



January 29, 2007

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

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 OFFICE OF THE  
 SECRETARY  
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 FEDERAL ENERGY  
 REGULATORY COMMISSION

**RE: Long-Term Firm Transmission Rights In Organized Electricity Markets  
Docket No. RM06-8-\_\_\_**

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 Commission) regulations, 18 C.F.R. § 35 *et seq.*, the California Independent System Operator Corporation (CAISO) hereby submits its filing to provide long-term firm transmission rights in its markets. The submittal is in compliance with Order Nos. 681 and 681-A, the Commission’s Final Rule regarding Long-Term Firm Transmission Rights in Organized Electricity Markets.<sup>1</sup>

**I. EXECUTIVE SUMMARY**

This filing complies with Section 217 of the FPA and Order Nos. 681 and 681-A.<sup>2</sup> The long-term firm transmission rights proposed by the CAISO are referred to as “Long-Term Congestion Revenue Rights” (Long Term CRRs). Specifically, the CAISO’s Long Term CRR proposal satisfies each of the seven guidelines contained in the Final Rule in the following manner:

- (1) Long Term CRRs specify a source, sink and quantity. **(Guideline 1).**
- (2) Long Term CRRs will not be modified during their term and will be fully funded. Once allocated, Long Term CRRs will be modeled as a fixed injections and withdrawals on the DC full network model in subsequent allocation and auction

<sup>1</sup> *Long-Term Firm Transmission Rights in Organized Electricity Markets*, Order No. 681, 71 FR 43564 (Aug. 1, 2006), FERC Stats. & Regs. ¶ 31,226 (2006) (“Order No. 681” or “Final Rule”); and Order No. 681-A, 117 FERC ¶ 61,201 (2006) (“Order No. 681-A” or “Rehearing Order”).

<sup>2</sup> It is important to note that the Final Rule uses the generic term “load serving entities” and that in the MRTU Tariff a Load Serving Entity is defined to mean only those entities that serve load inside the CAISO Control Area. Therefore, because entities serving external loads will also be eligible for Long Term CRRs, this filing letter will use the lower case term “load serving entity” to refer to both categories of loads.

processes. In addition, the CAISO will ensure the continued feasibility or stability in the amount of an allocated Long Term CRR through its transmission planning process (**Guideline 2**).

- (3) The CAISO will make CRRs available for upgrades or expansions to a party that pays for such upgrades or expansions (**Guideline 3**).
- (4) Long Term CRRs will have a term of 10 years. In addition, Long Term CRRs will be allocated to load serving entities that serve load up to 50 percent of their Adjusted Load Metric, which is sufficient to meet the reasonable needs of such load serving entities (**Guideline 4**).
- (5) Long Term CRRs will be allocated only to load serving entities and therefore the preference for load serving entities over non-load serving entities required in the Final Rule is inherent in the proposal (**Guideline 5**).
- (6) Long Term CRRs are fully re-assignable in cases of load migration (**Guideline 6**).
- (7) Entities eligible to nominate and receive Long Term CRRs need not participate in an auction to receive them (**Guideline 7**).

The proposal was developed through a robust stakeholder process and responds to many concerns raised by market participants throughout the design period. Building on the flexibility afforded to parties in Order Nos. 681 and 681-A, the proposal is well tailored and balanced to meet the regional needs of market participants in California. Finally, the proposal makes it possible for the CAISO to make available a fully developed allocation of Long Term CRRs to be effective at the start of the CAISO's Market Redesign and Technology Upgrade (MRTU).

## II. INTRODUCTION.

The CAISO's proposal to implement long-term firm transmission rights is an extension of the Congestion Revenue Rights (CRRs) program under the MRTU Tariff. The proposal incorporates the provision of long-term firm transmission rights into the CRR allocation process under the MRTU Tariff conditionally approved by the Commission.<sup>3</sup> In so doing, the instant filing complies with FPA Section 217 and the seven Commission guidelines set forth in Order No. 681 and as further clarified in Order No. 681-A.<sup>4</sup>

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<sup>3</sup> *California Independent System Operator Corporation*, 116 FERC ¶ 61,274 (2006) (September 21 Order). One of the primary drivers of the MRTU as described in the CAISO's February 9, 2006 filing in Docket No. ER06-615-000 ("MRTU Filing") is to encourage long-term contracting and ease pressure on spot markets. *See generally* Testimony of Scott Harvey and Susan Pope, Docket No. ER06-615-000, Exh. ISO-2 at p 27.

<sup>4</sup> In addition to this transmittal letter and revised tariff sheets, the CAISO provides the testimony of Dr. Lorenzo Kristov, Dr. Susan Pope, and Dr. Roger Treinen in support of the proposal. *See* Attachment C, Exhibit No. ISO-1 – testimony of Dr. Lorenzo Kristov; Attachment D, Exhibit No. ISO-2 - testimony of Dr. Susan Pope; Attachment C, Exhibit No. ISO-3 - testimony of Dr. Roger Treinen; *see also* Section VII of this transmittal letter ("Supporting Documents").

It is important to note at the outset that the introduction of Long Term CRRs requires small but important terminology changes in the MRTU Tariff. The existing CRRs, applicable in any single year in the MRTU Tariff will be defined as “Monthly” CRRs and “Seasonal” CRRs.<sup>5</sup> The generic term CRR is retained as general reference to any of the specific types of CRRs in the MRTU Tariff.<sup>6</sup> All changes in terminology resulting from this filing are captured in the tariff through revisions and additions to Appendix A to the MRTU Tariff as submitted in Attachments A and B to this transmittal letter.

The CAISO’s proposal will provide Long Term CRRs to load serving entities at the start up of the MRTU markets, currently scheduled for January 31, 2008. Given the scheduled start date for the MRTU markets and the Commission’s deadline for a compliance filing in this proceeding, the CAISO is requesting waiver of the notice requirements in section 35.3(a) of the Commission regulations<sup>7</sup> to permit an effective date of the Long Term CRR tariff provisions on July 1, 2007. The requested effective date will allow the CAISO to implement Long Term CRRs in a timely manner before MRTU start-up.<sup>8</sup>

### **III. BACKGROUND**

#### **A. ORDER NOS. 681 AND 681-A: THE FINAL RULE ON LONG-TERM FIRM TRANSMISSION RIGHTS**

##### **1. Inquiry into Long-Term Transmission Rights in Organized Electricity Markets**

The Commission began its inquiry into long-term transmission rights in organized electricity markets by issuing a Staff Discussion Paper and soliciting comments on the implementation of a

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<sup>5</sup> See New §§ 36.2.5 (Monthly CRRs) and 36.2.6 (Seasonal CRRs) of the proposed tariff language.

<sup>6</sup> The CAISO notes that the existing MRTU Tariff includes a separate category of CRRs for entities developing merchant transmission projects – merchant transmission CRRs (MT-CRRs). The CAISO intends for MT-CRRs to be implemented simultaneously with the start of the initial CRR release process for the startup of the MRTU market. The CAISO has formed an internal team to develop the methodology for determining the incremental CRRs available due to merchant transmission projects, will post a Whitepaper on the topic shortly, and will solicit public input on MT-CRRs in a separate stakeholder process.

<sup>7</sup> 18 C.F.R. § 35.3(a) (2006)

<sup>8</sup> The CAISO recognizes that the sheets filed in this proceeding are only a portion of the complete Section 36 that will enable the CAISO to begin its first annual CRR Allocation and CRR Auction process on July 1, 2007. At the start of the second quarter of 2007, following the completion of the CRR Dry Run, the CAISO expects to be submitting a filing under Section 205 of the FPA requesting approval for any necessary changes to the existing CRR rules in the conditionally-approved MRTU Tariff due to lessons learned through the CRR Dry Run. In that filing, the CAISO will also be requesting early effectiveness of the CRR provisions in Section 36 to enable the CAISO to allocate and auction CRRs in a timely manner before MRTU start-up. These CRR provisions will be appended to the currently effective CAISO Tariff as the MRTU tariff will not be in effect until MRTU start-up. As provided in Section IX of this transmittal letter, to accomplish the multiplicity of filings required prior to inception of the first annual CRR Allocation and CRR Auction process in 2007 and actual MRTU start-up in 2008, the CAISO requests waiver of the requirements on proper identification of tariff sheets under Order No. 614. See *Designation of Electric Rate Schedule Sheets*, FERC Stats. & Regs., Regs. ¶ 31,096 [Preambles 1996-2000] (2000).

long term transmission rights. *See* May 11, 2005 Notice in Docket No. AD05-7-000. The inquiry was premised on four factors:<sup>9</sup>

- Congestion costs are an important component of delivered price of electricity;
- In locational marginal pricing (LMP) markets congestion costs can be hedged with Financial Transmission Rights (FTRs);
- At the present time, the longest congestion hedge in all relevant markets is one-year; and
- Transmission customers and other parties had expressed interest in having the ability to obtain transmission service for periods longer than a year with price certainty.

## **2. The Energy Policy Act of 2005**

On August 8, 2005 the Energy Policy Act of 2005 (EPAct 2005) was signed into law. Section 1233 of the EPAct 2005 added new section 217 to the Federal Power Act (FPA) that requires the Commission to exercise its authority under the section in a manner that facilitates the planning and expansion of transmission facilities to meet the reasonable needs of load serving entities and enables load serving entities to secure firm transmission rights (or equivalent tradable or financial rights) on a long-term basis for long-term power supply arrangements made, or planned, to meet such needs.<sup>10</sup>

## **3. Commission Rulemaking Proceeding and Guidelines for Establishing Long-Term Transmission Rights**

The Commission instituted a formal Notice of Proposed Rulemaking in the instant proceeding on February 2, 2006.<sup>11</sup> After rounds of comments, the Commission issued the Final Rule on July 20, 2006. In the Final Rule, the Commission amended its regulations to require each transmission organization that is a public utility with one or more organized electricity markets to make available long-term firm transmission rights that satisfy seven guidelines contained in Order No. 681. The seven guidelines set forth the minimum characteristics for long-term transmission rights that will satisfy the Final Rule and section 1233 of EPAct 2005. The seven guidelines are:

- (1) The long-term firm transmission right should specify a source (injection node or nodes) and sink (withdrawal node or nodes), and a quantity (MW);
- (2) The long-term firm transmission right must provide a hedge against day-ahead locational marginal pricing congestion charges or other direct assignment of congestion costs for the period covered and quantity specified. Once allocated, the financial coverage provided by a financial long-term right should not be modified during its term (the “full funding” requirement) except in the case of extraordinary

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<sup>9</sup> *See Notice Inviting Comments On Establishing Long Term Transmission Rights In Markets With Locational Pricing*, Docket No. AD05-7-000, at p. 1 (May 11, 2005).

<sup>10</sup> Section 217(b)(4) of the FPA, 16 U.S.C. § 824q (2006).

<sup>11</sup> *See Long-Term Firm Transmission Rights in Organized Electricity Markets*, 114 FERC ¶ 61,097 (2006) (“NOPR”).

circumstances or through voluntary agreement of both the holder of the right and the transmission organization;

- (3) Long-term firm transmission rights made feasible by transmission upgrades or expansions must be available upon request to any party that pays for such upgrades or expansions in accordance with the transmission organization's prevailing cost allocation methods for upgrades or expansions;
- (4) Long-term firm transmission rights must be made available with term lengths (and/or rights to renewal) that are sufficient to meet the needs of load serving entities to hedge long-term power supply arrangements made or planned to satisfy a service obligation. The length of term of renewals may be different from the original term. Transmission organizations may propose rules specifying the length of terms and use of renewal rights to provide long-term coverage, but must be able to offer firm coverage for at least a 10 year period;
- (5) Load serving entities must have priority over non-load serving entities in the allocation of long-term firm transmission rights that are supported by existing capacity. The transmission organization may propose reasonable limits on the amount of existing capacity used to support long-term firm transmission rights;
- (6) A long-term transmission right held by a load serving entity to support a service obligation should be re-assignable to another entity that acquires that service obligation; and
- (7) The initial allocation of the long-term firm transmission rights shall not require recipients to participate in an auction.

*Order No. 681-A* at P 15 (guidelines to be set forth in 18 C.F.R. § 42.1(d)).

The Final Rule requires each transmission organization subject to its requirements to file with the Commission, no later than January 29, 2007, either tariff sheets and rate schedules that make available long-term firm transmission rights that satisfy each of the guidelines set forth in the final regulations, or an explanation of how its current tariff and rate schedules already provide for long-term firm transmission rights that satisfy each of the guidelines.<sup>12</sup> On November 16, 2006, the Commission issued the Order on Rehearing and Clarification that largely affirmed the Final Rule and the compliance requirements thereof.<sup>13</sup>

## **B. CONGESTION REVENUE RIGHTS UNDER THE MRTU TARIFF**

Concurrent with the Commission's long-term firm transmission rights rulemaking proceeding, the CAISO has been pursuing implementation of the comprehensive redesign of its market structure in the MRTU proceeding, Docket No. ER06-615-000. The CAISO submitted the MRTU Filing on February 9, 2006. On September 21, 2006, the Commission accepted for

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<sup>12</sup> *Order No. 681* at P 490; *see also* 18 C.F.R. § 42.1(c).

<sup>13</sup> *See Order No. 681-A* at P 3.

filing the MRTU Tariff to become effective November 1, 2007, subject to a number of modifications.<sup>14</sup>

The CAISO's MRTU market design is based on the use of Locational Marginal Prices (LMPs), which has been successfully employed in other regions of the country to allocate congestion costs and provide appropriate short-term and long-term price signals. 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 grid, including the marginal cost of congestion and transmission losses, based on market participants' submitted bids for supply and demand or the CAISO's forecast of demand. A core component of the MRTU market design is CRRs that enable holders of such instruments to manage the cost of congestion. CRRs entitle the holder to receive revenues or charges based on the congestion components of the LMPs calculated for each hour in the Integrated Forward Market (IFM). Under the MRTU Tariff the CAISO first allocates CRRs to load serving entities that pay for the embedded costs of the CAISO Controlled Grid; the remaining CRRs are then made available through auctions open to all creditworthy parties.

The filed MRTU market design did not contain long-term transmission rights.<sup>15</sup> The Commission directed CAISO to work with its stakeholders to develop and submit a compliance filing within the timetable prescribed in the Final Rule.<sup>16</sup> The Commission also noted transmission organizations may need to seek permission from the Commission to reorder their work on existing initiatives in order to implement the Final Rule.<sup>17</sup> Similarly, the Order on the MRTU Filing required CAISO to comply with the Final Rule concerning timely implementation of long-term firm transmission rights.<sup>18</sup>

#### **IV. STAKEHOLDER PROCESS**

From the time the Final Rule was issued on July 20, 2006, the CAISO diligently engaged in a thorough and transparent stakeholder consultation process to arrive at the proposal contained in this filing. Because the CAISO was required to make available long-term firm transmission rights consistent with the Commission's Final Rule at the onset of MRTU, the challenge in developing this compliance filing was unique and required significant thoughtfulness and attention from stakeholders. The CAISO appreciates the efforts of all of its market participants in their review of, comments on, and suggestions for improving various iterations of proposals to satisfy the Final Rule. Dr. Kristov provides a more detail description of the robust stakeholder

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<sup>14</sup> See *September 21 Order* at PP 1, 2.

<sup>15</sup> However, the CRR proposal filed with the MRTU Tariff does contain a provision that enhances the long-term certainty of the one-year "Seasonal" CRRs contained in the Tariff. Specifically, it incorporates a feature (the Priority Nomination Process) that enables LSEs to renew Seasonal CRRs they were previously allocated before allocating new CRRs, thereby providing greater multi-year certainty for LSEs than the one-year term of these CRRs would suggest. In addition, as discussed in this document and the attached testimony, the CRR proposal filed with the MRTU Tariff already meets several of the guidelines contained in the Final Rule.

<sup>16</sup> See *Order No. 681* at P 495; *Order No. 681-A* at P 116.

<sup>17</sup> *Order No. 681* at P 491.

<sup>18</sup> *September 21 Order* at PP 890, 891.

process conducted by the CAISO during this limited time set for this proceeding in his Direct Testimony. The stakeholder process included the following:

- Publication of five various iterations of its compliance proposal White Paper and analysis of the Final Rule. One of these White Papers contained a comparison of competing alternatives;
- Six rounds of written stakeholder comments posted on the CAISO website;
- Three day-long public meetings with technical, policy and senior CAISO staff as well as external experts;
- A half-day panel discussion for the public and the CAISO Board, in which many stakeholders participated;
- Three public MSC discussions and a formal MSC opinion on Long Term Transmission Rights;
- Three open conference calls; and,
- At least fifteen additional conference calls with individual entities to address discrete issues on an as-requested basis.

The following timeline provides precise details of this stakeholder process.

[table on next page]

### Long Term CRR Stakeholder Timeline

Date	Stakeholder Activity
July 20, 2006	Commission Issues Order No. 681.
August 10, 2006	Initial conference call held with stakeholders to discuss CAISO's proposed compliance process and timetable.
August 18, 2006	Stakeholders submit initial comments on process and key issues.
September 26, 2006	CAISO publishes first White Paper on long-term transmission rights design issues and options.
October 3, 2006	CAISO conducts first stakeholder meeting to evaluate various compliance options.
October 16, 2006	Stakeholders submit second round of written comments on key issues.
October 18, 2006	CAISO sponsors a panel discussion involving various market participants as well as an MSC member and staff from the NYISO. Presentation materials from this meeting are posted on the CAISO website.
November 7, 2006	CAISO publishes second White Paper that incorporates a "Straw Proposal for the Design and Release of Long Term Transmission Rights."
November 9, 2006	CAISO holds second stakeholder meeting.
November 20, 2006	Stakeholders submit third round of comments focused on "Straw Proposal."
November 28, 2006	CAISO publishes third White Paper containing additional alternatives for long term transmission rights.
December 8, 2006	Stakeholders submit fourth round of written comments on alternatives.
December 15, 2006	CAISO publishes fourth White Paper, a "Draft Proposal" for Long Term CRRs.
December 19, 2006	CAISO hosts second conference call with stakeholders to discuss December 15 <sup>th</sup> Draft Proposal.
January 5, 2007	CAISO publishes fifth White Paper Titled "CAISO Proposal: Long Term Congestion Revenue Rights."
January 5, 2007	Stakeholders submit fifth round of written comments.
January 9, 2007	CAISO hosts third stakeholder meeting.
January 11, 2007	Stakeholders submit sixth round of written comments.
January 16, 2007	CAISO conducts third conference call with stakeholders.
January 24, 2007	Public comments and discussion at the CAISO Board of Governors meeting.

The CAISO is grateful for the tremendous effort of its stakeholders in participating in this process and recognizes that this comprehensive proposal could not have been realized without their dedication to this goal. The CAISO has thoughtfully considered all stakeholder feedback and has acted on stakeholder suggestions wherever possible and appropriate.



For example, stakeholder comments included comments on the following issues: (a) a request to change the historical reference period for source verification in CRR Year One; (b) a request to change the allocation of costs to meet the full funding requirement of the Final Rule; (c) a request to allow Existing Transmission Contract (ETC) holders with expiring contracts to use the Priority Nomination Process (PNP) as if the ETC sources and sinks previously had been allocated Seasonal CRRs; (d) a concern that using 75% of grid capacity to allocate Long Term CRRs may adversely affect the availability of Seasonal CRRs in future years; (e) allowing entities serving external loads to pre-pay Wheeling Access Charges (WAC) in annual payments rather than a single payment for ten years; and (f) agreeing to develop a proposal to allow the CAISO to track transfers of Long Term CRRs due to Load migration. As summarized below, the CAISO changed its proposal in response to the comments of stakeholder on these issues.

The proposed historical reference period for source verification changed to calendar year 2006;<sup>19</sup> the allocation of full funding uplift costs changed from allocation to Participating Transmission Owners and their transmission revenue requirements to allocation to Measured Demand;<sup>20</sup> ETC holders with expiring contracts are allowed to use the PNP process;<sup>21</sup> the CAISO is now proposing to use 60% of grid capacity to allocate Long Term CRRs as opposed to 75% of grid capacity;<sup>22</sup> OCALSEs will be allowed to pre-pay WAC in annual payments;<sup>23</sup> and the CAISO will develop the procedures, in consultation with stakeholders, to perform the responsibility of tracking the transfer of Long Term CRRs due to load migration.<sup>24</sup>

There were stakeholder comments the CAISO did not adopt. For example, certain stakeholders asked the CAISO in early January to include an auction of Long Term CRRs as part of the compliance filing. The CAISO determined that to consider such a request would extend the design and regulatory approval process past the date on which the CRR releases for MRTU start-up need to begin and, therefore, did not adopt the suggestion.<sup>25</sup> However, while the CAISO did not adopt the suggestion, it will include the item as a possible enhancement for future years to be discussed with stakeholders.

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<sup>19</sup> See Dr. Kristov's discussion of this issue at Exh. No. ISO-1 at pp. 30-31. The change applies to all CRRs and will be made in separate Section 205 filing in April after analyzing the CRR Dry Run results.

<sup>20</sup> See Dr. Kristov's discussion of full funding, Exh. No. ISO-1 at pp. 52-53; Dr. Pope's discussion of this issue at Exh. No. ISO-2 at pp. 55-56; and proposed tariff § 11.2.4.4.1.

<sup>21</sup> See Dr. Kristov's discussion of ETCs, Exh. No. ISO-1 at pp. 40-43; and proposed tariff § 36.8.3.5.1.

<sup>22</sup> See Dr. Kristov's discussion of grid capacity, Exh. No. ISO-1 at pp. 38-40; Dr. Pope's discussion of this issue at Exh. No. ISO-2 at pp. 40-41; and proposed tariff § 36.4.1.

<sup>23</sup> See Dr. Kristov's discussion of prepayment of access charges, Exh. No. ISO-1 at pp. 46-47; and proposed tariff §§ 11.2.5.2 and 36.9.2.1.

<sup>24</sup> See Dr. Kristov's discussion of load migration, Exh. No. ISO-1 at pp. 56-58.

<sup>25</sup> See Dr. Kristov's discussion of the considerations relating to auctions of LT-CRRs, Exh. No. ISO-1 at p. 10.

