energy market.

[72] The CAISO plans to file a tariff amendment in early 2006 to implement changes approved by the CAISO Governing Board in June 2005 to establish, among other things, credit limits for entities with an Approved Credit Rating. This would mean that entities even with an Approved Credit Rating would have specific credit limits and would be required to post security whenever their estimated aggregate liability exceeded their credit limits. The CAISO will conform the MRTU Tariff to reflect these amendments and any additional intervening tariff amendment prior to the effective date of the MRTU Tariff.

1. Introduction of CRR Obligations

The biggest conceptual change reflected in amendments to Section 12 relates to a significant distinction between Firm Transmission Rights ("FTRs") available in the CAISO's current zonal market design – which are only "options" – and CRR Obligations introduced as part of MRTU. With FTRs, an FTR Holder is entitled to receive congestion revenues but has no corresponding obligation to pay. CRR Obligations, on the other hand, will entitle the CRR Holder to receive revenues but also obligate the CRR Holder to pay congestion charges depending on whether the difference between the LMP at the source and the LMP at the sink is positive or negative. These differences will result in credits or debits for each settlement period that will be reflected in the CAISO's settlement system and used to calculate an entity's estimated aggregate liability." Unlike other charges that only accrue as a result of an entity's participation in the CAISO Markets that accrue on a daily or hourly basis, a negatively valued CRR Obligation results in an obligation to pay over the entire term of the CRR instrument (either monthly or yearly). This means that the estimated liability for a CRR Obligation must be based on the "net projected obligation of the CRR for the entire term of the CRR" as set forth in Section 12.3 of the MRTU Tariff. If the net projected obligation over the term of the CRR is negative, that amount must be included in the entity's estimated aggregate liability.[73]

The CAISO has not provided a formula for determining the "net projected obligation" of a CRR. Today, the CAISO calculates estimated aggregate liability by using the method described in the methodology known as Scheduling Coordinator Aggregated Liability Estimate ("SCALE") which is described in the "ISO Credit Policy and Procedure Guide" published on the CAISO's website. The CAISO intends to develop additional estimation tools to calculate the "net projected obligation" of a CRR, which will be published in a Business Practice Manual that will be a successor to the "ISO Credit Policy and Procedure Guide." At the outset, however, for negatively priced CRR Obligations acquired in an auction, the minimum value of the "net projected obligation" shall be set at the price determined in the auction, as described in Section 12.3.2 of the MRTU Tariff.

2. Credit Requirements for CRR Auctions

To participate in a CRR auction, a Candidate CRR Holder must have available credit or have provided security in a form consistent with Section 12 of the CAISO Tariff. For a Candidate CRR Holder that does not maintain an Approved Credit Rating, the amount of available credit for participating in a CRR Auction shall not exceed the difference between the value of security posted in accordance with Section 12 and the Candidate CRR Holder's estimated aggregate liability. This approach is a slight departure from the CAISO's practice with FTR auctions, where the CAISO required separate security instruments to establish credit limits in the FTR auction. *See* MRTU Tariff, Section 12.5.1. With the introduction of monthly auctions, it is more efficient to calculate available credit for Candidate CRR Holders as the difference between the value of security posted and their estimated aggregate liability.

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[73] In light of the fact that the only remedy for violating the CAISO's credit policies is to limit or prohibit trading, it is crucial that the estimated aggregate liability include the project value of CRR Obligations since a limit on trading constitutes no remedy at all because the CRR Holder will have the obligation to pay for the entire term of the CRR, whether it participates in the CAISO Markets or not.