## V. DESCRIPTION OF THE LONG-TERM CRR PROPOSAL

### A. OVERVIEW.

The CAISO proposes to implement Long Term CRRs by building on the existing CRR program as filed in the MRTU Tariff.<sup>26</sup> Specifically, the CAISO will introduce a new allocation tier (Tier LT) after Tier 1 and 2 in the CRR allocation process for CRR Year One,<sup>27</sup> and after Tier 1 (*i.e.*, the PNP) in the CRR allocation process for years subsequent to CRR Year One.<sup>28</sup> The Tier LT provides load serving entities that have been allocated Seasonal CRRs in prior tiers with an opportunity to nominate and be allocated Long Term CRRs for their eligible load.

While the CAISO considered having Tier LT be the first tier in both the CRR Year One and CRR Year Two allocation processes, the CAISO decided to place the new Tier LT *after* Tiers 1 and 2 in the CRR Year One process and *after* the Priority Nomination Process in Tier 1 for years subsequent to CRR Year One. This placement of Tier LT is consistent with the Commission's guidance (i) that there might be advantages to harmonizing the rules for short-term and long-term rights to ensure that the rules encourage efficient nominations and equitable allocations;<sup>29</sup> and (ii) to avoid the potential discriminatory treatment between load serving entities that prefer short-term rights (*i.e.*, Seasonal and Monthly CRRs) and load serving entities that prefer long-term transmission rights (*i.e.*, Long Term CRRs).<sup>30</sup> Another benefit of embedding Tier LT in the existing structure is that, since the allocation of Long Term CRRs will be based on the annual CRR allocation of Seasonal CRRs, the Long Term CRRs will inherit the same season and time-of-use specifications as the Seasonal CRRs, which is a feature stakeholders broadly favor.

Like Seasonal and Monthly CRRs, Long Term CRRs will also be obligations,<sup>31</sup> and will have a specific source, sink and MW quantity. Long Term CRRs are also differentiated by season and time-of-use (TOU) period (*i.e.*, on-peak or off-peak) as are the conditionally-approved Seasonal CRRs (Monthly CRRs are also differentiated by TOU). Thus, each Long

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<sup>26</sup> The CAISO believes that in order to understand fully the Long Term CRR allocation process, the reader could benefit from an understanding of the conditionally approved CRR allocation program. Therefore, Dr. Kristov has provided in his testimony a summary of the conditionally approved CRR allocation process. *See generally* Exh. No. ISO-1; *see also* Attachment F, Whitepaper at 6-10. Additional material explaining the CRR allocation process can be found in MRTU Tariff Section 36 as filed and further amended in Docket No. ER06-615 and on the CAISO website.

<sup>27</sup> *See* tariff section 36.8.3.1.3. Conforming changes were also made to sections 36.8.1 and 36.8.3.1.

<sup>28</sup> *See* tariff §§ 36.8.3.5.2; 36.8.3.5.3; and 36.8.3.5.4.

<sup>29</sup> *Order No. 681* at P 119.

<sup>30</sup> *See Order No. 681* at P 319 (where the Commission stated that it does not construe the directive to make available long-term transmission rights as requiring a preference for load serving entities that prefer long-term rights over those that prefer short-term rights); *see also Order No. 681* at PP 275-290 (for comments regarding the potential discriminatory treatment of load serving entities that prefer short-term rights as compared to load serving entities that prefer long-term rights).

<sup>31</sup> CRR Obligations will entitle the CRR Holder to receive revenues but also obligate the CRR Holder to pay congestion charges in certain circumstances depending on whether the difference between the congestion components of the LMP at the source and the LMP at the sink is positive or negative. The filed CRR proposal offers to allocate a different variety of CRRs, namely CRR Options, only to sponsors of merchant transmission projects.

Term CRR applies to a single season and TOU combination for a 10-year period. If a load serving entity wants a Long Term CRR for every hour of the year for 10 years, it would have to nominate and be allocated eight separate Long Term CRRs, *i.e.*, one for each of the four seasons of the year and each TOU period. Proposed tariff section 36.2.7 captures the parameters of Long Term CRRs.

As is the case for CRRs conditionally approved in the MRTU Tariff, Long Term CRRs will be allocated based on the capacity of the grid as it exists when the nomination is submitted to the CAISO. Each allocated Long Term CRR will be feasible for a ten-year period over the transmission grid that is derated to 60% of its total capacity.<sup>32</sup> Specifically, the additional simultaneous feasibility tests for Tier LT will be performed using a grid modeled for 60% of existing transmission capacity, which is smaller than the 75% used for the SFTs to allocate Seasonal CRRs in Tiers 1, 2 and 3.<sup>33</sup> A primary reason for modeling 60% of grid capacity for the Tier LT SFTs is to ensure that binding constraints occurring in Tier LT do not adversely impact future years' allocation of Seasonal CRRs.<sup>34</sup>

Like other tiers in the conditionally-approved CRR allocation process, the Tier LT process involves an exchange of information between the CAISO and load serving entities, as well as the performance of SFTs to assess the 10-year feasibility of the Seasonal CRRs nominated as Long Term CRRs. There is one characteristic of Seasonal and Monthly CRRs, however, that changes with the CAISO's long-term transmission rights proposal and that is the full funding aspect of those CRRs. In the Final Rule the Commission encouraged transmission organizations to evaluate whether the requirement to fully fund long-term rights should be paired with full funding of short-term rights.<sup>35</sup> The CAISO followed the Commission's suggestion and decided that it was appropriate to extend the full-funding principle to the Seasonal and Monthly CRRs as well as Long Term CRRs.<sup>36</sup> Other than the change regarding full funding, the features of the conditionally-approved Seasonal and Monthly CRR instruments in the MRTU Filing are not affected by the proposal. The proposal does, however, modify some of the details of the three-tier annual allocation process in the MRTU Tariff, to ensure balanced opportunities for load serving entities to obtain an efficient mix of Seasonal CRRs and Long Term CRRs. These details are described fully in the testimony of Dr. Kristov.

The CAISO established the following objectives and guiding principles that were the drivers of the design of the Long Term CRR proposal and its incorporation into the MRTU market design: (i) complying with the seven Commission guidelines in the Final Rule; (ii) using the flexibility offered in the Final Rule to design a proposal suited to the California context and

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<sup>32</sup> See Exh. No ISO-1 at pp 39-40.

<sup>33</sup> This requirement is found in revised tariff section 36.4.1.

<sup>34</sup> See Exh. No ISO-1 at p. 39 (where Dr. Kristov explains that allocated Long Term CRRs must be modeled into the network for the annual CRR processes in subsequent years and, if Tier LT results in binding constraints at the 75% of grid capacity level, it may excessively limit the availability of certain rights in subsequent years' allocation processes. Dr. Kristov notes that this could pose a problem, particularly for the Tier 1 PNP used by load serving entities who want to rely on year-to-year renewal of seasonal CRRs to meet their congestion cost management needs).

<sup>35</sup> Order No. 681 at P 179.

<sup>36</sup> See revised tariff §§ 11.2.4.4.1; 11.2.4.5; and 36.8.2. See also Exh. No ISO-1 at p. 48.

the MRTU markets; (iii) promoting efficient use of existing transmission and generation assets; (iv) promoting efficient investment in transmission and generation; (v) ensuring implementation of Long Term CRRs at the startup of MRTU; and (vi) promoting equitable allocation of Long Term CRRs to entities that pay for the transmission network.<sup>37</sup> In addition, the MSC provided additional guidance that the proposal should also support secondary market activity for both short term and long term CRRs.

The CAISO believes this proposal will allow the CAISO to meet its goals for a smooth transition to the MRTU market while also meeting the needs of market participants and satisfying the guidelines for long-term rights set forth in the Final Rule. Before describing how the proposal complies with the Final Rule, the details of the Long Term CRR allocation process for CRR Year One and for years subsequent to CRR Year One as discussed below.

## **B. LONG TERM CRR RELEASE FOR CRR YEAR ONE**

For CRR Year One, the Tier LT process would be initiated after the completion of Tier 2 of the annual CRR allocation process<sup>38</sup> and before load serving entities submit nominations in the Tier 3 process. After load serving entities are notified of the Seasonal CRRs awarded from the Tier 2 nominations, load serving entities are then able to submit requests to nominate a portion of the Seasonal CRRs awarded in Tiers 1 and 2 as Long Term CRRs.

The CAISO proposes to limit Long Term CRR nominations to 50 percent of a load serving entity's Adjusted Load Metric.<sup>39</sup> The Adjusted Load Metric consists of the load serving entity's Load Metric minus any MWs of Load covered by Existing Transmission Contracts, Converted Rights, and Transmission Ownership Rights. The Load Metric is the basis of a load serving entity's load eligible for CRR allocation and is calculated as the level of Load in megawatts (MW) for a defined time period that is exceeded in only 0.5% of the hours of that time period based on historical or forecast Load data.

As explained by Dr. Kristov, the CAISO found that the 50 percent limitation is reasonable based on Dr. Treinen's findings that, on average, the ratio of a load serving entity's minimum and maximum load is approximately fifty percent.<sup>40</sup> Based on the premise that minimum load is an appropriate definition for base load, and that maximum load is a reasonable approximation of the Load Metric, the CAISO concludes that fifty percent of a load serving entity's Load Metric is a reasonable approximation for the base load for which Long Term CRRs are needed to manage congestion risk.<sup>41</sup> Moreover, because the Seasonal CRRs awarded in

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<sup>37</sup> See Exh. No ISO-1 at pp. 5-12 for a full explanation of these principles.

<sup>38</sup> For CRR Year One, the annual allocation of seasonal CRRs will be initiated on July 1, 2007, which is several months before MRTU start-up. Also, CRR Year One will not be a full year with MRTU start up scheduled for January 31, 2008. After CRR Year One, the CAISO will standardize CRR Years on conventional calendar years, starting with the January 1, 2009 calendar year.

<sup>39</sup> See proposed tariff § 36.8.3.1.3 (CRR Year One) and proposed § 36.8.3.5.2 (beyond CRR Year One).

<sup>40</sup> See generally Dr. Treinen's treatment of this issue at Exh. No. ISO-3 and Dr. Kristov's discussion of the issue at Exh. No ISO-1 at 35-36.

<sup>41</sup> The Commission has noted that "as long as each load serving entity receives a "reasonable" allocation of long-term firm transmission rights (for example, a quantity sufficient to hedge the load serving entity's needs at its base load level), it arguably is receiving its fair share of long-term firm transmission rights, based on its historical

Tiers 1 and 2 for CRR Year One are directly linked to verified sources, Long Term CRRs are likely to be associated with owned generation and long-term contracts that load serving entities had in place during the historical reference period.

The CAISO will test the feasibility of the nominated Long Term CRRs for the 9-year period following CRR Year One after receiving nominations for Long Term CRRs within Tier LT. The feasibility of the Long Term CRR nominations for the first year of the ten year term will have already been established by the SFTs run in Tier 2. To test feasibility for the remaining nine years, the SFT runs for Tier LT will omit those awarded Seasonal CRRs that were not nominated as Long Term CRRs; this will ensure that the feasibility of the Long Term CRR nominations does not depend on counterflows created by Seasonal CRRs that may not be renewed in future years. Thus, in the Tier LT process the SFT will test only those Seasonal CRRs that are nominated as Long Term CRRs. The quantity of Long Term CRRs that can be allocated for any season and time-of-use period must be feasible for the entire ten-year term of the Long Term CRR.

As a result of the Tier LT SFT runs, it is possible that not all nominated Long Term CRRs will be fully allocated.<sup>42</sup> Such a result will not, however, affect the simultaneous feasibility of the previously allocated Seasonal CRRs in Tiers 1 and 2 of CRR Year One. The CAISO will inform nominating load serving entities of the results of the Tier LT feasibility tests before the deadline for submission of the Tier 3 nominations for Seasonal CRRs.

When the CAISO conducts the annual allocation and auction processes in years subsequent to CRR Year One, all previously-allocated Long Term CRRs will be modeled as fixed CRRs on the network to ensure that these subsequent processes do not adversely affect the Long Term CRRs.<sup>43</sup> In addition, for the duration of the term of a Long Term CRR the MW amount of any allocated Long Term CRR will count against: (i) the amount of MWs a load serving entity is eligible to obtain as Seasonal CRRs in future annual allocation processes, and (ii) the amount of MWs a load serving entity is eligible to use to participate in the PNP in Tier 1 of the annual allocation process for years subsequent to CRR Year One.

### **C. LONG TERM CRR RELEASE IN CRR YEAR TWO AND SUBSEQUENT YEARS**

Before describing the Tier LT allocation process for CRR Year Two and subsequent years, it is important to note a proposed change in the Tier 1 PNP for Seasonal CRRs. As originally filed in the MRTU Filing, there were limits on the percentage of the load serving entity's Seasonal Eligible Quantity (SEQ) that could be nominated in the PNP process for years

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cost responsibility.” *Order No. 681-A* at P 69. For load serving entities covered in part by ETCs, CVRs or TORs, while 50 percent of the Adjusted Load Metric will be less than the estimated base load, it should be noted that when combined with the load serving entity's ETC, CVR and TOR coverage, , which is also long-term in nature, the result will be long-term congestion cost management greater than 50 percent of the Load Metric.

<sup>42</sup> See Dr. Kristov's discussion of simultaneous feasibility tests at Exh. No. ISO-1 at pp. 43-46.

<sup>43</sup> See proposed tariff § 36.4.1.

beyond CRR Year One.<sup>44</sup> Each load serving entity was able to nominate up to 33.3 percent of its SEQ in the CRR Year Two PNP, and up to 66.7 percent of its SEQ in the PNP in subsequent years.<sup>45</sup>

In the September 21 Order on the MRTU Filing, the Commission asked the CAISO to reconsider the upper bound on the PNP nominations for years beyond CRR Year One.<sup>46</sup> Specifically, the Commission wanted additional support for why the eligible quantities for CRRs doubled after the first PNP.<sup>47</sup> The Commission also allowed the CAISO to justify PNP process in the compliance filing in this proceeding.<sup>48</sup> In order to address the Commission's concerns, the CAISO proposes to increase the eligible quantity for PNP purposes in years beyond CRR Year One to the lesser of: (i) 66.7% of its SEQ minus the quantity of previously allocated Long Term CRRs for each season, time of use period and LAP for that year, or (2) the total quantity of Seasonal CRRs allocated to the load serving entity in the previous annual CRR Allocation for that season, time of use period and LAP, minus any reduction for net loss of Load through retail Load migration.<sup>49</sup>

For CRR Year Two and subsequent years, Tier LT would immediately follow the Tier 1, PNP.<sup>50</sup> Load serving entities would be able to nominate new Long Term CRRs from among the Seasonal CRRs awarded in the Tier 1 PNP. Because the PNP specifically is for renewal of Seasonal CRRs that were allocated in the previous year, in order to obtain an Long Term CRR a load serving entity must first be allocated a Seasonal CRR and then renew the Seasonal CRR in the following year's Tier 1 PNP process. Stated differently, Seasonal CRRs that are eligible to be nominated as Long Term CRRs are only those that are renewed in the Tier 1 PNP process.<sup>51</sup>

As with the Tier LT process for CRR Year One, the CAISO proposes to limit Long Term CRR nominations in Tier LT for CRR Year Two and subsequent years. Load serving entities may nominate Long Term CRRs from any of the Seasonal CRRs awarded in Tier 1 PNP so long as the amount of new Long Term CRRs nominated is less than or equal to 50% of the load serving entity's Adjusted Load Metric minus the quantity of previously allocated Long Term CRRs.<sup>52</sup> For renewed Seasonal CRRs that are nominated as Long Term CRRs, simultaneous feasibility tests are run for the season and TOU characteristics for the remaining nine years of the ten-year term.<sup>53</sup> To test feasibility for the remaining nine years, the SFT runs for Tier LT will

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<sup>44</sup> Of course, the amount of Seasonal CRRs a load serving entity may nominate for renewal in any PNP process is limited by the Seasonal CRRs actually awarded in the prior year.

<sup>45</sup> See the stricken tariff provisions in the blackline version of the proposed tariff § 36.8.3.5.1 (this section was previously numbered as § "36.8.3.5a.>").

<sup>46</sup> *September 21 Order* at P 805.

<sup>47</sup> *Id.*

<sup>48</sup> *Id.*

<sup>49</sup> See proposed tariff § 36.8.3.5.1

<sup>50</sup> See generally Testimony of Dr. Kristov for a detailed description of the mechanics of Tier LT, Exh. No. ISO-1 .

<sup>51</sup> See proposed tariff § 36.8.3.5.

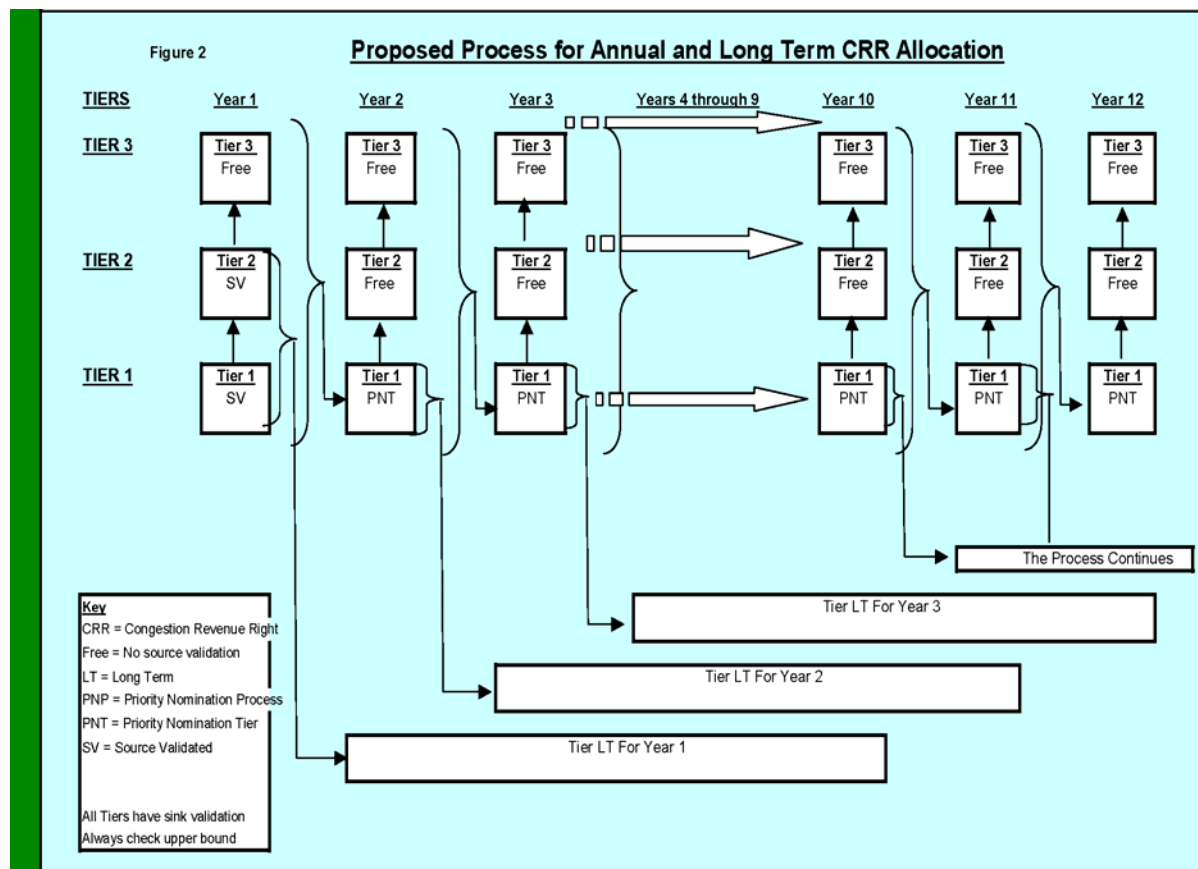
<sup>52</sup> See proposed tariff § 36.8.3.5.2

<sup>53</sup> The feasibility of the nominated Long Term CRRs for the first year of the ten-year term will have already been established by the SFTs run in Tier 1.

omit those renewed Seasonal CRRs that were not nominated as Long Term CRRs. This ensures that the feasibility of the Long Term CRR nominations does not depend on counterflows created by renewed Seasonal CRRs that may not be renewed in future years. Thus, in the Tier LT process, the SFT will test only those renewed Seasonal CRRs that are nominated as Long Term CRRs. The quantity of Long Term CRRs that can be allocated for any season and time-of-use period must be feasible for the entire ten-year term of the Long Term CRR.

Long Term CRR nominations may not be fully allocated in Tier LT due to the SFT runs. However, such a result will not affect the validity of either the Long Term CRRs allocated in previous years or the Seasonal CRRs awarded in the Tier 1 PNP regardless of whether they were nominated as Long Term CRRs. The CAISO will inform nominating load serving entities of the results of the Tier LT feasibility tests before the deadline for submission of the Tier 2 nominations for Seasonal CRRs.

The incorporation of the Tier LT allocation process into the conditionally-approved allocation processes can be illustrated as follows:



#### D. OBTAINING A LONG TERM CRR FROM A NEW SOURCE.

Given the allocation processes described above, in order for an load serving entity to obtain a Long Term CRR from a new, eligible source it must do the following. First, the load

serving entity must request and receive a Seasonal CRR from the eligible source either in Tier 3 of the CRR allocation process for CRR Year One or in Tier 2 or Tier 3 of the CRR allocation process for Year Two and subsequent years. Second, in the annual allocation process for the following year, the load serving entity must request and receive a Seasonal CRR from the eligible source in the PNP. Third, the load serving entity must nominate and be allocated a Long Term CRR in the Tier LT process following the PNP.

#### **E. RENEWING A LONG TERM CRR.**

Given the allocation processes described above, in order for a load serving entity to renew a Long Term CRR it must do the following. First, in the final year of the Long Term CRR the load serving entity must nominate the identical source, sink, and MW terms<sup>54</sup> of the expiring Long Term CRR in the Tier 1 PNP process and receive a Seasonal CRR. Second, the load serving entity must then nominate and receive a new Long Term CRR in the Tier LT process following the PNP. This process is captured in the tariff through changes to Section 36.8.3.5.1.

#### **F. ELIGIBILITY OF OUT OF CONTROL AREA LOAD-SERVING ENTITIES FOR LONG TERM CRRS**

For load serving entities that serve load external to the CAISO control area (OCALSEs), the rules for obtaining Long Term CRR through the allocation process build upon the procedures for allocating Seasonal and Monthly CRRs to OCALSEs contained in the conditionally-approved MRTU Tariff. Just as OCALSEs are eligible to nominate Seasonal and Monthly CRRs in the conditionally-approved MRTU Tariff, OCALSEs are eligible to nominate Long Term CRRs in the CRR allocation process, through Tier LT.<sup>55</sup>

The same requirements that apply to OCALSEs in the conditionally-approved MRTU Tariff apply to an OCALSE's ability to obtain Long Term CRRs. The proposal does not modify MRTU tariff Section 36.9 with respect to how an OCALSE qualifies for allocation of Seasonal CRRs or Monthly CRRs. The requirement for a showing of legitimate need in Section 36.9.1 also remains the same. An OCALSE must demonstrate legitimate need based on ownership of or bilateral energy contract with generation inside CAISO control area, and such generation will define the eligible sources the OCALSE may nominate for CRR allocation. This, therefore, also means that intertie Scheduling Points cannot be nominated by OCALSEs as sources for CRR allocation. This limitation preserves the priority for native CAISO Control Area load in obtaining import CRRs; for those OCALSEs who rely on sources outside the CAISO Control Area and other parties who wheel power through the CAISO, CRRs must be acquired through the CRR auction processes or the secondary market.

The provisions in Section 36.9.2 regarding prepayment of access charges by OCALSEs to obtain Seasonal and Monthly CRRs will apply to the provision of Long Term CRRs to OCALSEs. However, because Long Term CRRs have terms of 10 years, the prepayment of access charges requires slight modification. For an OCALSE that wants to nominate an

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<sup>54</sup> This procedure does not, of course, prohibit the load-serving entity from nominating a different MW quantity if desired, within the general rules on eligible quantities.

<sup>55</sup> The testimony of Dr. Kristov addresses OCALSE eligibility in detail. *See* Exh. No. ISO-1 at pp. 43-45.



allocated Seasonal CRR as a Long Term CRR, it must execute a contract with the CAISO committing the entity to make annual WAC payments for each year of the term of a Long Term CRR.<sup>56</sup> Each year's payment will be made at the beginning of the annual CRR Allocation process for the following year.<sup>57</sup>

In sum, the same principles regarding the eligibility of non-CAISO load to be allocated CRRs in the conditionally-approved MRTU Tariff apply to an OCALSE's ability to obtain Long Term CRRs. The proposal continues to afford a preference for load inside the CAISO Control Area, which is situated differently than load outside the CAISO Control Area and enables the CAISO to provide non-discriminatory treatment to all OCALSEs that seek to use the CAISO Controlled Grid.

## **VI. COMPLIANCE WITH THE FINAL RULE.**

The CAISO's Long Term CRR proposal complies with all of the guidelines in the Final Rule. The Long Term CRR proposal provides the certainty and stability of long-term rights sought by the Commission and maintains significant flexibility for market participants to adjust to changing market conditions. The following sections detail each of guidelines of the Final Rule and how the CAISO's proposal satisfies each of the guidelines.

### **A. THE SEVEN GUIDELINES FOR LONG-TERM FIRM TRANSMISSION RIGHTS.**

**Guideline 1:** *The long-term firm transmission right (LTTR) should specify a source (injection node or nodes) and sink (withdrawal node or nodes), and a quantity (MW).*

As with CRRs under the MRTU Tariff, all Long Term CRRs will have a specified source, sink, and quantity. No tariff changes are needed to comply with this guideline. These specifications are addressed in MRTU Tariff Section 36.2 and Section 36.3. Section 36.2 contains the new terminology and descriptions for one-year CRRs (*i.e.*, "Monthly" and "Seasonal" CRRs) necessitated by implementation of Long Term CRRs which have similar characteristics but have a term of ten-years.

**Guideline 2:** *The LTTR must provide a hedge against day-ahead locational marginal pricing congestion charges or other direct assignment of congestion costs for the period covered and quantity specified. Once allocated, the financial coverage provided by a financial LTTR should not be modified during its term (the "full funding" requirement) except in the case of extraordinary circumstances or through voluntary agreement of both the holder of the right and the transmission organization;*

The Commission has stated that in order to satisfy the full funding requirement, long-term rights must have two properties: ". . . stability in the quantity of rights that a load serving

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<sup>56</sup> See proposed tariff §§ 11.2.5.2 and 36.9.2.1.

<sup>57</sup> *Id.*

entity is allocated over time and “price certainty” for the load serving entity that seeks to hedge congestion charges associated with a particular generation resource or transmission path.”<sup>58</sup> The CAISO’s proposal satisfies this Guideline. As with CRRs under the MRTU Tariff, Long Term CRRs provide a holder with a mechanism to manage congestion costs associated with day-ahead LMPs. These properties are addressed in Section 36.2 of the MRTU Tariff as filed with the Commission. Proposed Section 36.2.8 creates the full funding requirement in the tariff.<sup>59</sup>

### **Full Funding of Long Term CRRs.**

The CAISO will fully fund both short-term CRRs (*i.e.*, Seasonal and Monthly CRRs) and Long Term CRRs using the monthly clearing of the CRR Balancing Account. Proposed tariff Section 11.2.4.4.1 is revised to achieve this result. The CAISO’s proposal therefore satisfies this aspect of Guideline 2.

Monthly Clearing of the CRR Balancing Account. The monthly clearing of the CRR Balancing Account means that there will no longer be end-of-year clearing of the account for CRRs (other than the clearing for the last month of the year).<sup>60</sup> As noted earlier, this is the one area of the Long Term CRR proposal that represents a change for the conditionally-approved short-term CRRs. The rationale for clearing the CRR Balancing Account on a monthly basis rather than on an annual basis as in the existing MRTU Tariff is explained in the testimony of Dr. Kristov.<sup>61</sup>

Allocation of uplifts costs associated with Full Funding. In response to stakeholder comments regarding the allocation of uplift costs associated with full funding, the CAISO changed its allocation proposal. The originally-proposed allocation of surplus and shortfall amounts in the CRR Balancing Account was to the Participating Transmission Owners (PTOs) through each PTO’s Transmission Revenue Balancing Account (TRBA). Under the filed proposal, the CAISO will distribute any surplus and charge any shortfall of revenues to Measured Demand.<sup>62</sup>

At the end of each month, any surplus revenue amounts will be distributed to Scheduling Coordinators in an amount equal to the revenue surplus times the ratio of each Scheduling Coordinator’s Measured Demand divided by total Measured Demand for all Scheduling Coordinators.<sup>63</sup> If the balance in the CRR Balancing Account is not sufficient to satisfy all revenue shortfalls for the month, the shortfalls will be recovered from Scheduling Coordinators in an amount equal to the revenue shortfall times the ratio of each Scheduling Coordinator’s Measured Demand divided total Measured Demand for all Scheduling Coordinators.<sup>64</sup> In

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<sup>58</sup> *Order No. 681* at P 170.

<sup>59</sup> Proposed section 36.8.7 addresses the withdrawal of a Participating Transmission Owner as an exception to the full-funding requirement.

<sup>60</sup> Tariff § 11.2.4.4.2 (“Yearly Clearing of the CRR Balancing Account”) is proposed for deletion.

<sup>61</sup> *See* Exh. No. ISO-1 at pp 51-53.

<sup>62</sup> Measured Demand is the metered CAISO Demand plus Real-Time Interchange export schedules.

<sup>63</sup> Proposed tariff § 11.2.4.4.1

<sup>64</sup> *Id.*

addition, to minimize the possibilities of uplifts, and to support the full funding requirement generally, the CAISO is proposing to modify the MRTU tariff to have the revenues from CRR auctions flow to the CRR Balancing Account, instead of to the Participating Transmission Owners. This change is captured through revisions to Section 11.2.4.3 of the tariff. Dr. Kristov addresses this change at pp. 48-49 of his Direct Testimony.

Exceptions to Full Funding of CRRs. In accordance with Guideline 2, the CAISO is proposing a few limited exceptions to the full funding of all CRRs, including Long Term CRRs. As set forth in proposed Section 36.2.8, full funding of CRRs will be suspended if: (i) a System Emergency occurs as described in Section 7.7.4, (ii) an Uncontrollable Force event occurs as described in Section 14, or (iii) a Participating Transmission Owner withdraws grid facilities from the CAISO Controlled Grid. New tariff Section 36.8.7 details the process the CAISO will undertake in the event of such a Participating TO withdrawal.

In sum, if a Participating TO withdraws facilities, the CAISO will reconfigure Long Term CRRs as necessary to reflect the CAISO Controlled Grid after the withdrawal and re-run SFTs on the reconfigured Long Term CRRs. If necessary, the CAISO will reduce some of the reconfigured Long Term CRRs to ensure their feasibility. The CAISO believes these exceptions to full funding are reasonable and consistent with the extraordinary circumstances contemplated in Guideline 2.

### **Stability in the Quantity of a Long-Term CRR**

Under the CAISO proposal, the quantity of Long Term CRRs will be stable over the life of the Long Term CRR. First, once allocated, Long Term CRRs will be modeled as fixed injections and withdrawals on the DC FNM used in subsequent allocation and auction processes.<sup>65</sup> In other words, there will be no degradation in the feasibility of allocated Long Term CRRs due to future CRR allocation and auction processes.

Second, the CAISO will ensure the continued feasibility or stability in the amount of an allocated Long Term CRR through the transmission planning process. The CAISO's compliance with the Commission's transmission planning requirements are discussed, *infra.*, in Section VII.B.1.

With: (i) the full funding of both short-term and long-term CRRs, (ii) the modeling of allocated Long Term CRRs as fixed injections and withdrawals on the DC FNM used in subsequent CRR allocation and auction processes, and (iii) the CAISO's obligation, in coordination with the Participating TOs, to test and evaluate the simultaneous feasibility of allocated Long Term CRRs in its transmission planning and expansion procedures, the CAISO's Long Term CRR proposal satisfies Guideline 2 of the Final Rule.

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<sup>65</sup> See proposed tariff § 36.4.1

**Guideline 3:** *LTTRs made feasible by transmission upgrades or expansions must be available upon request to any party that pays for such upgrades or expansions in accordance with the transmission organization’s prevailing cost allocation methods for upgrades or expansions;*

The CAISO will make Long Term CRRs available for upgrades or expansions to a party that pays for such upgrades or expansions. Section 24.7 of the CAISO Tariff sets forth the cost responsibility of transmission upgrades or additions for a project sponsor that does not recover the investment cost of a transmission upgrade or addition under a Commission-approved rate.<sup>66</sup> Section 36.11 of the conditionally-approved MRTU Tariff provides that a sponsor of a transmission facilities that turns such facilities over to CAISO operational control and does not recover the cost of the transmission investment through the CAISO’s Transmission Access Charge or Wheeling Access Charge (or other regulatory cost recovery mechanism) may be allocated CRR Options that reflect the contribution of the upgrade to grid transfer capacity as determined in accordance with Section 24.7.3.

FERC’s Order on the MRTU Tariff required the details regarding CRRs for merchant transmission sponsors to be submitted in a compliance filing to FERC.<sup>67</sup> The Commission also required that the methodology for determining the quantity and geographic sources and sinks for incremental CRRs be specified before the CAISO begins releasing Long Term CRRs. In its October 23, 2006 “Request for Clarification and Rehearing” the CAISO asked the Commission to permit the filing of tariff language related to these additional “merchant transmission” details on a time frame consistent with the requirements of the Long Term FTR Final Rule. The CAISO anticipates that it will comply with the Commission’s directive to provide a detailed explanation of the methodology by the spring of 2007. A White Paper for stakeholders will be posted soon and public input and discussion will be requested in developing these details. The CAISO anticipates that certain additional detail may be also be required in the tariff and will make a filing to supplement the tariff with any necessary details in a timely manner to meet the requirement by the Commission that such CRRs be made available before Long Term CRRs are allocated.<sup>68</sup>

**Guideline 4:** *LTTRs must be made available with term lengths (and/or rights to renewal) that are sufficient to meet the needs of load serving entities to hedge long-term power supply arrangements made or planned to satisfy a service obligation. The length of term of renewals may be different from the original term. Transmission organizations may propose rules specifying the length of terms and use of renewal rights to provide long-term coverage, but must be able to offer firm coverage for at least a 10 year period;*

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<sup>66</sup> See MRTU Tariff Section 24.7.3

<sup>67</sup> September 21 Order at PP 873 and 1357.

<sup>68</sup> The CAISO believes the bulk of the details associated with the methodology for determining the quantity and geographic sources and sinks for incremental CRRs for transmission expansions and upgrades will reside in the Business Practice Manual for CRRs.

The Long Term CRRs proposed by the CAISO have 10-year terms and therefore satisfy this guideline. The 10-year term is accomplished in the tariff through revisions to Section 36.3.2. In addition, a Long Term CRR may be renewed for additional 10-year terms. This is accomplished by a Long Term CRR holder nominating the identical source, sink, and MWs in the PNP in the final year of the Long Term CRR. This process is captured in the tariff through changes to Section 36.8.3.5.1.

**Guideline 5:** *Load serving entities must have priority over non-load serving entities in the allocation of LTTRs that are supported by existing capacity. The transmission organization may propose reasonable limits on the amount of existing capacity used to support LTTRs;*

The CAISO's Long Term CRR program complies with this guideline because only load serving entities are entitled to participate in the allocation of CRRs and thus the required preference is inherent in the process. This feature is consistent with the filed MRTU design and requires no tariff changes. Regarding the reasonable limits on the amount of existing capacity used to support long term firm transmission rights, the testimony of Dr. Kristov discusses the CAISO's decision to make 60% of the total grid capacity available for allocation of Long Term CRRs.<sup>69</sup> This limit is reasonable because it seeks to permit load serving entities to nominate a high amount of Long Term CRRs within their eligibility and retain the Seasonal and Monthly CRR allocations as reasonable tools for entities to manage their congestion exposure on a short-term basis.

**Guideline 6:** *A LTTR held by a load serving entity to support a service obligation should be re-assignable to another entity that acquires that service obligation;*

The Long Term CRR program complies with Guideline 6 by retaining the filed MRTU rules requiring CRRs to follow the load in the case of load migration.<sup>70</sup> The basic principle that CRRs are assigned to load serving entities as custodians for the load they serve is adhered to under the instant proposal. Section 36.8.5.1.1 of the filed MRTU tariff, as revised November 20, 2006, requires a load serving entity that loses load through direct access load migration during the annual CRR allocation cycle to transfer a portion of its allocated seasonal CRRs for the remainder of the annual cycle, or the financial equivalent, to the load serving entity that gained the load. The CAISO proposes to apply the same requirement to allocated Long Term CRRs, with two modifications.

First, the option to transfer the financial equivalent of Long Term CRRs rather than the CRRs themselves will be limited to the calendar year in which the load transfers, or to the next calendar year if the annual CRR allocation process for that year's Seasonal CRRs has already been completed. For the years of a Long Term CRR beyond the period just described, the load serving entity who loses load must transfer the actual CRRs and cannot transfer a financial equivalent. This rule is consistent with a limitation on the registered transfers of bilateral sales

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<sup>69</sup> Exh. No ISO-1 at pp 39-40.

<sup>70</sup> Tariff section 36.8.5 is revised to capture this rule and new Sections 36.8.5.2, 36.8.5.2.2, 36.8.5.2.3 have been created.

of Long Term CRRs unrelated to load shifts. That is, Long Term CRRs cannot be transferred via the Secondary Registration System (SRS) for years beyond the calendar year covered by the most recent annual CRR allocation and auction process. The above limitations do not, of course, prevent a load serving entity who was allocated Long Term CRRs from achieving the financial equivalent of a sale of its Long Term CRR via a bilateral transaction outside of the CAISO's SRS. The CAISO has no ability to monitor such transactions between parties.

The second modification has to do with the enforcement of a Load migration to another load serving entity. Stakeholders have commented that relying on load serving entities to perform the required calculations and transfers will likely result in disputes and that the CAISO should take on the responsibility of performing the transfers according to clearly-specified procedures. The CAISO believes this suggestion has merit and notes that PJM performs the analogous transfers within its markets. The CAISO will develop the details and mechanics of such a proposal with stakeholders in the context of developing the FPA Section 205 filing on CRRs to be submitted at the start of the second quarter of this year.

Outside the context of load migration, certain temporal portions of Long Term CRRs will also be fully transferable. An important limitation on transferability is that the holder of the Long Term CRR cannot transfer or offer for sale any temporal portion of the future years of the Long Term CRR beyond the calendar year for which the most recent annual CRR allocation process has been completed. The same limitation applies to both bilateral transfers of Long Term CRRs via the CAISO's SRS and offers to sell CRRs in the CAISO's annual and monthly CRR auctions. That is, except for transfers to reflect load migration between load serving entities, Long Term CRRs cannot be transferred via the SRS for years beyond the year covered by the most recent annual CRR allocation and auction process. This limitation ensures that Long Term CRRs continue to be held by the load serving entity to which they were allocated, so that such portions will be available to be transferred in association with load migration consistent with Guideline 6 of the Final Rule. Dr. Kristov treats this issue in detail pp 23-25 of his Direct Testimony.

**Guideline 7:** *The initial allocation of LTTRs shall not require recipients to participate in an auction.*

Because the CAISO allocates Long Term CRRs to load serving entities directly, participation in an auction is not required for load serving entities to receive Long Term CRRs.

## **B. OTHER ISSUES**

### **1. Transmission Planning**

The Commission requires that each transmission organization implement transmission system planning and expansion procedures to ensure that allocated long-term firm transmission rights remain feasible over their entire term.<sup>71</sup> Specifically, the Commission requested that each

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<sup>71</sup> See Order No 681 at P 23 (discussing changes to the NOPR related to transmission planning and expansion procedures), and P 453.

transmission organization include in its compliance filing an explicit statement of how its planning and expansion practices will take into account the need to accommodate allocated or awarded long-term firm transmission rights for their full terms, including the construction of transmission facilities (as well as a basis for allocating cost responsibility) that may be needed to support them.<sup>72</sup> Second, the Commission also requires that such transmission organizations make their planning and expansion procedures publicly available, including both the actual plans and any underlying information used to develop the plans.<sup>73</sup> Finally, the Commission noted that when a transmission customer enters into a long-term power supply arrangement and is willing to pay for any transmission expansion or upgrades which may be necessary in order to make long-term firm transmission rights feasible over the entire term of the contract, that expansion or upgrade must be incorporated into the transmission organization's planning process.<sup>74</sup>

In response to these directives, the CAISO has added a new section to the Transmission Expansion section of the CAISO Tariff explaining how the CAISO will ensure the continuing feasibility of allocated Long Term CRRs over the length of their terms.<sup>75</sup> The CAISO will test and evaluate the simultaneous feasibility of allocated Long Term CRRs in its transmission planning assessments.<sup>76</sup> The CAISO also will test and evaluate the continuing feasibility of allocated Long Term CRRs in acting on the following types of projects: (a) planned or proposed transmission projects; (b) generation or transmission retirements; (c) generator interconnections; and (d) the interconnection of new Load.<sup>77</sup> Pursuant to these evaluations, the CAISO will identify the need for any transmission additions or upgrades required to ensure the continuing feasibility of allocated Long Term CRRs over the length of their terms.

Moreover, in assessing the need for transmission additions or upgrades to maintain the feasibility of allocated Long Term CRRs, the CAISO will consider lower cost alternatives to the construction of transmission additions or upgrades. The alternatives to consider include: acceleration or expansion of existing projects; demand-side management; remedial action schemes; constrained-on Generation; interruptible Loads; or reactive support.<sup>78</sup> In addition, in cases where the infeasible megawatts are small in magnitude, the lower cost alternatives to consider can include ensuring against the risk of any potential revenue shortfall using the CRR Balancing Account and uplift mechanism in Section 11.2.4 of the proposed tariff provisions. In cases where the CAISO does include specific upgrades or expansions in its transmission plan to maintain the feasibility of allocated Long Term CRRs, the costs for such upgrades or expansions will be recovered through the cost allocation already provided in existing Section 24.7 of the MRTU Tariff. Finally, as part of the coordinated planning process, the Participating Transmission Owners and Market Participants shall provide the necessary assistance and

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<sup>72</sup> *Order No. 681* at P 454. The Commission clarified that it was not suggesting that it was imposing any "obligation to build" or other obligation that does not already exist under *Order No. 888*. *Order No. 681* at P 453, n.138.

<sup>73</sup> *Order No 681* at P 454.

<sup>74</sup> *Order No 681* at P 456.

<sup>75</sup> See proposed tariff § 24.1.3 ("Maintaining the Feasibility of Allocated Long Term CRRs").

<sup>76</sup> *Id.*

<sup>77</sup> *Id.*

<sup>78</sup> *Id.*

information to the CAISO to allow it to assess the need for and to identify transmission additions or upgrades.<sup>79</sup>

With regard to the Commission's requirement to make its make its planning and expansion procedures publicly available, the CAISO satisfies this requirement. In late 2005, the CAISO initiated an effort to revamp its existing transmission planning process to facilitate greater transmission coordination between the CAISO, PTOs, the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and stakeholders. This revamped transmission planning process is an open and coordinated process that provides a centralized planning process for coordinating the transmission plans of the PTOs and facilitates the design of proposed solutions that maximize benefits for all CAISO market participants. The CAISO transmission plan is developed on an annual cycle, spans a minimum ten-year horizon, and is based on input and studies performed by the CAISO, PTOs, and the CEC. All documents reflecting the CAISO's transmission plan through this process are made available to all market participants. During the annual planning cycle, several public meetings are held to collect and coordinate study assumptions and stakeholder comments on the plans and results. Market participants, as well as neighboring control areas, participate in the CAISO transmission planning meetings where comments on the proposed transmission plan for facilities in the CAISO Controlled Grid are provided and addressed by the CAISO and PTOs before the CAISO transmission plan is finalized. The CAISO will include through this process an opportunity to comment on any studies and plans resulting from tests and assessments made for purposes of ensuring the feasibility of LT CRRs.