C. Uninstructed Deviation Penalties

The current version of the CAISO Tariff includes provisions that, if implemented, would subject certain generators and dynamic System Resources to Uninstructed Deviation Penalties ("UDP") for uninstructed deviations that exceed a tolerance band defined as the greater of 5 MW or 3% of a unit's maximum resource capacity (P-max). These provisions are currently suspended. Under these provisions, uninstructed incremental deviations outside of this tolerance band are not paid for the Imbalance Energy if the price for that Settlement Interval is non-negative, and in addition, uninstructed decremental deviations beyond the tolerance band are subject to a premium of 50% of the applicable energy price in that Settlement Interval if the interval price is nonnegative. However, because of certain stakeholder concerns, the CAISO has not yet implemented UDP, but the CAISO has been providing advisory settlement data to SCs to show what their UDP charges would have been if UDP had been implemented. The CAISO has also been monitoring certain reliability metrics, with the intention of filing a tariff amendment to propose an immediate effective date for application of UDP if those metrics exceed a certain threshold.

The CAISO proposes to retain the UDP mechanism under MRTU, but just like today, the UDP provisions will not be enforceable until the CAISO separately files for permission from the Commission to implement UDP. The proposed UDP mechanism for MRTU will still be based on assessing penalties to Uninstructed Imbalance Energy in excess of a tolerance band in each 10-minute Settlement Interval, and would continue to apply only for non-negative Real-Time prices, and would be based on the Real-Time Energy price times an Energy Price Penalty Factor times the relevant scaled uninstructed deviation quantity in MWh outside the tolerance band (*i.e.*, MWh deviation times the multiplier). The Real-Time price used will be: (a) the weighted average of the 5-minute LMPs at the resource's location if the resource has non-zero MWh instructed Energy dispatch, or (b) the simple average of the 5-minute LMPs at the resource's location if the resource has no instructed Energy for either of the two 5-minute Dispatch Intervals. However, under MRTU the deviation quantity will be determined by multiplying the actual MWh deviation subject to UDP (*i.e.*, the number of MWh outside of the tolerance band) by a multiplier that will increase based on the number of infractions in an hour. The number of infractions will be reset to zero at the top of each hour. This methodology is set forth in Section 11.23 of the MRTU Tariff.

The reason that the CAISO is proposing the change with respect to determining deviation quantities is to ensure that UDP under MRTU, if implemented, would be comparable and as effective as it is under the current market design in discouraging Scheduling Coordinators from deviating from Dispatch Instructions. Under MRTU, a resource is dispatched based on its ramp rate, physical limits, and its current telemetered output. This last factor is particularly important, because, as a result, dispatch instructions under MRTU will be generally feasible because prior uninstructed deviations will be taken into account in issuing new Dispatch Instructions. This is in contrast to the dispatch methodology employed in the CAISO's current market design, which calculates the dispatch range for each resource based on the last Dispatch Operating Target ("DOT") (defined as the resource's operating target issued in the previous dispatch for the current interval), which assumes that the resource followed the preceding Dispatch Instruction,

as well as the applicable ramp rate and capacity limits. Because, under MRTU, Dispatch Instructions will be issued taking into account telemetered output, a resource that does not follow Dispatch Instructions under MRTU will be exposed to UDP only for the amount of Energy that can be ramped within a Dispatch Interval. Thus, its uninstructed deviation quantity does not accumulate as it does under the CAISO's current market design. Because of this, absent the multiplier, UDP under MRTU would be so diluted that short of additional measures, UDP would be reduced to a level that it would cease to be a credible deterrent against uninstructed deviations. Therefore, the CAISO intends to introduce under MRTU the deviation multiplier in order to rectify this problem and bring the level of UDP for strategic deviations on par with the current market design.

Finally, as with the current UDP mechanism, UDP under MRTU would not apply to all Generating Units. Specifically, units without Participating Generator Agreements ("PGAs") will be exempt from UDP under MRTU, as will be PIRP units with PGAs. Also, Qualifying Facilities ("QFs") with a power purchase agreement under which, pursuant to PURPA, they are obligated to sell all of their output net of their own use, will not be subject to UDP for deviations from their schedules. The exemptions will continue for RMR Condition 2 and Regulatory Must-Take units. There is a change regarding the exemption of the MSS units compared to Phase 1b, in that under MRTU, only the MSS units designated as "load following" units are exempt from UDP, whereas in Phase 1b all units under a Load following MSS were exempt. *See* MRTU Tariff Section 11.23(e).

D. Scheduling of Transmission Outages

Currently, the CAISO Tariff requires the submission of annual maintenance schedules and quarterly updates to those schedules. In this filing, the CAISO proposes to retain these provisions, but to modify Section 9.3.6.3.2 of the MRTU Tariff which permits changes to these longer term schedules up to 72 hours advance of the outage. Under the MRTU Tariff, the CAISO will require 45 days notice for scheduling Maintenance Outages for transmission facilities. As explained in the Direct Testimony of Lorenzo Kristov, this information is needed so that the CAISO can incorporate the outage information into the Full Network Model to be used for determining the CRRs available for the monthly release of CRRs. The monthly auctions will occur approximately 15-30 days in advance of the Trading Month. The CAISO intends to discuss with stakeholders the details of how this 45 day scheduling requirement will be implemented.

E. Miscellaneous Conforming Changes

The MRTU Tariff includes a number of terminology changes and the addition of a number of defined terms needed to implement the MRTU market design. For example, a definition of "Load-Serving Entity" is being added to the CAISO Tariff for the first time. Also, as noted above, the term "ISO" is being replaced by the more specific term "CAISO" throughout the Tariff. Other changes include replacing the term "Home Page" with "Website" and "WNet" with "secure communications system"

VII. FUTURE MARKET DESIGN EFFORTS

This filing represents a complete package of tariff language to establish the design of Release 1 of MRTU and allow its implementation by November 2007. It does not, however, represent the whole of CAISO efforts related to MRTU. The CAISO contemplates three additional categories of activities related to MRTU: (1) The development of Business Practice Manuals; (2) additional filings under Section 205 of the Federal Power Act to implement certain details of the Release 1 tariff provisions or to implement matters that are related to MRTU and the CAISO Markets but are not the direct product of MRTU; and (3) the refinement of policy decisions, preparation of tariff language, and filing of Release 2.

A. Development of MRTU Business Practice Manuals

As described in the testimony of Brian Rahman (provided as Attachment M to this filing), in order to provide guides for internal operations and inform Market Participants regarding the CAISO's practices, the CAISO will develop and issue Business Practice Manuals ("BPMs.") The BPMs will document the manner in which the CAISO conducts its operations under the terms of the MRTU Tariff. The BPMs will cover all areas of the CAISO's business. Like the manuals and procedures adopted by other independent system operators, these BPMs will include more detail than will be found in the MRTU Tariff provisions, including timelines and examples. Through the BPMs, the CAISO intends to provide consistency and transparency in the implementation of MRTU.

Moreover, when the CAISO submitted its Simplified and Reorganized Tariff in Docket No. ER05-1501, it integrated most of the CAISO Protocols into the main body of the CAISO Tariff. The CAISO also made a commitment to initiate a process that would incorporate some of the remaining protocol language, including appendices to protocols, in BPMs. In conjunction with the development of BPMs, the CAISO will make a Section 205 filing to delete such language from the CAISO Tariff. Examples of provisions that are likely to be removed from the Tariff through this process include the appendices to the former Metering Protocol, Appendix O of the S&R Tariff and the appendices to the former Settlements Protocol, attached as Appendix N of the S&R Tariff.

Relevant to MRTU, BPMs will include the following subject matters: Settlements; Bidding Process; Mitigation; Integrated Forward Market; Residual Unit Commitment; Hour-Ahead Scheduling Process; Real-Time Market; Congestion Revenue Rights; Billing; Resource Adequacy; Credit Policy and Load Forecasting. The CAISO intends to develop the BPMs through a series of version controlled releases, beginning with the release of initial drafts of the information to be incorporated into the BPMs in April 2006 and followed by the release of initial versions of the BPMs themselves in July 2006. The CAISO will seek stakeholder input at each stage of the process, with the operational version to be released in May 2007.