The CAISO is also planning to produce in the next year, further documentation that provides the details of its transmission planning process and will make these documents available for review and comment to all market participants. The CAISO does not intend to file such documents with the Commission, but will evaluate whether additional changes may be required in the tariff to reflect the details of the transmission planning process.

With regard to the Commission's requirement that a transmission expansion or upgrade proposed by a transmission customer willing to pay for the expansion or upgrade (in order to make a Long Term CRR feasible over its term) must be incorporated into the transmission organization's planning process, there are several things to note. First, existing Section 24 of the CAISO Tariff addresses the cost responsibility for an entity willing to pay for a transmission expansion or upgrade. Second, Section 36.11 of the conditionally-approved MRTU Tariff (entitled "Merchant Transmission") provides for the allocation of Seasonal and Monthly CRRs to entities willing to pay for a transmission expansion or upgrade. The provisions in Section 36.11 provide for the allocation of CRRs (referred to as "MT CRRs") to entities willing to pay for a transmission expansion or upgrade.

In addition, the CAISO proposes new procedures within its planning efforts to address transmission customers requests for CRRs to support long-term power supply contracts when they are willing to pay for the upgrades needed to make those CRRs feasible. First, the CAISO and PTOs will incorporate into future year congestion studies any long-term power supply information that is voluntarily provided by load serving entities. The results of these posted

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<sup>79</sup> *Id.*



studies could facilitate a load serving entity's decision to pursue customer funded transmission upgrades to create incremental CRRs for their own use. Additionally, the CAISO and the PTOs under the oversight of the CAISO, will identify the transmission upgrades that are necessary to ensure the feasibility of the quantity and location of Long Term CRRs requested by the transmission customer.

## **2. Exclusion of Trading Hubs as Sources for Long Term CRRs**

Under the CAISO's Long Term CRR proposal, Trading Hubs cannot be used as source locations for Long Term CRRs. This rule is captured through revisions to tariff Section 36.8.4. This discrete but important issue was raised and discussed in the stakeholder process culminating in this filing. This issue came up in the CRR Dry Run currently in progress as part of MRTU implementation and has indicated some potentially problematic results.

In short, under the existing rules and procedures for allocation of Seasonal CRRs, the fact that load serving entities are nominating as seasonal CRR sources both EZGen Trading Hubs and the individual generator PNodes that comprise those Trading Hubs can lead to two potentially problematic results. First, CRR nominations from the specific generator PNodes associated with binding constraints will typically be reduced prior to CRR nominations from EZGen Hubs. This is because the proration algorithm reduces the most effective nominations in order to reduce the fewest MWs of nominations overall, and CRR nominations from the PNode associated with the constraint are typically more effective than CRR nominations from a Trading Hub. Second, once such a constraint becomes binding, which may occur at the outset of Tier 2 or even in Tier 1, no additional Trading Hub CRRs can be allocated unless that nominated CRR has a zero shift (or distribution) factor over the binding constraint. Indeed, the recent CRR Dry Run has shown that for some season/TOU combinations the reduction of Trading Hub CRR nominations has been substantial in Tier 2.<sup>80</sup>

While the CAISO and the participants are still assessing whether some modifications to the allocation rules are warranted to mitigate these types of results, the CAISO believes that it would be prudent and appropriate to exclude Trading Hubs as allowable CRR sources in the nomination of Long Term CRRs.<sup>81</sup>

## **3. Seams Issues With Neighboring Control Areas**

In its Final Rule, the Commission directed each transmission organization to explain in its compliance filing: (i) how its proposal addresses issues with respect to potential seams between transmission organizations, and (ii) why it has or has not elected to revise its seams

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<sup>80</sup> Dr. Lorenzo Kristov discusses this issue thoroughly in his Direct Testimony. *See* Exh. No. ISO-1 at 53-56.

<sup>81</sup> For the Seasonal and Monthly CRRs (unrelated to the instant filing), the CAISO will review this issue carefully and make further recommendations within the context of the stakeholder process and the CAISO's report on the CRR Dry Run, which will be filed at FERC in March. The CAISO will schedule activities in the coming weeks for stakeholders to participate in this evaluation and provide input to the CAISO's recommendations for the CRR Dry Run report.

agreements.<sup>82</sup> In its Order on Rehearing, the Commission further clarified that transmission organizations should explain how its proposal addresses potential seams issues between itself and neighboring non-transmission organization transmission providers, as well as between itself and neighboring transmission organizations.<sup>83</sup> Unlike the ISO/RTOs in the east, all of the CAISO's neighbors are non-transmission organization transmission providers. In addition, the CAISO did not identify any specific seams issues in the stakeholder process between it and its neighboring non-transmission organizations.

The CAISO notes, however, that under the MRTU docket, the CAISO is obligated to work with its neighboring control areas to identify and resolve seams issues. The CAISO has already launched an extensive effort to meet with each of its control areas to engage in a dialogue to explore potential seams and resolution of such seams. The CAISO proposes to continue to address any seams issues related with the proposed Long Term CRRs through that same process.

### **C. REMAINING WORK TO IMPLEMENT CRRS, INCLUDING LONG TERM CRRS**

While the CAISO believes its Long Term CRR proposal as filed today is a complete proposal that complies with the requirements of the Final Rule, the CAISO recognizes that its work in designing and implementing CRRs, including Long Term CRRs is not complete. The CAISO summarizes below specific matters it will be re-evaluating through its analysis of the CRR Dry Run results. Consistent with the MRTU September 21 Order, the CAISO will file a report on the CRR Dry Results one month after the completion of the CRR Dry Run. The CAISO is in the process of completing the CRR Dry Run and intends to file the report no later than the start of the second quarter of 2007. The CAISO has already reported and the Commission has acknowledged that certain aspects of the conditionally-approved CRR proposal will be further evaluated in light of the outcome of the CRR Dry Run. The CAISO lists below the CRR issues that it will be considered further over the upcoming months.

#### **1. Credit Requirements for CRRs and Long Term CRRs.**

The CAISO has already has provided in Section 12 of the conditionally-approved MRTU Tariff the provisions that will apply to all Candidate CRR Holders and CRR Holders, which now the CAISO proposes would include Candidate CRR Holders and CRR Holders of Long Term CRRs through its amendment of the definitions for CRR Holders and Candidate CRR Holders. The CAISO is currently developing the details of the methodology it will use for determining the estimated aggregate liability for such entities, which it is proposing will reside in the Business Practice Manual for Creditworthiness. Through that process, the CAISO will be considering any special provisions that would apply with the introduction of Long Term CRRs.

#### **2. Procedures for Tracking Load Migration.**

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<sup>82</sup> See Order No. 681 at P 107.

<sup>83</sup> See Order No. 681-A at P 41.

In light of its commitment to track load migration in the context of CRR holdings, the CAISO recognizes that additional procedures will be required to adequately track the migration of load. The CAISO intends to develop these details through its development of the Business Practice Manuals for CRRs as such provisions will reside in that manual. The CAISO will be developing a work plan including a stakeholder process to address this issue and will notify its stakeholders of the process.

### **3. CRRs for Transmission Upgrades and Expansion in Compliance with Guideline 3.**

As discussed above, the CAISO will soon be commencing its stakeholder process to develop the details associated with the methodology for determining the quantity and geographic sources and sinks for incremental CRRs that result from transmission expansions and upgrades. The CAISO will make any necessary filings with the Commission to supplement the tariff with any necessary details in a timely manner to meet the requirement by the Commission that such CRRs be made available before CRRs are allocated.

### **4. Issues Related with the Use of Trading Hubs.**

As discussed above, through preliminary results of the CRR Dry Run process, the CAISO has identified certain issues with the use of Trading Hubs in the allocation of CRRs. The CAISO will continue to evaluate these results and will continue to work with its stakeholders to explore any measures necessary to mitigate any uneconomic and inefficient results.

### **5. Source Verification.**

In response to the CAISO's recent decision to move of the historical period from the 2004 to 2005 period to a 2006 historical period, the CAISO will be evaluating with its stakeholders any measures that might be necessary as a result of that change. This evaluation will be informed by the CRR Dry Results. The detailed source verification rules adopted for conducting the CRR Dry Run were assumptions that need to be reevaluated, in conjunction with analyzing the CRR Dry Run results, as the CAISO prepares to launch its first annual CRR Allocation and Auction process.

### **6. Transmission Planning Process Public Documentation.**

The CAISO will be endeavoring over the next year to complete its documentation of the details of the transmission planning process. The CAISO will seek stakeholder review of such documentation and will be making all such documents available to on its website.

### **7. Modeling Outages.**

The CAISO is under a compliance obligation in the MRTU proceeding to evaluate the modeling of transmission outages in the SFTs for allocating and auctioning CRRs. More specifically, the CAISO will be developing further the criteria for determining whether a transmission outage would have a "significant" impact on CRR revenue adequacy, and how to

reflect the impact of unplanned outages on revenue adequacy through the development of its Business Practice Manual on CRRs.

## **8. Intertie Capacity Set Aside.**

The CAISO is under a current compliance obligation in the MRTU proceeding to develop its rules for the 50% set aside of residual Intertie capacity for the CRR Auction.<sup>84</sup> In the process of complying with this obligation, the CAISO and its stakeholders will be working to examine the results of the CRR Dry Run and determine what impacts this set aside will have on the Long Term CRR program.

## **VII. SUPPORTING DOCUMENTS**

This transmittal letter is intended to provide the Commission with an overview of the proposed revisions to the MRTU Tariff in compliance with the Final Rule. In addition to clean and redline tariff sheets and other CAISO materials, the CAISO provides the testimony of Dr. Lorenzo Kristov, the Principal Market Architect within the CAISO's Department of Market and Product Development; Dr. Susan Pope of LECG Consulting who has worked extensively on the development and refinement of systems for allocating, auctioning and settling financial transmission rights, including the CRR elements of the existing MRTU Tariff; and Dr. Roger Treinen who has been intimately involved with developing both the policy and system design of CRRs in under MRTU and the instant proposal for Long Term CRRs.

Exhibit ISO-1 is the Direct Testimony of Dr. Lorenzo Kristov. Dr. Kristov's testimony provides an overview of the Long Term CRR proposal, an explanation of the objectives and guiding principles of the effort to design the proposal, the process by which the proposal was developed, and the rationale behind the details and mechanics of the Long Term CRR proposal.

Exhibit ISO-2 is the Direct Testimony of Dr. Susan Pope. Dr. Pope provides a conceptual explanation of CRRs, a description of how the proposed definition and allocation of Long Term CRRs meets the Commission's requirements, an explanation of the economic rationale and benefits of a number of elements of the LT CRR proposal and how these elements work along with the CAISO's previously filed CRR rules to provide a complete and coherent plan for making Long Term CRRs available in compliance with the Final Rule.

Exhibit ISO-3 is the Direct Testimony of Dr. Roger Treinen. Dr. Treinen provides a description of the analysis that determined the average relationship between peak load and base load. The result of this analysis is used to support the limit on Long Term CRR nominations of 50 percent of a load serving entity's "Adjusted Load Metric."<sup>85</sup>

The documents submitted with, and in support of, this filing are as follows:

Attachment A - Redline Tariff Sheets against November 20, 2006 compliance filing sheets in Docket No. ER06-615-000.

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<sup>84</sup> See *September 21 Order*, at P 830 (2006).

<sup>85</sup> See Testimony of Dr. Kristov for a discussion of Adjusted Load Metric, Exh. No. ISO-1 at p. 29-30.

- Attachment B - Clean Tariff Sheets.
- Attachment C - Exhibit No. ISO-1 - Testimony of Dr. Lorenzo Kristov.
- Attachment D - Exhibit No. ISO-2 - Testimony of Dr. Susan Pope.
- Attachment E - Exhibit No. ISO-3 - Testimony of Dr. Roger Treinen.
- Attachment F - CAISO Whitepaper on Long-Term Transmission Rights.
- Attachment G - CAISO Board Documents

In addition to the supporting documents listed above, the CAISO also is including the opinion of the Market Surveillance Committee regarding the CAISO's proposal for informational purposes and for the convenience of the Commission.<sup>86</sup>

### **VIII. DESCRIPTION OF TARIFF CHANGES**

Because the Commission required the CAISO to integrate long-term transmission rights into its MRTU market, the revised tariff sheets accompanying this filing are redlined against the MRTU Tariff sheets filed on February 9, 2006 filed in the MRTU Docket No. ER06-615-000 and as further amended on November 20, 2006 and December 20, 2006 as part of the CAISO's first compliance filing in accordance with the MRTU Order. The CAISO incorporated its proposed long-term transmission rights program within the framework of the conditionally-approved CRR program under the MRTU Tariff.

The bulk of the tariff changes are to Section 36 of the MRTU Tariff. There are also significant changes to Section 11 which contain the MRTU settlement rules. These changes include the mechanics of the full funding mechanism and other financial considerations of Long Term CRRs. In addition, Section 24 of the tariff has been updated to capture how the CAISO's transmission planning process will incorporate and take account of the Long Term CRR program.

### **IX. EFFECTIVE DATE AND PART 35 COMPLIANCE**

Given the scheduled start date for the MRTU markets and the Commission's deadline for a compliance filing in this proceeding, the CAISO is requesting waiver of the notice requirements in section 35.3(a) of the Commission regulations<sup>87</sup> to permit an effective date of the Long Term CRR tariff provisions of July 1, 2007. In addition, to ensure that the CAISO can implement any ordered changes to its proposal and still be able begin the first annual CRR allocation and auction process, the CAISO respectfully requests that the Commission act on this

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<sup>86</sup> See Appendix A to the CAISO's submittal. The Market Surveillance Committee is independent from the CAISO; the members of the Market Surveillance Committee are not employees or agents of the CAISO, nor should they be understood to be employees or agents of the CAISO. See CAISO Tariff, Appendix P2, section P2.2.1.

<sup>87</sup> 18 C.F.R. § 35.3(a) (2006)

filing by May 1, 2007.<sup>88</sup> The requested effective date and Commission action date will allow the CAISO to implement Long Term CRRs in a timely manner before MRTU start-up.

Although the clean MRTU Tariff sheets provided in Attachment B to this transmittal letter contain header and footer information, the CAISO requests waiver of the requirements of Order No. 614<sup>89</sup> and section 35.9 of the Commission's regulations<sup>90</sup> to the extent the information does not comport full with these requirements. Waiver is necessary because the MRTU Tariff that serves as the basis for the tariff sheets will be amended in between the filing date and the proposed January 31, 2008 MRTU start date. Prior to start-up of MRTU, the CAISO will submit tariff sheets containing the MRTU Tariff provisions approved by the Commission that fully comply with Order No. 614.

The CAISO also 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. The CAISO respectfully requests that the revised tariff sheets attached hereto be approved, without modification, suspension, or hearing, to go into effect on July 1, 2007.

## **X. SERVICE**

This filing has been served on all parties on the Secretary's official service list for Docket Nos. RM06-8-000 and ER06-615-000.

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<sup>88</sup> CAISO notes that data collection and verification for the first annual CRR allocation and auction process is scheduled to begin on March 1, 2007.

<sup>89</sup> *Designation of Electric Rate Schedule Sheets*, FERC Stats. & Regs., Regs. ¶ 31,096 [Preambles 1996-2000] (2000).

<sup>90</sup> 18 C.F.R. § 35.9 (2006)

## XI. 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:<sup>91</sup>

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## XII. CONCLUSION

For all the reasons stated herein, the CAISO respectfully requests that this compliance filing be accepted without modification and the revised tariff sheets included in this filing also be approved, without modification, suspension, or hearing to go into effect on July 1, 2007 as requested.

Respectfully Submitted,



Anna McKenna  
Anna McKenna  
Counsel for the  
California Independent System Operator  
Corporation

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<sup>91</sup> 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.

Attachment A -  
Redline Tariff Sheets against November 20, 2006 compliance filing sheets in  
Docket No. ER06-615-000



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#### **11.2.4.3 Payments and Charges for Monthly and Annual Auctions.**

The CAISO shall charge CRR Holders for the market clearing price for CRRs obtained through the clearing of the CRR Auction as described in Section 36.13.6. To the extent the CRR Holder purchases a CRR through a CRR Auction that has a negative value, the CAISO shall pay the CRR Holder for taking the applicable CRR. The CAISO shall net all revenue received and payments made through this process and shall ~~allocate all~~ add the net remaining seasonal and monthly CRR Auction revenue amounts (either negative or positive amounts) ~~positive revenue~~ to the CRR Balancing Account for the appropriate month ~~Participating TOs in proportion to the Participating TO's Transmission Revenue Requirement.~~ CRR Auction revenues for each season are allocated uniformly across the three monthly accounts comprising each season.

#### **11.2.4.4 Hourly CRR Settlement.**

For each Settlement Period, the IFM Congestion Funds calculated in Section 11.2.4.1.2 will be used to pay CRR Holders that are owed CRR Payments. If the IFM Congestion Fund is sufficient to make the required CRR Payments for the Settlement Period, all CRR Holders shall be paid and charged fully according to their entitlements. If the IFM Congestion Fund is insufficient to make the required CRR Payments, then CRR Payments and CRR Charges shall be pro-rated by a ratio equal to the total hourly amount of IFM Congestion Funds divided by the net of CRR Payments ~~and CRR Charges~~ for that Settlement Period. Any surplus revenue for the Settlement Period after making all hourly CRR Payments will go to the CRR Balancing Account for use in the end-of-month clearing and end-of-year clearing of the CRR Balancing Account processes pursuant to Section 11.2.4.4.1 ~~and 11.2.4.4.2~~. Any revenue shortfalls (or amounts not fully paid) and charge shortfalls (or amounts not fully charged) for the Settlement Period, will be tracked for further Settlement during the end-of-month clearing process as described in Section 11.2.4.4.1. The hourly Settlement of CRRs for each CRR Holder will be based on the type of CRR holdings as described in Section 11.2.4.2. The CRR Holder's hourly CRR Settlement amount, which may

be subject to pro-ration if necessary as described in this Section, will be the net of the holder's CRR Payments for CRR Options or CRR Obligations, and the holder's CRR Charges for CRR Obligations out of these holdings.

#### **11.2.4.4.1 Monthly Clearing of the CRR Balancing Account – Full Funding of CRRs.**

At the end of each month, if the CRR Balancing Account contains a balance sufficient to cover all hourly revenue shortfalls for that month, then these revenue shortfalls shall be fully satisfied and the CRR Holder shall be paid using the balance in the CRR Balancing Account according to their Payment rights that accrue out of the hourly CRR Settlement process pursuant to Section 11.2.4.4. Any surplus revenue amounts will be distributed to Scheduling Coordinators in an amount equal to the revenue surplus times the ratio of each Scheduling Coordinator's Measured Demand divided by total Measured Demand for all Scheduling Coordinators for the relevant month. If the balance in the CRR Balancing Account is not sufficient to satisfy all revenue shortfalls for the month, then these shortfalls shall be recovered by charging Scheduling Coordinators an amount equal to the revenue shortfall times the ratio of each Scheduling Coordinator's Measured Demand divided by total Measured Demand for all Scheduling Coordinators for the relevant month subject to the conditions set forth in Section 36.2.8, partially satisfied through the monthly clearing process. ~~Those with charge shortfall (or reduction) in the hours of the trading month shall contribute to the partial satisfaction of the revenue shortfalls, using an equal pro-ration. The equal ratio to be used will be the available funds in the CRR Balancing Account divided by the net total hourly shortfalls – the net of remaining revenue shortfalls and remaining charge shortfalls – for the month. Any remaining shortfalls will be carried forward for the end of the year clearing process pursuant to Section 11.2.4.4.2. Any revenue surplus after the end of month clearing will remain in the CRR Balancing Account for use in the end of the year clearing process pursuant to Section 11.2.4.4.2.~~

#### **11.2.4.4.2 ~~Yearly Clearing of the CRR Balancing Account.~~**

~~At the end of each CRR Annual Cycle, if the yearly CRR Balancing Account a positive balance, it shall be used to satisfy any remaining revenue shortfalls up to the amount of shortfall. If the CRR Balancing Account, at the time of yearly clearing, does not contain sufficient revenue or no revenue at all, to satisfy~~

~~all the remaining revenue shortfalls, then these revenue shortfalls shall be reduced pro rata. The equal ratio to be used will be the available funds in the CRR Balancing Account divided by the total of remaining hourly shortfalls — the net of remaining revenue shortfalls and remaining charge shortfalls — for the year. If after the yearly clearing there remains a revenue surplus in the yearly CRR Balancing Account, this remaining revenue shall be allocated pro rata to the Participating Transmission Owners based on their Transmission Revenue Requirement over the one-year CRR Term. Unpaid claims become ineligible for further recourse and are written off, and any remaining charge shortfalls are also written off after this yearly clearing process.~~

#### **11.2.4.5 CRR Balancing Account.**

The CRR Balancing Account shall accumulate: (1) the seasonal and monthly CRR Auction revenue amounts as described in Section 11.2.4.3 and (2) any surplus revenue or shortfall generated from Hourly CRR Settlements as described in Section 11.2.4.4, and (2) ~~any surplus revenue or shortfall that remains from the monthly clearing of the CRR Balancing Account as described in Section 11.2.4.4.1.~~ Interest accruing due to the CRR Balancing Account shall be at the CAISO's received interest rate and shall be credited to the CRR Balancing Account.

#### **11.2.5 Payment by Out-of Control Area Load to Obtain CRRs Through the CRR Allocation Process.**

**11.2.5.1** Pursuant to Section 36.9, an entity that serves Load outside of the CAISO Control Area will be eligible to participate in the CRR Allocation process if such entity has made a pre-payment to the CAISO and has met the requirements in Section 36.9. The prepayment amount shall equal the MW of CRR requested times the Wheeling Access Charge associated with the Scheduling Point corresponding to the CRR Sink times the number of hours in the period for each requested CRR MW amount. Such prepayment will be made three (3) Business Days in advance of the submission of CRR nominations for Monthly CRRs and Seasonal CRRs to the CRR Allocation. Within thirty (30) days following the completion of the relevant CRR Allocation process for Monthly CRRs and Seasonal CRRs, 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.