B. Additional 205 Filings Anticipated Prior to MRTU Implementation

A limited number of the provisions of the MRTU Tariff require that additional details be addressed prior to implementation. In addition, there are a handful of areas in which the CAISO management believes that there is a need to supplement Release 1 prior to implementation, but

must first seek stakeholder input and obtain CAISO Board approval. The CAISO intends to make Section 205 filings to address these issues. In addition to these items that are the direct result of the MRTU project, the CAISO must make additional Section 205 filings to address a number of matters that are not part of the MRTU project but are affected by or must proceed in parallel with MRTU. The following is a discussion of some issues that may be addressed in subsequent 205 filings prior to MRTU implementation.

The CAISO intends to develop, with stakeholder input, tariff provisions that will allow it to make price corrections in certain circumstances where market flaws, the MRTU software, or equipment malfunctions produce anomalous results. The CAISO anticipates that these tariff provisions will be similar to comparable provisions in the NYISO and MISO tariffs. The CAISO intends to file these tariff provisions for Commission approval prior to the MRTU Release 1 implementation date.

In its September 20, 2004 Order (at P 10), the Commission directed the CAISO to evaluate the continuing need for a must-offer obligation after the implementation of MRTU and the CPUC's Resource Adequacy program. Although the CAISO does not believe that a must-offer obligation such as that described by the Commission is necessary under MRTU, the CAISO does believe that some form of backstop is necessary in the event that local Resource Adequacy requirements do not suffice to meet local reliability requirements. In connection with the complaint filed by the Independent Energy Producers in Docket No. EL05-146, the CAISO has engaged in negotiations regarding the Reliability Services Capacity Tariff ("RCST") proposed in the complaint. To the extent that such a backstop mechanism for Resource Adequacy in 2006 is developed, the CAISO may consider using a similar mechanism under MRTU.

As the Commission is aware, the CPUC's Resource Adequacy requirements become effective in June 2006. The CAISO intends to develop and file Resource Adequacy tariff provisions to become effective at the same time.

Given the new requirements associated with the MRTU market design, the CAISO is considering whether or not it is appropriate to re-certify Scheduling Coordinators prior to the MRTU Implementation Date. If the CAISO develops such as process, it intends to submit the details of this process for Commission review.

In addition, the CAISO is required to submit a 205 filing addressing the Grid Management Charge ("GMC") by the end of this year. Pursuant to the GMC settlement in Docket No. ER04-115 *et al.*, the CAISO is authorized to keep the current GMC provisions in effect through the end of 2006 unless the CAISO implements a new LMP-based market design prior to the end of 2006. This settlement also requires the CAISO to submit a GMC filing under Section 205 of the FPA to take effect January 2007. This settlement does permit the CAISO to request in such filing that the current GMC rate design remain in effect. The CAISO anticipates that, prior to the proposed MRTU implementation date of November 2007, it will undertake a review of the GMC provisions of the CAISO Tariff to determine if changes are appropriate to reflect the MRTU market design.

Finally, as noted above, the CAISO plans to file a tariff amendment in early 2006 to implement changes approved by the CAISO Governing Board in June 2005 to establish, among

other things, credit limits for entities with an Approved Credit Rating. These changes will need to be incorporated into the MRTU Tariff prior to MRTU implementation.

C. Issues That Will Be Considered in Subsequent Releases of MRTU

As has been previously discussed in this filing letter, the CAISO has deferred a number of elements that were proposed for inclusion in the MRTU market design until subsequent releases of the MRTU market design (referred to generically as "Release 2"). A number of these items were considered for inclusion in MRTU Release 1, but had to be deferred due to software implementation concerns. Other items were slated for consideration in Release 2 because the CAISO concluded that they were features which, although desired by some stakeholders, were not critical for an efficient implementation of the new LMP-based market design. The general criteria for including a market design feature in MRTU Release 1 was whether the feature was necessary to: (1) ensure reliable operation of the grid, (2) ensure that the market design works properly, *i.e.*, does not have a "fatal flaw", or (3) satisfy a regulatory requirement.