**11.2.5.2** An entity serving load outside the CAISO Control Area that wants to nominate an allocated Seasonal CRR as a Long Term CRR must execute a contract with the CAISO committing the entity to make annual Wheeling Access Charge payments for each year of the term of a Long Term CRR. For the nomination process, the annual prepayment will be made three (3) Business Days in advance of the submission of CRR nominations for Tier LT in the CRR Allocation process. Within thirty (30) days following the completion of the CRR Allocation process for Long Term CRRs, 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. For allocated Long Term CRRs, each of the nine subsequent annual payments must be made at the beginning of the annual CRR Allocation process for the following year.

**11.2.5.3** 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 in accordance with Section 26.1.4.3. To the extent the pre-paid balance amount is exhausted prior to the end of the duration of the awarded CRR, the Scheduling Coordinator designated by the CRR Holder that has been allocated CRRs pursuant to Section 36.9 will be charged for the WAC in accordance with Section 26.1.4.

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## 24 TRANSMISSION EXPANSION.

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### **24.1.3** Maintaining the Feasibility of Allocated Long Term CRRs.

The CAISO is obligated to ensure the continuing feasibility of Long Term CRRs that are allocated by the CAISO over the length of their terms. In furtherance of this requirement the CAISO, in coordination with the Participating TOs, shall include the following evaluations:

(i) During its transmission planning assessments the CAISO shall test and evaluate the simultaneous feasibility of allocated Long Term CRRs; and

(ii) The CAISO shall test and evaluate the continuing feasibility of allocated Long Term CRRs in acting on the following types of projects: (a) planned or proposed transmission projects; (b) Generating Unit or transmission retirements; (c) Generating Unit interconnections; and (d) the interconnection of new Load. Pursuant to such evaluations the CAISO, in coordination with the Participating TOs, shall identify the need for any transmission additions or upgrades required to ensure the continuing feasibility of allocated Long Term CRRs over the length of their terms. In assessing the need for transmission additions or upgrades to maintain the feasibility of allocated Long Term CRRs, the CAISO, in coordination with the Participating TOs and other Market Participants, shall consider lower cost alternatives to the construction of transmission additions or upgrades, such as acceleration or expansion of existing projects; demand-side management; Remedial Action Schemes; constrained-on Generation; interruptible Loads; reactive support; or in cases where the infeasible megawatts are small in magnitude, ensuring against the risk of any potential revenue shortfall using the CRR Balancing Account and uplift mechanism in Section 11.2.4. As part of the coordinated planning process, the Participating TOs and Market Participants shall provide the necessary assistance and information to the CAISO to allow it to assess the need for and to identify transmission additions or upgrades.

\* \* \*

## **36 Congestion Revenue Rights.**

### **36.1 Overview of CRRs and Procurement of CRRs.**

The CAISO distributes CRRs through an allocation and auction process as described in this Section 36. CRR Holders and Market Participants eligible to become CRR Holders can also buy, sell, or trade CRRs bilaterally as described in Section 36.7 and are required to register such changes in CRR holdings through the ~~Secondary Registration System~~. CRRs are Day-Ahead instruments and provide their holders with a hedge against Congestion Charges from the Day-Ahead Market and not against Congestion Charges associated with HASP Intertie LMPs or Real-Time LMPs.

\* \* \*

**36.2.5 Monthly CRRs.**

Monthly CRRs have a term of one month, are differentiated by time-of-use periods (on-peak and off-peak), and are available through the monthly CRR Allocation and CRR Auction processes in advance of each month.

**36.2.6 Seasonal CRRs.**

Seasonal CRRs have a term of three months, and are differentiated by the different time-of-use periods (on-peak and off-peak) for each day within a season. Seasonal CRRs are made available through the annual CRR Allocation and CRR Auction processes conducted each year prior to the year in which the Seasonal CRR applies.

**36.2.7 Long Term CRRs.**

Long Term CRRs have a term of ten years. Long Term CRRs are seasonal and are differentiated by the different time-of-use periods (on-peak and off-peak) for each day within a season. When Long Term CRRs are nominated and allocated they apply to the same season and time-of-use period for each year of the ten-year term and represent binding ten-year commitments by the CRR Holders that hold Long Term CRRs. Long Term CRRs are nominated and allocated to LSEs in Tier LT that is one tier in the sequence of tiers in the annual CRR Allocation process. Long Term CRRs are not available through the CRR Auction.

**36.2.8 Full Funding of CRRs.**

As set forth in Section 11.2.4, all CRRs will be fully funded; provided however, that full funding of CRRs will be suspended if a System Emergency as described in Section 7.7.4, an Uncontrollable Force as described in Section 14, or a Participating TO's withdrawal of facilities or Entitlements from the CAISO Controlled Grid as described in Section 36.8.7 leaves the CAISO with inadequate revenues.

\* \* \*

**36.3.2 Term.**

CRRs are either ~~m~~Monthly CRRs, or ~~s~~Seasonal CRRs, Long Term CRRs or CRRs allocated to sponsors of merchant transmission as specified in Section 36.11 ~~in term~~. For CRR purposes, the applicable

seasons Seasonal CRRs are conventional calendar quarters as defined in the Business Practice Manual according to WECC standards for seasons.

\* \* \*

#### **36.4.1 Transmission Capacity Available for CRR Allocation and CRR Auction.**

With the exception of the Tier LT allocation process, the CAISO makes available seventy-five percent (75%) of Seasonal Available CRR Capacity for the annual CRR Allocation and CRR Auction processes, and one hundred percent (100%) of Monthly Available CRR Capacity for the monthly CRR Allocation and CRR Auction processes. The CAISO makes available sixty percent (60%) of Seasonal Available CRR Capacity in the Tier LT allocation process. Available Capacity at Scheduling Points shall be determined in accordance with Section 36.8.4.1 for the purposes of CRR Allocation and CRR Auction of CRRs that have a CRR Source identified at a Scheduling Point. Before commencing with the annual or monthly CRR Allocation and CRR Auction processes, the CAISO may distribute any CRRs to sponsors of merchant transmission projects in accordance with Section 36.11 and will model those as fixed injections and withdrawals on the DC FNM to be used in the allocation and auction. These fixed injections and withdrawals are not modified by the Simultaneous Feasibility Test. Similarly, before commencing the annual or monthly CRR Allocation and CRR Auction processes, the CAISO will model any previously allocated Long Term CRRs as fixed injections and withdrawals on the DC FNM to be used in the CRR Allocation and CRR Auction. These fixed injections and withdrawals are not modified by the Simultaneous Feasibility Test, which will ensure no degradation of previously allocated and outstanding Long Term CRRs due to the CRR Allocation and CRR Auction processes. Maintaining the feasibility of allocated Long Term CRRs over the length of their terms also is accomplished through the transmission planning process in Section 24.1.3.

\* \* \*

#### **36.7 Bilateral CRR Transactions**

##### **36.7.1 Transfer of CRRs.**

##### **36.7.1.1 General Provisions of CRR Transfers**

A CRR Holder may assign, sell, or otherwise transfer CRRs in increments of at least a tenth of a MW. Transfers must be for at least a full day term consistent with the on-peak or off-peak specification of the CRR. The transferee may be any entity eligible to be a CRR Holder consistent with this Tariff and the applicable Business Practice Manuals. All CRRs that are so assigned, sold, or otherwise transferred by the CRR Holder continue to be subject to the relevant terms and conditions set forth in the CAISO Tariff and the applicable Business Practice Manuals.

#### **36.7.1.2 Specific Provisions for Transfer of Long Term CRRs.**

A CRR Holder that holds Long Term CRRs may sell or transfer through the Secondary Registration System MW portions and temporal segments of a Long Term CRR corresponding to the current calendar year as well as the calendar year covered by the most recently completed annual CRR Allocation. For such sales or transfers the Long Term CRR will be subject to the same limits on granularity that apply to Seasonal CRRs and Monthly CRRs, as specified in Section 36.7.1. A CRR Holder that holds Long Term CRRs may not transfer or sell through the Secondary Registration System any temporal segment of a Long Term CRR beyond the calendar year covered by the most recently completed annual CRR Allocation. For temporal segments beyond the year covered by the most recently completed annual CRR Allocation, the CRR Holder to whom a Long Term CRR was originally allocated remains the holder of record of the entire Long Term CRR for CAISO Settlement purposes, unless and until such segments of the Long Term CRR or MW portion thereof are transferred to another LSE due to Load migration as described in Section 36.8.5. Allocated Long Term CRRs represent binding ten-year commitments by a CRR Holder that holds Long Term CRRs and may not be terminated or otherwise modified by the CRR Holder prior to the end of the Long Term CRR's ten-year term.

\* \* \*

#### **36.8.1 Structure of the Allocation Process.**

The CAISO conducts an annual CRR Allocation: (i) once a year for the entire year for Seasonal CRRs; and (ii) once a year for the ten-year term of Long Term CRRs. The annual CRR Allocation releases Seasonal CRRs and Long Term CRRs for four seasonal periods. The CAISO also conducts monthly CRR Allocations twelve times a year in advance of each month. Within each annual and monthly CRR



Allocation process the CAISO performs distinct allocation processes for each on-peak and off-peak specification. The CRR Allocation process for CRR Year One is a distinct process that differs from subsequent annual CRR Allocations as described in Section 36.8.3.1 and 36.8.3.2. Each allocation procedure is based on nominations to the CAISO by LSEs eligible to receive CRRs. A timeline of the CRR Allocation and CRR Auction processes is contained in the BPMs.

\* \* \*

### **36.8.3 CRR Allocation Process.**

#### **36.8.3.1 Annual CRR Allocation for CRR Year One.**

The annual CRR Allocation for CRR Year One consists of a sequence of ~~three~~four (34) tiers for each season and time of use period (on-peak and off-peak). Each tier will feature a SFT applied to the CRR nominations submitted by eligible LSEs, the results of which are provided by the CAISO to the respective LSEs prior to the LSEs submitting their nominations to the next tier. Allocations of CRRs in each tier are considered final once they are provided by the CAISO to the respective LSEs. After each tier, LSEs will have an amount of time as specified in the Business Practice Manual after their receipt of the results of each tier to submit their nominations for the next tier, if there is one. The annual CRR Allocation allows LSEs to submit nominations for Seasonal CRRs up to their CRR Eligible Quantities for each season of the relevant year, each time of use period and each LAP, and nominations for Long Term CRRs up to fifty percent (50%) of their Adjusted Load Metric for each season, time of use period and each LAP. The annual CRR Allocation for CRR Year One will be conducted ~~as follows~~in the following sequence of tiers:

~~a-~~**36.8.3.1.1** Tier 1. In ~~T~~tier 1, LSEs may nominate and the CAISO will allocate to the LSEs Seasonal CRRs up to 50% of their Seasonal CRR Eligible Quantity for each season.

~~b-~~**36.8.3.1.2** Tier 2. In ~~T~~tier 2, LSEs may nominate and the CAISO will allocate to the LSEs Seasonal CRRs up to 75% of their Seasonal CRR Eligible Quantity for each season minus the quantity of CRRs allocated to that LSE in ~~T~~tier 1.

**36.8.3.1.3** Tier LT. Tier LT will follow tier 2. In Tier LT, eligible entities may nominate Long Term CRRs from the Seasonal CRRs allocated in tiers 1 and 2. The amount of Seasonal CRRs that can be nominated as Long Term CRRs is limited to fifty percent (50%) of the eligible entity's Adjusted Load

Metric. After receiving nominations for Long Term CRRs, the CAISO will run SFTs to ensure the feasibility of the nominated Long Term CRRs for the remaining nine years of the ten-year term of the Long Term CRR. The SFT run in Tier LT will test the feasibility of only the Long Term CRR nominations and will not include in the analysis those Seasonal CRRs allocated in tiers 1 and 2 that are not nominated as Long Term CRRs. The quantity of Long Term CRRs that can be allocated for any season and time-of-use period must be feasible for the entire ten-year term of the Long Term CRR. As a result of the Tier LT SFT runs, Long Term CRR nominations may not be fully allocated; however, such a result will not affect the CRR Year One validity of the Seasonal CRR allocated in tiers 1 and 2. The CAISO will inform the nominating entity of the results of the Tier LT SFTs before the deadline for submission of the tier 3 nominations.

~~e.~~ **36.8.3.1.4** Tier 3. In ~~T~~tier 3, LSEs may nominate and the CAISO will allocate to the LSEs Seasonal CRRs up to 100% of their Seasonal CRR Eligible Quantity for each season minus the quantity of CRRs allocated to that LSE in ~~T~~tiers 1 and 2. In ~~T~~tier 3, Sub-LAPs will be eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP.

\* \* \*

#### **36.8.3.4 Source Verification.**

In CRR Year One, nominations for ~~T~~tier 1 and ~~T~~tier 2 of the annual CRR Allocation and ~~T~~tier 1 of the monthly CRR Allocations must be source verified. Through the source verification process described in the Business Practice Manuals, an LSE must demonstrate that it could actually Schedule Energy from the nominated CRR Sources to serve its Load either through ownership of, or contractual rights to, the relevant Generating Units, or a contract to take ownership of power at the relevant source such as a Trading Hub or a Scheduling Point. Source verification will use data for the period beginning

September 1, 2004 and ending August 31, 2005 as the basis for verification. Nominations of CRRs whose CRR Source is a Scheduling Point must be source verified in accordance with Section 36.8.4.1.

#### **36.8.3.5 Annual CRR Allocation Beyond CRR Year One.**

The annual CRR Allocation for years beyond CRR Year One consists of a sequence of ~~three~~four (~~3~~4) tiers for each season and time of use period (on-peak and off-peak). Allocations of CRRs in each tier are

considered final once they are provided by the CAISO to the respective LSEs. After each tier, LSEs will have an amount of time as specified in the Business Practice Manual after their receipt of the results of each tier to submit their nominations for the next tier, if there is one. The annual CRR Allocation will allow LSEs to submit nominations up to their Seasonal CRR Eligible Quantities minus the quantity of previously allocated Long Term CRRs for each season of the relevant year, each time of use period and each LAP in which they serve Load. Annual CRR Allocations for years beyond CRR Year One will be conducted in the following sequence of tiers allocated as follows:

**a.36.8.3.5.1 Tier 1 – Priority Nomination Process.** Tier 1 of the annual CRR Allocation in years beyond CRR Year One will be a Priority Nomination Process (“PNP”) through which CRR Holders may nominate some of the same CRRs that they were allocated in the immediately previous year. In all the first Annual CRR Allocations after CRR Year One, an LSE may make PNP nominations up to the lesser of: (1) 3366.7% of its Seasonal CRR Eligible Quantity minus the quantity of previously allocated Long Term CRRs for each season, time of use period and LAP for that year; or, (2) the total quantity of CRRs allocated to that LSE in the previous annual CRR Allocation for that season, time of use period and LAP, minus any reduction for net loss of Load through retail Load migration as described in Section 36.8.5.1.

~~In the second and all subsequent Annual CRR Allocations beyond CRR Year One, an LSE may make PNP nominations up to the lesser of: (1) 66% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP for that year; or, (2) the total quantity of CRRs allocated to that LSE in the previous annual CRR Allocation for each season, time of use period and LAP minus any reduction for net loss of Load through retail Load migration.~~ In addition, an LSE's nomination of any particular CRR source-sink combination in the PNP may not exceed the MW quantity of CRRs having that source and sink that the LSE was allocated in the previous annual CRR allocation for the same season and time of use period, adjusted for net Load loss resulting from Load migration. CRRs whose CRR Sink is a sub-LAP are not eligible for nomination in the PNP. PNP Eligible Quantities are not affected by secondary transfers of CRRs. That is: (i) a LSE may nominate in the PNP a CRR it was allocated in the prior annual CRR Allocation even though it transferred that CRR to another party during the year, and (ii) a LSE may not nominate in the PNP a CRR that it received through a secondary transfer from another party. CRRs received through a CRR Auction are not eligible for nomination in the PNP. Eligible entities may, in the

final year of the Long Term CRR, nominate the identical source, sink, and MW terms of the expiring Long Term CRR in this PNP. An eligible entity with an Existing Transmission Contract or Converted Rights that expire by the start of the year for which the CRR Allocation process is conducted may participate in the PNP as if their Existing Transmission Contract or Converted Rights sources and sinks were previously allocated Seasonal CRRs. The maximum quantity of CRRs that such an eligible entity may nominate in the PNP is fifty percent (50%) of the eligible entity's Adjusted Load Metric minus any previously allocated Long Term CRRs. The CAISO does not guarantee that all CRR nominations in the PNP will be allocated. The CAISO will conduct a SFT to determine whether all CRR nominations in the PNP are simultaneously feasible. If the SFT determines that all priority nominations are not simultaneously feasible, the CAISO will reduce the allocated CRRs until simultaneous feasibility is achieved.

**36.8.3.5.2** Tier LT. In Tier LT, eligible entities may nominate Long Term CRRs from any of the Seasonal CRRs allocated in the PNP so long as the amount of the nominated Long Term CRRs is less than or equal to fifty percent (50%) of the eligible entity's Adjusted Load Metric minus the quantity of previously allocated Long Term CRRs.

After receiving nominations for Long Term CRRs, the CAISO will run SFTs to ensure the feasibility of the nominated Long Term CRRs for the remaining nine years of the ten-year term of the Long Term CRR. The SFT run in Tier LT will test the feasibility of only the Long Term CRR nominations and will not include in the analysis those Seasonal CRRs allocated in the PNP that were not nominated as Long Term CRRs. The quantity of Long Term CRRs that can be allocated for any season and time-of-use period must be feasible for the entire ten-year term of the Long Term CRR. As a result of the Tier LT SFT runs, Long Term CRR nominations may not be fully allocated; however, such a result will not affect the validity of: (i) the Long Term CRRs allocated in previous years, or (ii) the Seasonal CRRs allocated in the PNP. The CAISO will inform nominating eligible entities of the results of the Tier LT SFTs before the deadline for submission of the tier 2 nominations.

**36.8.3.5.3** Tier 2. In Tier 2 of the annual CRR Allocation, the CAISO will allocate Seasonal CRRs to each LSE up to 66.7% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP, plus 50% of the net Load gained by the LSE through Load migration during the year, minus the

quantity of: (i) CRRs allocated to that LSE in Tier 1, and (ii) Long Term CRRs previously allocated to that eligible entity that are valid for the CRR term currently being allocated.

**36.8.3.5.4 Tier 3.** In Tier 3 of the annual CRR Allocation, the CAISO will allocate Seasonal CRRs to each LSE up to 100% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP, minus the quantity of: (i) CRRs allocated to that LSE in Tiers 1 and 2, and (ii) Long Term CRRs previously allocated to that eligible entity that are valid for the CRR term currently being allocated. In Tier 3 of the annual CRR Allocation, sub-LAPs will be eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP.

\* \* \*

#### **36.8.4 Eligible Sources for CRR Allocation.**

In the CRR Allocation processes for Seasonal CRRs and Monthly CRRs, Sources offer CRR nominations in the annual and monthly CRR Allocation processes can be either PNodes or Trading Hubs. For Long Term CRRs, a Trading Hub is not an eligible source. For Tiers 1 and 2 of the annual CRR Allocation in CRR Year One, LSEs requesting CRRs whose CRR Source is a specific Generating Unit will be limited to seventy-five percent (75%) of that Generating Unit's PMax, even if that Generating Unit is owned by or fully contracted to the LSE requesting the CRR. For Tiers 1 and 2 of the annual CRR Allocation in CRR Year One, LSEs requesting CRRs whose CRR Source is a Trading Hub will be limited to seventy-five percent (75%) of the average hourly quantity of Energy contracted for delivery at that Trading Hub. A Scheduling Point can be a CRR Source for the annual and monthly CRR Allocation to the extent the requirements of Section 36.8.4.1 are satisfied.

\* \* \*

#### **36.8.5 Load Migration Between LSEs.**

Load migration between LSEs will be reflected in the hourly Load data and load forecasts used by the CAISO to calculate the CRR Load Metrics and CRR Eligible Quantities for each LSE, in accordance with procedures set forth in the applicable BPM. When Load migration occurs during an annual CRR cycle, such migration will be reflected in appropriate adjustments to each affected LSE's CRR Eligible Quantities

in subsequent annual and monthly CRR Allocations, as well as its PNP Eligible Quantities in the next annual CRR allocation. LSEs with Seasonal CRRs that lose Load through Load migration must comply with Section 36.8.5.21.1.

**36.8.5.1 Adjustments Load Migration Reflected in the Annual Allocation Process Due To Load Migration.**

An LSE who loses or gains net Load through Load migration in a given year will have its Seasonal CRR Eligible Quantities in the next Annual CRR Allocation reduced or increased, respectively, in proportion to the net Load lost or gained through Load migration. In addition, an LSE who loses Load through Load migration in a given year will have its PNP Eligible Quantities reduced in proportion to the gross amount of Load lost through Load Migration. The reduction in PNP Eligible Quantities will be applied as a constant percentage to all CRRs allocated to that LSE in the prior annual CRR Allocation. There is no increase in an LSE's PNP Eligible Quantities due to an increase in Load due to Load migration. Such an LSE may acquire additional CRRs for net Load gained in Tiers 2 and 3 of the subsequent annual CRR Allocation. The CAISO will reserve CRRs in the annual PNP corresponding to the CRRs released by LSEs whose PNP Eligible Quantities were reduced, and will then release these CRRs for Tiers 2 and 3. This mechanism will ensure, in the event that changes to the DC FNM prevent the full allocation of PNP Eligible Quantities, that CRRs nominated in the PNP undergo the same proportional reduction as CRRs released by the LSEs who lose Load due to Load migration, so as not to unfairly disadvantage those LSEs who gain Load through Load migration. The Load-gaining LSE will not be required to request the precise CRRs released by the relevant Load-losing LSE but will be able to nominate its preferred CRRs in Tiers 2 and 3.

**36.8.5.2 Transfers of Allocated CRRs to Reflect Load Migration.**

LSEs that have been allocated Seasonal CRRs or Long Term CRRs and that lose Load through Load migration must transfer allocated Seasonal CRRs and Long Term CRRs in accordance with this Section

36.8.5.2. An LSE that receives shares of allocated CRRs due to Load migration must meet all requirements applicable to CRR Holders.

**36.8.5.2.1.4 Mid-Year Adjustments in Seasonal CRRs Holdings.**

If an LSE loses Load through Load migration to another LSE at any time between annual CRR

Allocations, the Load-losing LSE must compensate the Load-gaining LSE in one of the following two manners: 1) using the SRS, the Load-losing LSE may transfer a percentage of each of the its Seasonal CRR that it was allocated holdings, for the remainder of the annual CRR cycle and for both on-peak and off-peak periods, to the Load-gaining LSE in a quantity proportionate to the percentage of its Load lost to the other LSE through migration; or 2) the LSE who loses Load through Load migration to another LSE may make cash payments to the relevant Load-gaining LSE in a value commensurate with the hourly CRR Payment stream that would have accrued to the CRRs transferred, based on the quantity of CRRs awarded to the Load-losing LSE.

#### **36.8.5.2.2 Load Migration and Allocated Long Term CRRs.**

An LSE that is a CRR Holder that holds a Long Term CRR and that loses Load to Load migration must transfer a proportionate share of each of its Long Term CRRs to the Load-gaining LSE, in a quantity proportionate to the percentage of its Load lost to the other LSE through Load migration. After the transfer of the Long Term CRR (or the proportionate share thereof) to the Load-gaining LSE, the Load-gaining LSE is the holder of record for the transferred Long Term CRR for CAISO Settlement purposes.

#### **36.8.5.2.3 Load Migration That Occurs After Completion of the Annual Allocation Process.**

If Load migration occurs after the annual CRR Allocation process has been completed for the following year, a CRR Holder that holds Long Term CRRs may transfer the following year's segment of the Long Term CRR using the options set forth in Section 36.8.5.2.1. For all of the other remaining years of the Long Term CRR, the CRR Holder that holds Long Term CRRs may not use the options set forth in Section 36.8.5.2.1 to transfer the Long Term CRR (or the proportionate portion thereof) to the Load-gaining LSE.

#### **36.8.5.32 Load Migration Reflected in the Monthly Allocation Process.**

An LSE who loses or gains net Load through Load migration must reflect that loss or gain in the monthly Load forecasts it submits to the CAISO for determining its monthly CRR Eligible Quantities for future monthly CRR allocations.

#### **36.8.5.43 Adjustments for Load Growth.**

LSEs who experience Load growth that is not due to Load migration will reflect such Load growth in the data submitted to the CAISO for determining Seasonal and Monthly CRR Eligible Quantities for the CRR Allocation processes.

\* \* \*

**36.8.7 Long Term CRRs and Participating TO Withdrawals from the CAISO Controlled Grid.**

In the event a Participating TO gives the required notice and withdraws facilities or Entitlements from the CAISO Controlled Grid, the CAISO will reconfigure Long Term CRRs as necessary to reflect the CAISO Controlled Grid after the withdrawal. After reconfiguration, the CAISO will run SFTs on the reconfigured Long Term CRRs and, if necessary, reduce some of the reconfigured Long Term CRRs to ensure their feasibility. If the CRR Source and CRR Sink for an allocated Long Term CRR both are located within a departing Participating TO Service Territory, the Long Term CRR would expire on the effective date of the Participating TO's withdrawal.

\* \* \*

**36.9.2 Prepayment of Wheeling Access Charges.**

LSEs serving load outside the CAISO Control Area will be required to prepay relevant Wheeling Access Charges in order to participate in the CRR Allocation processes and be allocated CRRs. For each MW of CRR nominated the nominating LSE must prepay one MW of the relevant Wheeling Access Charge, which equals the per-MWh WAC that is expected at the time the allocation process is conducted to be applicable for the period of the CRR nominated, times the number of hours comprising the period of the CRR nominated. To the extent that an LSE prepays a quantity of the WAC and is not allocated the full amount of CRRs nominated, WAC prepayment for CRRs not allocated will be refunded by the CAISO within a reasonable time following the completion of the relevant allocation process.

**36.9.2.1 Prepayment of Wheeling Access Charges for Long Term CRRs.**

An entity serving load outside the CAISO Control Area that wants to nominate an allocated Seasonal CRR as a Long Term CRR must execute a contract with the CAISO committing the entity to make annual



Wheeling Access Charge payments for each year of the term of a Long Term CRR. Each year's payment will be made at the beginning of the annual CRR Allocation process for the following year.

\* \* \*

### **36.13.1 Scope of the CRR Auctions.**

The CAISO will conduct a CRR Auction corresponding to and subsequent to the completion of each CRR Allocation process, and prior to the start of the period to which the auctioned CRRs will apply. Each CRR Auction will release CRRs having the same seasons, months and time-of-use specifications as the CRRs released in the corresponding CRR Allocation. Each CRR Auction will utilize the same DC FNM that was utilized in the corresponding CRR Allocation. For each CRR Auction, the CRRs allocated in the corresponding CRR Allocation will be modeled as fixed injections and withdrawals on the DC FNM and will not be adjusted by the SFT in the CRR Auction process. Thus the CRR Auction will release only those CRRs that are feasible given the results of the corresponding CRR Allocation. CRRs released in a CRR Auction will be indistinguishable from CRRs released in the corresponding CRR Allocation for purposes of settlement and secondary trading. The following limitations apply. First, participants in the CRR Auctions will have more choices regarding CRR Sources and CRR Sinks than are eligible for nomination in the CRR Allocations, as described in Section 36.13.5. Second, to the extent a Market Participant receives CRRs in both a CRR Allocation and the corresponding CRR Auction, the CRRs obtained in the CRR Auction will not be eligible for nomination in the PNP. Third, in CRR Year One the CRR Auction cannot be used by CRR Holders to offer for sale CRRs they acquired in a prior CRR Allocation or CRR Auction. In the annual and monthly CRR Auction processes for years following CRR Year One, the CRR Holder, including the CRR Holder holding Long Term CRRs, may offer for sale that portion of the CRR corresponding to the CRR Auction process. ~~Sales or transfers of CRR holdings may only be done through bilateral transactions, and then must be registered in the SRS as described in Section 36.7.~~

\* \* \*

## Appendix A

<b><u>Adjusted Load Metric</u></b>	<u>A Load Serving Entity's Load Metric minus the megawatts of Load served using Existing Transmission Contracts, Converted Rights, and Transmission Ownership Rights.</u>
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\* \* \*

### **Candidate CRR Holder**

An entity that registers with the CAISO to become a CRR Holder through CRR Allocation, CRR Auction, or through a transaction registered in the Secondary Registration Systemmarket, and therefore must comply with the requirements for CRR Holders under the CAISO Tariff.

\* \* \*

### **CRR Holder**

An entity that has registered with the CAISO and otherwise meets the requirements of Sections 12 and 36 of the CAISO Tariff and has acquired Congestion Revenue Right(s) either through the CRR Allocation, CRR Auction, or through a transaction registered in the Secondary Registration Systemmarket.

\* \* \*

### **Load Metric**

A Load Serving Entity's level of Load in megawatts for a defined time period that is exceeded in only 0.5% of the hours of that time period based on historical or forecast Load data.

\* \* \*

### **Long Term Congestion Revenue Right (Long Term CRR)**

A Congestion Revenue Right differentiated by season and time-of-use period (on-peak and off-peak) with a term of ten years.

\* \* \*

### **Priority Nomination Process (PNP)**

The step in an annual CRR Allocation in years beyond CRR Year One through which CRR Holders re-nominate the same (1) Seasonal CRRs they were allocatedheld in the prior year, (2) Long Term CRRs that are expiring, and (3) Existing Transmission Contracts and Converted Rights that are expiring. the CAISO allocates CRRs to the extent that the nominations were deemed simultaneously feasible, as governed by Section 36 of the CAISO Tariff.

\* \* \*

**Seasonal CRR**

A Congestion Revenue Right that is valid for one season and one time-of-use period in a given year. ~~distributed in the annual CRR Allocation and CRR Auction whose term is one season in length as defined by Section 36.~~

\* \* \*

**Tier LT**

The tier of the annual CRR Allocation process through which the CAISO allocates Long Term CRRs.

\* \* \*

Attachment B - Clean Tariff Sheets

The CAISO shall charge CRR Holders for the market clearing price for CRRs obtained through the clearing of the CRR Auction as described in Section 36.13.6. To the extent the CRR Holder purchases a CRR through a CRR Auction that has a negative value, the CAISO shall pay the CRR Holder for taking the applicable CRR. The CAISO shall net all revenue received and payments made through this process and shall add the net remaining seasonal and monthly CRR Auction revenue amounts (either negative or positive amounts) to the CRR Balancing Account for the appropriate month. CRR Auction revenues for each season are allocated uniformly across the three monthly accounts comprising each season.

#### **11.2.4.4 Hourly CRR Settlement.**

For each Settlement Period, the IFM Congestion Funds calculated in Section 11.2.4.1.2 will be used to pay CRR Holders that are owed CRR Payments. If the IFM Congestion Fund is sufficient to make the required CRR Payments for the Settlement Period, all CRR Holders shall be paid and charged fully according to their entitlements. If the IFM Congestion Fund is insufficient to make the required CRR Payments, then CRR Payments and CRR Charges shall be pro-rated by a ratio equal to the total hourly amount of IFM Congestion Funds divided by the net of CRR Payments for that Settlement Period. Any surplus revenue for the Settlement Period after making all hourly CRR Payments will go to the CRR Balancing Account for use in the end-of-month clearing and end-of-year clearing of the CRR Balancing Account processes pursuant to Section 11.2.4.4.1. Any revenue shortfalls (or amounts not fully paid) and charge shortfalls (or amounts not fully charged) for the Settlement Period, will be tracked for further Settlement during the end-of-month clearing process as described in Section 11.2.4.4.1. The hourly Settlement of CRRs for each CRR Holder will be based on the type of CRR holdings as described in Section 11.2.4.2. The CRR Holder's hourly CRR Settlement amount, which may be subject to pro-ration if necessary as described in this Section, will be the net of the holder's CRR Payments for CRR Options or CRR Obligations, and the holder's CRR Charges for CRR Obligations out of these holdings.

##### **11.2.4.4.1 Monthly Clearing of the CRR Balancing Account – Full Funding of CRRs.**

At the end of each month, if the CRR Balancing Account contains a balance sufficient to cover all hourly revenue shortfalls for that month, then these revenue shortfalls shall be fully satisfied and the CRR Holder

shall be paid using the balance in the CRR Balancing Account according to their Payment rights that accrue out of the hourly CRR Settlement process pursuant to Section 11.2.4.4. Any surplus revenue amounts will be distributed to Scheduling Coordinators in an amount equal to the revenue surplus times the ratio of each Scheduling Coordinator's Measured Demand divided by total Measured Demand for all Scheduling Coordinators for the relevant month. If the balance in the CRR Balancing Account is not sufficient to satisfy all revenue shortfalls for the month, then these shortfalls shall be recovered by charging Scheduling Coordinators an amount equal to the revenue shortfall times the ratio of each Scheduling Coordinator's Measured Demand divided by total Measured Demand for all Scheduling Coordinators for the relevant month subject to the conditions set forth in Section 36.2.8.

**11.2.4.5 CRR Balancing Account.**

The CRR Balancing Account shall accumulate: (1) the seasonal and monthly CRR Auction revenue amounts as described in Section 11.2.4.3 and (2) any surplus revenue or shortfall generated from Hourly CRR Settlements as described in Section 11.2.4.4. Interest accruing due to the CRR Balancing Account shall be at the CAISO's received interest rate and shall be credited to the CRR Balancing Account.

**11.2.5 Payment by Out-of Control Area Load to Obtain CRRs Through the CRR Allocation Process.**

**11.2.5.1** Pursuant to Section 36.9, an entity that serves load outside of the CAISO Control Area will be eligible to participate in the CRR Allocation process if such entity has made a pre-payment to the CAISO and has met the requirements in Section 36.9. The prepayment amount shall equal the MW of CRR requested times the Wheeling Access Charge associated with the Scheduling Point corresponding to the CRR Sink times the number of hours in the period for each requested CRR MW amount. Such prepayment will be made three (3) Business Days in advance of the submission of CRR nominations for Monthly CRRs and Seasonal CRRs to the CRR Allocation. Within thirty (30) days following the completion of the CRR Allocation process for Monthly CRRs and Seasonal CRRs, 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.

**11.2.5.2** An entity serving load outside the CAISO Control Area that wants to nominate an allocated Seasonal CRR as a Long Term CRR must execute a contract with the CAISO committing the entity to make annual Wheeling Access Charge payments for each year of the term of a Long Term CRR. For the nomination process, the annual prepayment will be made three (3) Business Days in advance of the submission of CRR nominations for Tier LT in the CRR Allocation process. Within thirty (30) days following the completion of the CRR Allocation process for Long Term CRRs, 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. For allocated Long Term CRRs, each of the nine subsequent annual payments must be made at the beginning of the annual CRR Allocation process for the following year.

**11.2.5.3** 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 in accordance with Section 26.1.4.3. To the extent the pre-paid balance amount is exhausted prior to the end of the duration of the awarded CRR, the Scheduling Coordinator designated by the CRR Holder that has been allocated CRRs pursuant to Section 36.9 will be charged for the WAC in accordance with Section 26.1.4.

**11.3** [Not Used]

acceptable to the CAISO and those other Market Participants. The CAISO shall be free to propose any transmission upgrades or additions it deems necessary to ensure System Reliability consistent with Applicable Reliability Criteria, and, subject to appropriate appeals, the Participating TO shall be obligated to construct such lines. After the CAISO Operations Date, the CAISO, in consultation with Participating TOs and any affected UDCs and MSSs, will work to develop a consistent set of Reliability Criteria for the CAISO Controlled Grid which the Participating TOs will use in their transmission planning and expansion studies or decisions.

#### **24.1.3 Maintaining the Feasibility of Allocated Long Term CRRs.**

The CAISO is obligated to ensure the continuing feasibility of Long Term CRRs that are allocated by the CAISO over the length of their terms. In furtherance of this requirement the CAISO, in coordination with the Participating TOs, shall include the following evaluations:

(i) During its transmission planning assessments the CAISO shall test and evaluate the simultaneous feasibility of allocated Long Term CRRs; and

(ii) The CAISO shall test and evaluate the continuing feasibility of allocated Long Term CRRs in acting on the following types of projects: (a) planned or proposed transmission projects; (b) Generating Unit or transmission retirements; (c) Generating Unit interconnections; and (d) the interconnection of new Load. Pursuant to such evaluations the CAISO, in coordination with the Participating TOs, shall identify the need for any transmission additions or upgrades required to ensure the continuing feasibility of allocated Long Term CRRs over the length of their terms. In assessing the need for transmission additions or upgrades to maintain the feasibility of allocated Long Term CRRs, the CAISO, in coordination with the Participating TOs and other Market Participants, shall consider lower cost alternatives to the construction of transmission additions or upgrades, such as acceleration or expansion of existing projects; demand-side management; Remedial Action Schemes; constrained-on Generation; interruptible Loads; reactive support; or in cases where the infeasible megawatts are small in magnitude, ensuring



## **36 Congestion Revenue Rights.**

### **36.1 Overview of CRRs and Procurement of CRRs.**

The CAISO distributes CRRs through an allocation and auction process as described in this Section 36. CRR Holders and Market Participants eligible to become CRR Holders can also buy, sell, or trade CRRs bilaterally as described in Section 36.7. CRRs are Day-Ahead instruments and provide their holders with a hedge against Congestion Charges from the Day-Ahead Market and not against Congestion Charges associated with HASP Intertie LMPs or Real-Time LMPs.

### **36.2 Types of CRR Instruments.**

CRRs can be CRR Obligations or CRR Options. Each CRR is fully specified by its type (CRR Obligation or CRR Option), its CRR Source(s), its CRR Sink(s), its MW quantity, and the Trading Hours for which it is valid. The CRR Source(s) and CRR Sink(s) determine the direction of the CRR, which is from CRR Source(s) to CRR Sink(s).

#### **36.2.1 CRR Obligations.**

A CRR Obligation entitles its holder to receive a CRR Payment if the Congestion in a given Trading Hour is in the same direction as the CRR Obligation, and requires the CRR Holder to pay a CRR Obligation Charge if the Congestion in a given Trading Hour is in the opposite direction of the CRR. The CRR Payment or CRR Obligation Charge is equal to the per-MWh cost of Congestion (which equals the MCC at the CRR Sink minus the MCC at the CRR Source) multiplied by the MW quantity of the CRR. CRR Obligations are settled pursuant to Section 11.2.4.2.2.

#### **36.2.2 CRR Options.**

A CRR Option entitles its Holder to a CRR Payment if the Congestion is in the same direction as the CRR Option, but requires no CRR Obligation Charge if the Congestion is in the opposite direction of the CRR. The CRR Payment is equal to the per-MWh cost of Congestion (which equals the MCC at the CRR Sink minus the MCC at the CRR Source, when this quantity is positive and zero otherwise) multiplied by the MW quantity of the CRR. CRR Options are settled pursuant to Section 11.2.4.2.1.

**36.2.3 Point-to-Point CRRs.**

A Point-to-Point CRR is a CRR Option or CRR Obligation defined from a single CRR Source to a single CRR Sink.

**36.2.4 Multi-Point CRRs.**

A Multi-Point CRR ("MPT-CRR") is a CRR Obligation defined by more than one CRR Source and/or more than one CRR Sink, plus a specified distribution of the total MW value of the CRR over the multiple CRR Sources and/or multiple CRR Sinks such that the total MW assigned to all CRR Sources equals the total MW assigned to all CRR Sinks equals the MW value of the CRR.

**36.2.5 Monthly CRRs.**

Monthly CRRs have a term of one month, are differentiated by time-of-use periods (on-peak and off-peak), and are available through the monthly CRR Allocation and CRR Auction processes in advance of each month.

**36.2.6 Seasonal CRRs.**

Seasonal CRRs have a term of three months, and are differentiated by the different time-of-use periods (on-peak and off-peak) for each day within a season. Seasonal CRRs are made available through the annual CRR Allocation and CRR Auction processes conducted each year prior to the year in which the Seasonal CRR applies.

**36.2.7 Long Term CRRs.**

Long Term CRRs have a term of ten years. Long Term CRRs are seasonal and are differentiated by the different time-of-use periods (on-peak and off-peak) for each day within a season. When Long Term CRRs are nominated and allocated they apply to the same season and time-of-use period for each year of the ten-year term and represent binding ten-year commitments by the CRR Holders that hold Long Term CRRs. Long Term CRRs are nominated and allocated to LSEs in Tier LT that is one tier in the sequence of tiers in the annual CRR Allocation process. Long Term CRRs are not available through the CRR Auction.

**36.2.8 Full Funding of CRRs.**

As set forth in Section 11.2.4, all CRRs will be fully funded; provided however, that full funding of CRRs will be suspended if a System Emergency as described in Section 7.7.4, an Uncontrollable Force as described in Section 14, or a Participating TO's withdrawal of facilities or Entitlements from the CAISO Controlled Grid as described in Section 36.8.7 leaves the CAISO with inadequate revenues.

**36.3 CRR Specifications.**

**36.3.1 Quantity.**

CRRs are distributed and settled in no less than one-tenth of a MW denomination.

**36.3.2 Term.**

CRRs are Monthly CRRs, Seasonal CRRs, Long Term CRRs or CRRs allocated to sponsors of merchant transmission as specified in Section 36.11. For CRR purposes, the applicable seasons are conventional calendar quarters as defined in the Business Practice Manual.

**36.3.3 On-Peak and Off-Peak Specifications.**

CRRs are defined either for on-peak or off-peak hours as specified by the CAISO in the applicable Business Practice Manuals consistent with the WECC standards at the time of the relevant CRR Allocation or CRR Auction.

**36.4 Available CRR Capacity.**

When the CAISO conducts its CRR Allocation and CRR Auction, the CAISO shall use the most up-to-date DC FNM which is based on the AC FNM used in the Day-Ahead Market. The Seasonal Available CRR Capacity shall be based on: (i) the DC FNM, taking into consideration any long-term scheduled transmission outages, (ii) OTC adjusted for any long-term scheduled derates, and (iii) a downward adjustment due to TOR as determined by the CAISO. The Monthly Available CRR Capacity shall be based on: (i) the DC FNM, taking into consideration any scheduled transmission outages for that month and any new transmission facilities added to the CAISO Controlled Grid that were not part of the DC FNM

used to determine the prior Seasonal Available CRR Capacity and that have already been placed in-service and energized at the time the CAISO starts the applicable monthly process, (ii) OTC adjusted for any scheduled derates for that month, and (iii) a downward adjustment due to TOR as determined by the CAISO.

#### **36.4.1 Transmission Capacity Available for CRR Allocation and CRR Auction.**

With the exception of the Tier LT allocation process, the CAISO makes available seventy-five percent (75%) of Seasonal Available CRR Capacity for the annual CRR Allocation and CRR Auction processes, and one hundred percent (100%) of Monthly Available CRR Capacity for the monthly CRR Allocation and CRR Auction processes. The CAISO makes available sixty percent (60%) of Seasonal Available CRR Capacity in the Tier LT allocation process. Available capacity at Scheduling Points shall be determined in accordance with Section 36.8.4.1 for the purposes of CRR Allocation and CRR Auction of CRRs that have a CRR Source identified at a Scheduling Point. Before commencing with the annual or monthly CRR Allocation and CRR Auction processes, the CAISO may distribute any CRRs to sponsors of merchant transmission projects in accordance with Section 36.11 and will model those as fixed injections and withdrawals on the DC FNM to be used in the allocation and auction. These fixed injections and withdrawals are not modified by the Simultaneous Feasibility Test. Similarly, before commencing the annual or monthly CRR Allocation and CRR Auction processes, the CAISO will model any previously allocated Long Term CRRs as fixed injections and withdrawals on the DC FNM to be used in the CRR Allocation and CRR Auction. These fixed injections and withdrawals are not modified by the Simultaneous Feasibility Test, which will ensure no degradation of previously allocated and outstanding Long Term CRRs due to the CRR Allocation and CRR Auction processes. Maintaining the feasibility of allocated Long Term CRRs over the length of their terms also is accomplished through the transmission planning process in Section 24.1.3.