1. Virtual Bidding

One of the market design features currently under consideration for MRTU Release 2 is virtual or convergence bidding. In an August 2, 2005 filing in Docket No. ER02-1656, submitted to comply with the July 1, 2005 Market Design Order, the CAISO proposed to submit a report to FERC by March 15, 2006 explaining when the CAISO anticipated implementing virtual bidding as part of a subsequent release of MRTU. In that filing, the CAISO explained that it intends to undertake a complete evaluation of the pros and cons of virtual bidding once the details of the MRTU Release 1 market design were resolved in sufficient detail to submit the MRTU Tariff to the Commission.

As the Commission is aware, the process of finalizing the details of the MRTU Tariff has taken more time than anticipated last summer. The CAISO now intends to discuss the schedule and deliverables for Release 2 of the MRTU design, including the issue of virtual or convergence bidding, at its Board of Governors meeting scheduled for March 8, 2006. The CAISO intends to submit a report in Docket No. ER02-1656 by March 15, 2006, that will reflect the discussion with the CAISO Governing Board and will update the Commission on the status of the CAISO's efforts to implement virtual bidding.

The CAISO urges the Commission to recognize that virtual bidding cannot be implemented for MRTU Release 1 without a delay in the initial release of MRTU. As discussed in the testimony of Brian Rahman (provided as Attachment M to this filing letter), a decision to implement virtual bidding in Release 1 could delay the implementation of MRTU Release 1 by as much as an additional 12 months beyond the projected November 2007 MRTU implementation date because of the software modifications required. Such a change would modify all downstream data stores as well as the integration of all major systems.

2. Additional Release 2 Items

A more comprehensive list of the items that will be considered as part of MRTU Release 2 includes the following:

- Use of bid-in Demand rather than Demand forecast in Pre-IFM passes in the Day-Ahead Market[74]
- Unrestricting the pool of resources in the IFM pass for the Day-Ahead Market
- Eliminating use of extreme DEC bids on the Pass 1 schedule in the Day-Ahead Market
- Simultaneous RUC and IFM
- Use of import capacity in the RUC process
- Participating Load demand response in Day-Ahead Market
- The California Energy Commission's proposal on rebate of loss over-collection for renewable resources
- System-level scarcity pricing
- Consideration of a full Hour-Ahead settlement market
- Dynamic pivotal supplier test for market power mitigation
- Multi-settlement system for Ancillary Services
- Consideration of import energy in the RUC process
- Multi-day unit commitment in the IFM
- DEC Bids on Final Day-Ahead Resource Schedules
- Ramping Limits for the Real-Time Pricing Run with Constrained Output Generation
- Ramp Rates
  a. Operational ramp rate function
  b. Operating Reserve ramp rate
  c. Regulation ramp rate
- Ancillary Service Self-Provision at the Interties
- Reservation of transmission capacity for Ancillary Service exports
- Hourly designation of Ancillary Service Contingency Only Flag
- Combined-cycle modeling

The CAISO will determine a prioritization list of the above items with input from stakeholders, Commission Staff, and the CAISO Governing Board and Executive Officers.

VIII. SERVICE

The CAISO has served copies of this filing on the Public Utilities Commission of the State of California, the California Energy Commission, the California Electricity Oversight Board, and all parties with Scheduling Coordinator Agreements under the CAISO Tariff. In addition, the CAISO has posted a copy of the filing on the CAISO Website and will provide courtesy copies of this filing to all parties in Docket No. ER02-1656.

IX COMMUNICATIONS

Communications regarding this filing should be addressed to the following individuals whose names should be placed on the official service list established by the Secretary with respect to this submittal:[75]

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[74] This issue is discussed in Section V.E of this filing letter and in the testimony of Brian Rahman and Keith Casey.

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[75] The CAISO respectfully requests waiver of Rule 203(b)(3), 18 C.F.R. § 385.203(b)(3), to permit each of the persons listed above to be included on the service list for this proceeding.

X. CONCLUSION

Wherefore, for all the reasons stated above, the CAISO respectfully requests that the CAISO MRTU Tariff be approved, without modification, suspension, or hearing to go into effect on the November 1, 2007 Trading Day.

Respectfully Submitted,

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