#### **36.4.2 Simultaneous Feasibility.**

The annual and monthly CRR Allocation processes release CRRs to fulfill CRR nominations as fully as possible subject to a Simultaneous Feasibility Test ("SFT"). To the extent that nominations are not

simultaneously feasible, the nominations are reduced in accordance with the CRR Allocation optimization formulation until simultaneous feasibility is achieved. The CRR Allocation optimization formulation, detailed in the Business Practice Manuals, reduces allocated CRRs based on effectiveness in relieving overloaded constraints in order to minimize the total MW volume reduction of nominations while achieving simultaneous feasibility. The SFT for each CRR Allocation considers:

- a. CRRs representing ETCs, Converted ETCs and any TOR capacity that was not captured in the adjustments described in Section 36.4, which the CAISO deems necessary to prevent the congestion settlement of ETCs, Converted ETCs, and TORs from causing revenue inadequacy of allocated and auctioned CRRs;

c. The CRRs allocated in previous allocation tiers as described in Sections 36.8.3.1 through 36.8.3.6.

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. 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.

### **36.5 CRR Holder Requirements.**

Any entity that holds or intends to hold CRRs must register and qualify with the CAISO and comply with the other terms of this Section, regardless of whether they acquire CRRs by allocation, auction, or the secondary market.

#### **36.5.1 Creditworthiness Requirements.**

All CRR Holders and Candidate CRR Holders must comply fully with all Creditworthiness requirements as provided in Section 12 of the Tariff and as further developed in the applicable Business Practice Manuals.

#### **36.5.2 Required Training.**

CRR Holders and Candidate CRR Holders must attend a training class at least once prior to participating in the CRR Allocations or CRR Auctions. The CAISO may update training requirements annually or on an as-needed basis.

### **36.6 [NOT USED]**

### **36.7 Bilateral CRR Transactions**

#### **36.7.1 Transfer of CRRs.**

##### **36.7.1.1 General Provisions of CRR Transfers**

A CRR Holder may assign, sell, or otherwise transfer CRRs in increments of at least a tenth of a MW. Transfers must be for at least a full day term consistent with the on-peak or off-peak specification of the

CRR. The transferee may be any entity eligible to be a CRR Holder consistent with this Tariff and the applicable Business Practice Manuals. All CRRs that are so assigned, sold, or otherwise transferred by the CRR Holder continue to be subject to the relevant terms and conditions set forth in the CAISO Tariff and the applicable Business Practice Manuals.

#### **36.7.1.2 Specific Provisions for Transfer of Long Term CRRs.**

A CRR Holder that holds Long Term CRRs may sell or transfer through the Secondary Registration System MW portions and temporal segments of a Long Term CRR corresponding to the current calendar year as well as the calendar year covered by the most recently completed annual CRR Allocation. For such sales or transfers the Long Term CRR will be subject to the same limits on granularity that apply to Seasonal CRRs and Monthly CRRs, as specified in Section 36.7.1. A CRR Holder that holds Long Term CRRs may not transfer or sell through the Secondary Registration System any temporal segment of a Long Term CRR beyond the calendar year covered by the most recently completed annual CRR Allocation. For temporal segments beyond the year covered by the most recently completed annual CRR Allocation, the CRR Holder to whom a Long Term CRR was originally allocated remains the holder of record of the entire Long Term CRR for CAISO Settlement purposes, unless and until such segments of the Long Term CRR or MW portion thereof are transferred to another LSE due to Load migration as described in Section 36.8.5. Allocated Long Term CRRs represent binding ten-year commitments by a CRR Holder that holds Long Term CRRs and may not be terminated or otherwise modified by the CRR Holder prior to the end of the Long Term CRR's ten-year term.

#### **36.7.2 Responsibility of the CAISO.**

The CAISO provides Market Participants a Secondary Registration System to facilitate and track CRR bilateral transactions. The Secondary Registration System automatically posts on the CAISO Website the bilateral transactions entered by Market Participants. The bulletin board of the Secondary Registration System enables any entity that wishes to purchase or sell CRRs to post that information.

**36.7.3 CRR Holder Reporting Requirement.**

CRR Holders must report to the CAISO by way of the Secondary Registration System all bilateral CRR transactions consistent with the terms of this Tariff and the Business Practice Manuals. Both the transferor and the transferee of the CRRs must register the transfer of the CRR with the CAISO using the Secondary Registration System at least five (5) business days prior to the effective date of transfer of revenues associated with a CRR. The CAISO shall not transfer any Settlement related to any CRR until such time that the CRR transfer has been successfully recorded through the SRS and the transferee has met all the creditworthiness requirements as specified in section 12. Both the transferor and transferee shall submit the following information to the Secondary Registration System: (i) the effective start and end dates of the transfer of the CRR; (ii) the identity of the transferor; (iii) the identity of the transferee; (iv) the quantity of CRRs being transferred; (v) the CRR Sources and CRR Sinks of the CRRs being transferred; and (vi) time of use period of the CRR. The transferee must meet all requirements of CRR Holders, including disclosure to the CAISO of all entities with which the transferee is affiliated that are CRR Holders or Market Participants as defined in Section 36.5.

**36.8 CRR Allocation to Load Serving Entities for Internal Load.**

The CAISO allocates CRRs to Load Serving Entities serving load internal to CAISO Control Area (including MSS entities as described in Section 36.10). All CRRs allocated under the terms of this Section 3.8 will be CRR Obligations.



**36.8.1 Structure of the Allocation Process.**

The CAISO conducts an annual CRR Allocation: (i) once a year for the entire year for Seasonal CRRs; and (ii) once a year for the ten-year term of Long Term CRRs. The annual CRR Allocation releases Seasonal CRRs and Long Term CRRs for four seasonal periods. The CAISO also conducts monthly CRR Allocations twelve times a year in advance of each month. Within each annual and monthly CRR Allocation process the CAISO performs distinct allocation processes for each on-peak and off-peak specification. The CRR Allocation process for CRR Year One is a distinct process that differs from subsequent annual CRR Allocations as described in Section 36.8.3.1 and 36.8.3.2. Each allocation procedure is based on nominations to the CAISO by LSEs eligible to receive CRRs. A timeline of the CRR Allocation and CRR Auction processes is contained in the BPMs.

**36.8.2 Load Eligible for CRRs and Eligible CRR Sinks.**

An LSE serving internal Load is eligible for CRRs up to its Seasonal or Monthly CRR Eligible Quantity, which is derived from its Seasonal or Monthly CRR Load Metric as follows. These quantities are calculated for each LSE separately for each combination of season and time of use period for the annual process, and for each time of use period for each monthly process, and for each CRR Sink at which the eligible LSE serves Load. MSS eligibility for CRRs will account for net or gross MSS settlement in accordance with Section 4.9.13.1. If the MSS elects net settlement, LSEs for such MSS Load shall submit CRR Sink nominations at the MSS LAP, and if the MSS elects for gross settlement LSEs for such MSS Load shall submit CRRs Sink nominations at the applicable Default LAP. Load that is Pumped-Storage Hydro Units but is not Participating Load may be scheduled and settled at a PNode or Custom Load Aggregation Point and therefore LSEs for such Load shall submit CRR Sink nominations at the applicable PNode or Custom Load Aggregation Point. Load that is a Participating Load that is also aggregated is scheduled and settled at a Custom Load Aggregation Point that is customized specifically for such Load and, therefore, LSEs for such Participating Load shall submit CRR Sink nominations at the Custom Load Aggregation Point. Load that is Participating Load is scheduled and settled at an individual PNode, and therefore LSEs for such Load shall submit CRR Sink nominations at the applicable PNode. As provided in Sections 30.5.3, Load that is non-Participating Load, is not Pumped-Storage Hydro Units, and is not Load associated with ETCs, TORs, or MSS that elects net settlement, is scheduled and settled

Each month the CAISO uses the LSE's submitted monthly load forecast to calculate two load duration curves (one on-peak and one off-peak load duration curve for the applicable month) to form the basis for monthly allocations for each LAP in which the LSE serves Load. The Monthly CRR Load Metric is the MW level of Load that is exceeded only in 0.5% of the hours based on the LSE's submitted load forecast. The CAISO will calculate an LSE's Monthly CRR Eligible Quantity by subtracting from that LSE's Monthly CRR Load Metric the quantity of Load served by its TORs, ETCs, and Converted ETCs.

**36.8.3 CRR Allocation Process.**

**36.8.3.1 Annual CRR Allocation for CRR Year One.**

The annual CRR Allocation for CRR Year One consists of a sequence of four (4) tiers for each season and time of use period (on-peak and off-peak). Each tier will feature a SFT applied to the CRR nominations submitted by eligible LSEs, the results of which are provided by the CAISO to the respective LSEs prior to the LSEs submitting their nominations to the next tier. Allocations of CRRs in each tier are considered final once they are provided by the CAISO to the respective LSEs. After each tier, LSEs will have an amount of time as specified in the Business Practice Manual after their receipt of the results of each tier to submit their nominations for the next tier, if there is one. The annual CRR Allocation allows LSEs to submit nominations for Seasonal CRRs up to their CRR Eligible Quantities for each season of the relevant year, each time of use period and each LAP, and nominations for Long Term CRRs up to fifty percent (50%) of their Adjusted Load Metric for each season, time of use period and each LAP. The annual CRR Allocation for CRR Year One will be conducted in the following sequence of tiers:

**36.8.3.1.1 Tier 1.** In tier 1, LSEs may nominate and the CAISO will allocate to the LSEs Seasonal CRRs up to 50% of their Seasonal CRR Eligible Quantity for each season.

**36.8.3.1.2 Tier 2.** In tier 2, LSEs may nominate and the CAISO will allocate to the LSEs Seasonal CRRs up to 75% of their Seasonal CRR Eligible Quantity for each season minus the quantity of CRRs allocated to that LSE in tier 1.

**36.8.3.1.3** Tier LT. Tier LT will follow tier 2. In Tier LT, eligible entities may nominate Long Term CRRs from the Seasonal CRRs allocated in tiers 1 and 2. The amount of Seasonal CRRs that can be nominated as Long Term CRRs is limited to fifty percent (50%) of the eligible entity's Adjusted Load Metric. After receiving nominations for Long Term CRRs, the CAISO will run SFTs to ensure the feasibility of the nominated Long Term CRRs for the remaining nine years of the ten-year term of the Long Term CRR. The SFT run in Tier LT will test the feasibility of only the Long Term CRR nominations and will not include in the analysis those Seasonal CRRs allocated in tiers 1 and 2 that are not nominated as Long Term CRRs. The quantity of Long Term CRRs that can be allocated for any season and time-of-use period must be feasible for the entire ten-year term of the Long Term CRR. As a result of the Tier LT SFT runs, Long Term CRR nominations may not be fully allocated; however, such a result will not affect the CRR Year One validity of the Seasonal CRR allocated in tiers 1 and 2. The CAISO will inform the nominating entity of the results of the Tier LT SFTs before the deadline for submission of the tier 3 nominations.

**36.8.3.1.4** Tier 3. In tier 3, LSEs may nominate and the CAISO will allocate to the LSEs Seasonal CRRs 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. In tier 3, Sub-LAPs will be eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP.

**36.8.3.2 Monthly Allocation for CRR Year One.**

The monthly CRR Allocation in CRR Year One shall consist of a sequence of two (2) tiers for each time of use period (on-peak and off-peak). The monthly CRR Allocation will distribute Monthly CRRs to each LSE up to one hundred percent (100%) of its Monthly CRR Eligible Quantity minus CRRs allocated to that LSE in the annual CRR Allocation for the relevant month and time of use period. The monthly CRR Allocation for CRR Year One will be conducted as follows:

- a. Tier 1. In Tier 1 of the monthly CRR Allocations, LSEs may nominate and the CAISO will allocate to the LSEs Monthly CRRs up to 50% of their Monthly CRR Eligible Quantities;
- b. Tier 2. In Tier 2 of the monthly CRR Allocations, LSEs may nominate and the CAISO will allocate to the LSEs Monthly CRRs up to 100% of their CRR Eligible Quantities, minus the quantity of CRRs allocated to that LSE in Tier 1. In Tier 2 of the Monthly Allocation, sub-LAPs will be eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP.

**36.8.3.4 Source Verification.**

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. Through the source verification process described in the Business Practice Manuals, an LSE must demonstrate that it could actually Schedule Energy from the nominated CRR Sources to serve its Load either through ownership of, or contractual rights to, the relevant Generating Units, or a contract to take ownership of power at the relevant source such as a Trading Hub or a Scheduling Point. Source verification will use data for the period beginning September 1, 2004 and ending August 31, 2005 as the basis for verification. Nominations of CRRs whose CRR Source is a Scheduling Point must be source verified in accordance with Section 36.8.4.1.

**36.8.3.5 Annual CRR Allocation Beyond CRR Year One.**

The annual CRR Allocation for years beyond CRR Year One consists of a sequence of four (4) tiers for each season and time of use period (on-peak and off-peak). Allocations of CRRs in each tier are considered final once they are provided by the CAISO to the respective LSEs. After each tier, LSEs will have an amount of time as specified in the Business Practice Manual after their receipt of the results of each tier to submit their nominations for the next tier, if there is one. The annual CRR Allocation will allow

LSEs to submit nominations up to their Seasonal CRR Eligible Quantities minus the quantity of previously allocated Long Term CRRs for each season of the relevant year, each time of use period and each LAP in which they serve Load. Annual CRR Allocations for years beyond CRR Year One will be conducted in the following sequence of tiers:

**36.8.3.5.1 Tier 1 – Priority Nomination Process.** Tier 1 of the annual CRR Allocation in years beyond CRR Year One will be a Priority Nomination Process (“PNP”) through which CRR Holders may nominate some of the same CRRs that they were allocated in the immediately previous year. In all Annual CRR Allocations after CRR Year One, an LSE may make PNP nominations up to the lesser of: (1) 66.7% of its Seasonal CRR Eligible Quantity minus the quantity of previously allocated Long Term CRRs for each season, time of use period and LAP for that year; or, (2) the total quantity of CRRs allocated to that LSE in the previous annual CRR Allocation for that season, time of use period and LAP, minus any reduction for net loss of Load through retail Load migration as described in Section 36.8.5.1. In addition, an LSE’s nomination of any particular CRR source-sink combination in the PNP may not exceed the MW quantity of CRRs having that source and sink that the LSE was allocated in the previous annual CRR allocation for the same season and time of use period, adjusted for net Load loss resulting from Load migration. CRRs whose CRR Sink is a sub-LAP are not eligible for nomination in the PNP. PNP Eligible Quantities are not affected by secondary transfers of CRRs. That is: (i) a LSE may nominate in the PNP a CRR it was allocated in the prior annual CRR Allocation even though it transferred that CRR to another party during the year, and (ii) a LSE may not nominate in the PNP a CRR that it received through a secondary transfer from another party. CRRs received through a CRR Auction are not eligible for nomination in the PNP. Eligible entities may, in the final year of the Long Term CRR, nominate the identical source, sink, and MW terms of the expiring Long Term CRR in this PNP. An eligible entity with an Existing Transmission Contract or Converted Rights that expire by the start of the year for which the CRR Allocation process is conducted may participate in the PNP as if their Existing Transmission Contract or Converted Rights sources and sinks were previously allocated Seasonal CRRs. The maximum quantity of CRRs that such an eligible entity may nominate in the PNP is fifty percent (50%) of

the eligible entity's Adjusted Load Metric minus any previously allocated Long Term CRRs. The CAISO does not guarantee that all CRR nominations in the PNP will be allocated. The CAISO will conduct a SFT to determine whether all CRR nominations in the PNP are simultaneously feasible. If the SFT determines that all priority nominations are not simultaneously feasible, the CAISO will reduce the allocated CRRs until simultaneous feasibility is achieved.

**36.8.3.5.2 Tier LT.** In Tier LT, eligible entities may nominate Long Term CRRs from any of the Seasonal CRRs allocated in the PNP so long as the amount of the nominated Long Term CRRs is less than or equal to fifty percent (50%) of the eligible entity's Adjusted Load Metric minus the quantity of previously allocated Long Term CRRs.

After receiving nominations for Long Term CRRs, the CAISO will run SFTs to ensure the feasibility of the nominated Long Term CRRs for the remaining nine years of the ten-year term of the Long Term CRR. The SFT run in Tier LT will test the feasibility of only the Long Term CRR nominations and will not include in the analysis those Seasonal CRRs allocated in the PNP that were not nominated as Long Term CRRs. The quantity of Long Term CRRs that can be allocated for any season and time-of-use period must be feasible for the entire ten-year term of the Long Term CRR. As a result of the Tier LT SFT runs, Long Term CRR nominations may not be fully allocated; however, such a result will not affect the validity of: (i) the Long Term CRRs allocated in previous years, or (ii) the Seasonal CRRs allocated in the PNP. The CAISO will inform nominating eligible entities of the results of the Tier LT SFTs before the deadline for submission of the tier 2 nominations.

**36.8.3.5.3 Tier 2.** In tier 2 of the annual CRR Allocation, the CAISO will allocate Seasonal CRRs to each LSE up to 66.7% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP, plus 50% of the net Load gained by the LSE through Load migration during the year, minus the

quantity of: (i) CRRs allocated to that LSE in tier 1, and (ii) Long Term CRRs previously allocated to that eligible entity that are valid for the CRR term currently being allocated.

**36.8.3.5.4 Tier 3.** In tier 3 of the annual CRR Allocation, the CAISO will allocate Seasonal CRRs to each LSE up to 100% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP, minus the quantity of: (i) CRRs allocated to that LSE in tiers 1 and 2, and (ii) Long Term CRRs previously allocated to that eligible entity that are valid for the CRR term currently being allocated. In tier 3 of the annual CRR Allocation, sub-LAPs will be eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP.

**36.8.3.6 Monthly Allocation Beyond CRR Year One.**

The monthly CRR Allocation shall consist of a sequence of two (2) tiers of allocations for each time of use period (on-peak and off-peak). The monthly CRR Allocation will distribute Monthly CRRs to LSEs up to one hundred percent (100%) of their Monthly CRR Eligible Quantity minus CRRs allocated to that LSE in the annual CRR Allocation.

- a. **Tier 1.** In Tier 1 of the monthly CRR Allocations, each LSE may nominate Monthly CRRs up to 50% of its Monthly CRR Eligible Quantities;
- b. **Tier 2.** In Tier 2 of the monthly CRR Allocations, each LSE may nominate Monthly CRRs up to 100% of its Monthly CRR Eligible Quantities, minus the quantity of CRRs allocated to that LSE in Tier 1. In Tier 2 of the Monthly Allocation, Sub-LAPs will be eligible CRR Sinks.

**36.8.4 Eligible Sources for CRR Allocation.**

In the CRR Allocation processes for Seasonal CRRs and Monthly CRRs, sources of CRR nominations can be either PNodes or Trading Hubs. For Long Term CRRs, a Trading Hub is not an eligible source. For tiers 1 and 2 of the annual CRR Allocation in CRR Year One, LSEs requesting CRRs whose CRR Source is a specific Generating Unit will be limited to seventy-five percent (75%) of that Generating Unit's PMax, even if that Generating Unit is owned by or fully contracted to the LSE requesting the CRR. For tiers 1 and 2 of the annual CRR Allocation in CRR Year One, LSEs requesting CRRs whose CRR Source is a Trading Hub will be limited to seventy-five

Tiers 1 and 2. For Tier 3 the CAISO will calculate and set aside for the Annual CRR Auction 50 percent of the import capacity at each Scheduling Point that remains after the Tier 1 and Tier 2 allocations. In the Monthly CRR Allocation processes subsequent to CRR Year One there will be no special provisions regarding CRR Sources at Scheduling Points in Tier 1. For Tier 2 the CAISO will calculate and set aside for the Monthly CRR Auction 50 percent of the import capacity that remains at each Scheduling Point after accounting for the Annual CRR allocation and auction results for that month and Tier 1 of the monthly CRR Allocation.

### **36.8.5 Load Migration Between LSEs.**

Load migration between LSEs will be reflected in the hourly Load data and load forecasts used by the CAISO to calculate the CRR Load Metrics and CRR Eligible Quantities for each LSE, in accordance with procedures set forth in the applicable BPM. When Load migration occurs during an annual CRR cycle, such migration will be reflected in appropriate adjustments to each affected LSE's CRR Eligible Quantities in subsequent annual and monthly CRR Allocations, as well as its PNP Eligible Quantities in the next annual CRR allocation. LSEs with Seasonal CRRs that lose Load through Load migration must comply with Section 36.8.5.2.

#### **36.8.5.1 Adjustments Reflected in the Annual Allocation Process Due To Load Migration.**

An LSE who loses or gains net Load through Load migration in a given year will have its Seasonal CRR Eligible Quantities in the next Annual CRR Allocation reduced or increased, respectively, in proportion to the net Load lost or gained through Load migration. In addition, an LSE who loses Load through Load migration in a given year will have its PNP Eligible Quantities reduced in proportion to the gross amount of Load lost through Load migration. The reduction in PNP Eligible Quantities will be applied as a constant percentage to all CRRs allocated to that LSE in the prior annual CRR Allocation. There is no increase in an LSE's PNP Eligible Quantities due to an increase in Load due to Load migration. Such an LSE may acquire additional CRRs for net Load gained in tiers 2 and 3 of the subsequent annual CRR Allocation. The CAISO will reserve CRRs in the annual PNP corresponding to the CRRs released by LSEs whose PNP Eligible Quantities were reduced, and will then release these CRRs for tiers 2 and 3.



This mechanism will ensure, in the event that changes to the DC FNM prevent the full allocation of PNP Eligible Quantities, that CRRs nominated in the PNP undergo the same proportional reduction as CRRs released by the LSEs who lose Load due to Load migration, so as not to unfairly disadvantage those LSEs who gain Load through Load migration. The Load-gaining LSE will not be required to request the precise CRRs released by the relevant Load-losing LSE but will be able to nominate its preferred CRRs in tiers 2 and 3.

#### **36.8.5.2 Transfers of Allocated CRRs to Reflect Load Migration.**

LSEs that have been allocated Seasonal CRRs or Long Term CRRs and that lose Load through Load migration must transfer allocated Seasonal CRRs and Long Term CRRs in accordance with this Section 36.8.5.2. An LSE that receives shares of allocated CRRs due to Load migration must meet all requirements applicable to CRR Holders.

##### **36.8.5.2.1 Mid-Year Adjustments in Seasonal CRRs.**

If an LSE loses Load through Load migration to another LSE at any time between annual CRR Allocations, the Load-losing LSE must compensate the Load-gaining LSE in one of the following two manners: 1) using the SRS, the Load-losing LSE may transfer a percentage of each of the Seasonal CRR that it was allocated for the remainder of the annual CRR cycle and for both on-peak and off-peak periods, to the Load-gaining LSE in a quantity proportionate to the percentage of its Load lost to the other LSE through migration; or 2) the LSE who loses Load through Load migration to another LSE may make cash payments to the relevant Load-gaining LSE in a value commensurate with the hourly CRR Payment stream that would have accrued to the CRRs transferred, based on the quantity of CRRs awarded to the Load-losing LSE.

##### **36.8.5.2.2 Load Migration and Allocated Long Term CRRs.**

An LSE that is a CRR Holder that holds a Long Term CRR and that loses Load to Load migration must transfer a proportionate share of each of its Long Term CRRs to the Load-gaining LSE, in a quantity proportionate to the percentage of its Load lost to the other LSE through Load migration. After the transfer of the Long Term CRR (or the proportionate share thereof) to the Load-gaining LSE, the Load-gaining LSE is the holder of record for the transferred Long Term CRR for CAISO Settlement purposes.

**36.8.5.2.3 Load Migration That Occurs After Completion of the Annual Allocation Process.**

If Load migration occurs after the annual CRR Allocation process has been completed for the following year, a CRR Holder that holds Long Term CRRs may transfer the following year's segment of the Long Term CRR using the options set forth in Section 36.8.5.2.1. For all of the other remaining years of the Long Term CRR, the CRR Holder that holds Long Term CRRs may not use the options set forth in Section 36.8.5.2.1 to transfer the Long Term CRR (or the proportionate portion thereof) to the Load-gaining LSE.

**36.8.5.3 Load Migration Reflected in the Monthly Allocation Process.**

An LSE who loses or gains net Load through Load migration must reflect that loss or gain in the monthly Load forecasts it submits to the CAISO for determining its monthly CRR Eligible Quantities for future monthly CRR allocations.

**36.8.5.4 Adjustments for Load Growth.**

LSEs who experience Load growth that is not due to Load migration will reflect such Load growth in the data submitted to the CAISO for determining Seasonal and Monthly CRR Eligible Quantities for the CRR Allocation processes.

**36.8.6 Load Forecasts Used to Calculate CRR MW Eligibility.**

The CAISO will work closely with appropriate state and Local Regulatory Authorities and agencies to ensure that historical load data and load forecasts used to establish CRR Eligible Quantities are consistent with the data and forecasts used to establish Resource Adequacy Requirements.

**36.8.7 Long Term CRRs and Participating TO Withdrawals from the CAISO Controlled Grid.**

In the event a Participating TO gives the required notice and withdraws facilities or Entitlements from the CAISO Controlled Grid, the CAISO will reconfigure Long Term CRRs as necessary to reflect the CAISO Controlled Grid after the withdrawal. After reconfiguration, the CAISO will run SFTs on the reconfigured Long Term CRRs and, if necessary, reduce some of the reconfigured Long Term CRRs to ensure their feasibility. If the CRR Source and CRR Sink for an allocated Long Term CRR both are located within a departing Participating TO Service Territory, the Long Term CRR would expire on the effective date of the Participating TO's withdrawal.

**36.9 CRR Allocation to LSEs serving External Load.**

LSEs serving Load outside the CAISO Control Area who wish to nominate and be allocated CRR Obligations in the same annual and monthly allocation processes described in Section 36.8 may do so subject to the provisions of this Section. LSEs serving Load outside the CAISO Control Area may participate in the CRR Allocation processes and be allocated CRRs to the extent that: (1) such LSEs makes a showing of legitimate need for the CRRs nominated; (2) such entities pre-pay the appropriate Wheeling Access Charge in the amount of MWs of CRRs nominated; (3) the nominated CRRs clear the relevant SFTs; and (4) the external load for which CRRs are nominated is not served through an ETC, TOR or Converted Rights which as been designated as eligible to receive the reversal of Congestion Charges. Such LSEs that participate in the CRR Allocation processes will be subject to the applicable rules governing the tiered structure of these processes as described in Sections 36.8. All CRRs allocated under the terms of this Section 36.9 will be CRR Obligations.

**36.9.1 Showing of Legitimate Need.**

LSEs serving load outside the CAISO Control Area must make a showing to the CAISO of legitimate need for the CRRs requested. The determination of legitimate need will be based on demonstration of an existing contract for Generation internal to the CAISO Control Area that covers the time period of the CRRs nominated, or ownership of a Generating Unit internal to the CAISO Control Area.

**36.9.2 Prepayment of Wheeling Access Charges.**

LSEs serving load outside the CAISO Control Area will be required to prepay relevant Wheeling Access Charges in order to participate in the CRR Allocation processes and be allocated CRRs. For each MW of CRR nominated the nominating LSE must prepay one MW of the relevant Wheeling Access Charge, which equals the per-MWh WAC that is expected at the time the allocation process is conducted to be applicable for the period of the CRR nominated, times the number of hours comprising the period of the CRR nominated. To the extent that an LSE prepays a quantity of the WAC and is not allocated the full amount of CRRs nominated, WAC prepayment for CRRs not allocated will be refunded by the CAISO within a reasonable time following the completion of the relevant allocation process.

**36.9.2.1 Prepayment of Wheeling Access Charges for Long Term CRRs.**

An entity serving load outside the CAISO Control Area that wants to nominate an allocated Seasonal CRR as a Long Term CRR must execute a contract with the CAISO committing the entity to make annual

Wheeling Access Charge payments for each year of the term of a Long Term CRR. Each year's payment will be made at the beginning of the annual CRR Allocation process for the following year.

**36.9.3 CRR Eligible Quantities.**

The CAISO will calculate the Seasonal and Monthly CRR Eligible Quantities for LSEs serving external Load as described in Section 36.8.2 with the following modifications. The Load data submitted by the LSE from which the CAISO will construct load duration curves for determining the Seasonal and Monthly CRR Eligible Quantities must reflect the LSE's historical hourly exports at the Scheduling Point that is the CRR Sink of the nominated CRRs. LSEs that wish to nominate multiple Scheduling Points as CRR Sinks in the allocation process will have distinct CRR Eligible Quantities for each nominated Scheduling Point, and must submit historical hourly export data at each such Scheduling Point from which the CAISO will calculate the associated CRR Eligible Quantities.

**36.9.4 Eligible Sources and Sinks.**

Eligible CRR Sources will be the PNodes of the Generating Units for which the LSE has made a legitimate need showing as described above. Eligible CRR Sinks will be the Scheduling Points for which the CAISO has established CRR Eligible Quantities based on the LSE's submitted historical hourly export data. External Load Serving Entities requesting CRRs whose CRR Source is a specific Generating Unit will be limited to seventy-five percent (75%) of that Generating Unit's PMax in Tiers 1 and 2 of the annual CRR Allocation process in CRR Year One.

**36.9.5 Priority Nomination Process.**

CRRs allocated pursuant to this Section 36.9 shall be eligible for nomination in the Priority Nomination Process to the extent that the requirements of this Section 36.9 are met at the time of the relevant CRR Allocation.

**36.10 CRR Allocation to Metered Subsystems.**

An MSS that elects gross settlement may participate in the CRR allocation processes and be allocated CRR Obligations in accordance with Section 36.8. An MSS that elects net settlement may participate in the CRR allocation processes and be allocated CRRs in accordance with Section 36.8, except that its

nomination in the CRR Allocations, as described in Section 36.13.5. Second, to the extent a Market Participant receives CRRs in both a CRR Allocation and the corresponding CRR Auction, the CRRs obtained in the CRR Auction will not be eligible for nomination in the PNP. Third, in CRR Year One the CRR Auction cannot be used by CRR Holders to offer for sale CRRs they acquired in a prior CRR Allocation or CRR Auction. In the annual and monthly CRR Auction processes for years following CRR Year One, the CRR Holder, including the CRR Holder holding Long Term CRRs, may offer for sale that portion of the CRR corresponding to the CRR Auction process.

**36.13.2 Responsibilities of the CAISO Prior to Each Auction.**

The CAISO shall publish on the CAISO Website a notice of upcoming CRR Auctions at least seven (7) days prior to the CRR auction. The CAISO will also provide additional information needed by CRR Auction participants in accordance with the provisions of Section 6.5.1.

**36.13.3 CRR Holder Creditworthiness.**

All Market Participants are eligible to acquire CRRs by participating in the CRR Auction, provided that the Market Participant has met all the CRR Holder requirements described in Section 36.5, the creditworthiness provisions in Section 12 and the relevant Business Practice Manual.

**36.13.4 Bids in the CRR Auctions.**

Bids to purchase CRRs shall be submitted in accordance with the requirements set out in this Section 36.13.4 and as further specified in the applicable Business Practice Manuals. Once submitted to the CAISO, CRR bids may not be cancelled or rescinded by the Market Participant after the auction is closed. Market Participants may bid for Point-to-Point CRRs and Multi-Point CRRs. Each bid for a Point-to-Point CRR shall specify:

- a) The associated month or season and time-of-use period;
- b) The associated CRR Source and CRR Sink;
- c) A monotonically non-increasing piecewise linear bid curve in quantities (denominated in tenths of MW) and prices (\$/MW).

Each bid for a Multi-Point CRR shall specify:

- d) The associated month or season and time-of-use period;

**Appendix A Master Definition Supplement**

<b>Access Charge</b>	A charge paid by all Utility Distribution Companies, Small Utility Distribution Companies, and Metered Subsystems Operators with Gross Load in a Participating TO Service Territory, as set forth in Article II. The Access Charge includes the High Voltage Access Charge, the Transition Charge and the Low Voltage Access Charge. The Access Charge will recover the Participating TO's Transmission Revenue Requirement in accordance with Appendix F, Schedule 3.
<b>Adjusted Load Metric</b>	A Load Serving Entity's Load Metric minus the megawatts of Load served using Existing Transmission Contracts, Converted Rights, and Transmission Ownership Rights.
<b>Administrative Price</b>	The price set by the CAISO in place of a Locational Marginal Price when, by reason of a System Emergency, the CAISO determines that it no longer has the ability to maintain reliable operation of the CAISO Controlled Grid relying solely on the economic Dispatch of Generation. This price will remain in effect until the CAISO considers that the System Emergency has been contained and corrected.
<b>Adverse System Impact</b>	The negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.
<b>Affected System</b>	An electric system other than the CAISO Controlled Grid that may be affected by the proposed interconnection, including the Participating TOs' electric systems that are not part of the CAISO Controlled Grid.
<b>Affected System Operator</b>	The entity that operates an Affected System.
<b>Affiliate</b>	An entity, company or person that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with the subject entity, company, or person.
<b>Aggregated Pricing Node (Aggregated PNode)</b>	A Load Aggregation Point, Trading Hub or any group of Pricing Nodes as defined by the CAISO.
<b><u>Alert, Warning and Emergency</u></b>	A CAISO operations communication issued to Market Participants and the public when the operating requirements of the CAISO Controlled Grid are marginal because of Demand exceeding forecast, loss of major Generation, or loss of transmission capacity that has curtailed imports into the CAISO Control Area, or if the a

<b>CAISO Payments Calendar</b>	A calendar published by the CAISO showing the dates on which Settlement Statements will be published by the CAISO and the Payment Dates by which invoices issued under the CAISO Tariff must be paid.
<b>CAISO Protocols</b>	The rules, protocols, procedures and standards promulgated by the CAISO (as amended from time to time) to be complied with by the CAISO Scheduling Coordinators, Participating TOs and all other Market Participants in relation to the operation of the CAISO Controlled Grid and the participation in the markets for Energy and Ancillary Services in accordance with the CAISO Tariff.
<b>CAISO Register</b>	The register of all the transmission lines, associated facilities and other necessary components that are at the relevant time being subject to the CAISO's Operational Control.
<b>CAISO Reserve Account</b>	The account established for the purpose of holding cash deposits which may be used in or towards clearing the CAISO Clearing Account.
<b>CAISO Security Amount</b>	The level of security provided in accordance with Section 12.1 of the CAISO Tariff by a Scheduling Coordinator Applicant who does not have an Approved Credit Rating. The CAISO Security Amount may be separated into two components: (i) the level of security required to secure payment of the Grid Management Charge; and (ii) the level of security required to secure payment of all charges other than the Grid Management Charge.
<b>CAISO Surplus Account</b>	The account established by the CAISO pursuant to Section 11.29.9.6.3.
<b>CAISO Tariff</b>	The California Independent System Operator Corporation Operating Agreement and Tariff, dated March 31, 1997, as it may be modified from time to time.
<b>CAISO</b>	The California Independent System Operator Corporation, a state chartered, nonprofit corporation that operates the transmission facilities of all Participating TOs and dispatches certain Generating Units and Loads.
<b>Candidate CRR Holder</b>	An entity that registers with the CAISO to become a CRR Holder through CRR Allocation, CRR Auction, or through a transaction



	registered in the Secondary Registration System, and therefore must comply with the requirements for CRR Holders.
<b>C.F.R.</b>	Code of Federal Regulations.
<b>Certificate of Compliance</b>	A certificate issued by the CAISO which states that the Metering Facilities referred to in the certificate satisfy the certification criteria for Metering Facilities contained in the CAISO Tariff.
<b>Check Meter</b>	A redundant revenue quality meter which is identical to and of equal accuracy to the primary revenue quality meter connected at the same metering point which must be certified in accordance with the CAISO Tariff.
<b>Clean Bid</b>	A valid Bid submitted by a Scheduling Coordinator that requires no modification, a Default Modified Bid, and a CAISO Constructed Bid deemed to be acceptable for submission to the CAISO Market applications.
<b>Clustering</b>	The process whereby a group of Interconnection Requests is studied together, instead of serially, for the purpose of conducting the Interconnection System Impact Study.
<b>Commercial Operation</b>	The status of a Generating Unit at a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.
<b>Commercial Operation Date</b>	The date on which a Generating Unit at a Generating Facility commences Commercial Operation as agreed to by the applicable Participating TO and the Interconnection Customer pursuant to Appendix E to the Standard Large Generator Interconnection Agreement.
<b>Commitment Period</b>	The consecutive Time Periods within a Trading Day with an "On" Commitment Status.
<b>Commitment Status</b>	The "On" or "Off" state for each unit in each Time Period.
<b>Compatible Meter Data System</b>	A Meter Data acquisition and processing system which is capable of passing Revenue Quality Meter Data and/or Settlement Quality Meter Data to the CAISO via CAISO approved methods and which has been certified by the CAISO or its authorized representative.
<b>Competition Transition Charge (CTC)</b>	A non-bypassable charge that is the mechanism that the California Legislature and the CPUC mandated to permit recovery of costs

<b>CRR Holder</b>	An entity that has registered with the CAISO and otherwise meets the requirements of Sections 12 and 36 and has acquired Congestion Revenue Right(s) either through the CRR Allocation, CRR Auction, or through a transaction registered in the Secondary Registration System.
<b>CRR Obligation</b>	A financial instrument that entitles the holder to a CRR Payment when Congestion is in the direction of the CRR Source to CRR Sink specification and imposes on its holder a CRR Charge when Congestion is in the opposite direction of the CRR Source to CRR Sink specification as described in Section 11.2.4.
<b>CRR Charge</b>	The Charge assessed by the CAISO on the holder of a CRR Obligation when congestion is in the opposite direction of the CRR Source to CRR Sink specification as described in Section 11.2.4.
<b>CRR Option</b>	A financial instrument that entitles its holder to a CRR Payment when Congestion is in the direction of the CRR Source to CRR Sink specification.
<b>CRR Payment</b>	A Payment from the CAISO to a CRR Holder based as specified in Section 11.2.4.
<b>CRR Sink</b>	A PNode or a Trading Hub specified as the point of withdrawal for a Congestion Revenue Right.
<b>CRR Source</b>	A PNode or a Trading Hub specified as the point of receipt for a Congestion Revenue Right.
<b>CRR Term</b>	Set of hours for which a given CRR is effective, based on the CRR specifications in Section 36.3, which is either the season multiplied by the time-of-use specifications or the month multiplied by the time-of-use specifications.
<b>CRR Year One</b>	The first period of time for which the CAISO conducts an annual CRR Allocation, as defined in the Business Practice Manuals.
<b>Curtailable Demand</b>	Demand from a Participating Load that can be curtailed at the direction of the CAISO in the Real-Time Dispatch of the CAISO Controlled Grid. Scheduling Coordinators with Curtailable Demand may offer it to the CAISO to meet Non-Spinning Reserve or Imbalance Energy.
<b>Day 0</b>	The Trading Day to which the Settlement Statement or Settlement calculation refers. For example "Day 41" shall mean the 41st day

<b>Load Distribution Factor (LDF)</b>	A number that reflects the relative amount of Load at each PNode within a Load Aggregation Point. Load Distribution Factors determine how the aggregated Load at a given LAP is distributed to the associated power system Nodes. The sum of all Load Distribution Factors for a single Load Aggregation Point equals one.
<b>Load Metric</b>	A Load Serving Entity's level of Load in megawatts for a defined time period that is exceeded in only 0.5% of the hours of that time period based on historical or forecast Load data.
<b>Load-Serving Entity (LSE)</b>	Any entity (or the duly designated agent of such an entity, including, e.g. a Scheduling Coordinator), including a load aggregator or power marketer, that (a) (i) serves End Users within the CAISO Control Area and (ii) has been granted authority or has an obligation pursuant to California state or local law, regulation, or franchise to sell electric energy to End Users located within the CAISO Control Area; (b) is a federal power marketing authority that serves End Users; or (c) is the State Water Resources Development System commonly known as the State Water Project of the California Department of Water Resources.
<b>Load Shedding</b>	The systematic reduction of system Demand by temporarily decreasing the Supply of Energy to Loads in response to transmission system or area capacity shortages, system instability, or voltage control considerations.
<b>Load Zone</b>	A standard set of nodes located within the CAISO Control Area that has been designated by the CAISO to simplify the submission of Demand Bids and Settlement.
<b>Local Capacity Area</b>	Transmission constrained area as defined in the study referenced in Section 40.3.1 of this CAISO Tariff.
<b>Local Capacity Area Resources</b>	Resource Adequacy Capacity from a Generating Unit listed in the technical study or Participating Load that is located within a Local Capacity Area capable of contributing toward the amount of capacity required in a particular Local Capacity Area.
<b>Local Furnishing Bond</b>	Tax-exempt bonds utilized to finance facilities for the local furnishing of electric energy, as described in section 142(f) of the Internal Revenue Code, 26 U.S.C. § 142(f).
<b>Local Furnishing Participating TO</b>	Any Tax-Exempt Participating TO that owns facilities financed by Local Furnishing Bonds.

<b>Electric Utilities</b>	furnishing electric service, a municipal utility district furnishing electric service, a public utility district furnishing electric services, an irrigation district furnishing electric services, a state agency or subdivision furnishing electric services, a rural cooperative furnishing electric services, or a joint powers authority that includes one or more of these agencies and that owns Generation or transmission facilities, or furnishes electric services over its own or its members' electric Distribution System.
<b>Local Regulatory Authority (LRA)</b>	The state or local governmental authority responsible for the regulation or oversight of a utility.
<b>Local Reliability Criteria</b>	Reliability Criteria unique to the transmission systems of each of the Participating TOs established at the later of: (1) CAISO Operations Date, or (2) the date upon which a New Participating TO places its facilities under the control of the CAISO.
<b>Location</b>	A reference to either a PNode or an Aggregated Pricing Node.
<b>Location Code</b>	The code assigned by the CAISO to Generation input points, and Demand Take-Out Points from the CAISO Controlled Grid, and transaction points from trades between Scheduling Coordinators. This will be the information used by the CAISO Controlled Grid, and transaction points for trades between Scheduling Coordinators. This will be the information used by the CAISO to determine the location of the input, output, and trade points of Energy Schedules. Each Generation input and Demand Take-Out Point will have a designated Location Code identification.
<b>Location-Specific Settlement Interval LMP</b>	For a specific Location, the Energy-weighted average of the Dispatch Interval Locational Marginal Prices of the relevant Pricing Node for the Settlement Interval taking into account the resource's IIE excluding Energy for Regulation.
<b>Locational Marginal Price (LMP)</b>	The marginal cost (\$/MWh) of serving the next increment of Demand at that PNode consistent with existing transmission facility constraints and the performance characteristics of resources.
<b>Long Start Unit</b>	A Generating Unit that requires five and 18 hours to Start-Up and synchronize to the grid.
<b>Long Term Congestion Revenue Right (Long Term CRR)</b>	A Congestion Revenue Right differentiated by season and time-of-use period (on-peak and off-peak) with a term of ten years.
<b>Loop Flow</b>	Energy flow over a transmission system caused by parties external to that system.

	Controlled Grid, control Generation, and perform operational power flow studies.
<b>Power System Stabilizers (PSS)</b>	An electronic control system applied on a Generating Unit that helps to damp out dynamic oscillations on a power system. The Power System Stabilizers senses Generator variables, such as voltage, current and shaft speed, processes this information and sends control signals to the Generator voltage regulator.
<b>Preliminary Settlement Statement</b>	The initial statement issued by the CAISO of the calculation of the Settlements and allocation of the charges in respect of all Settlement Periods covered by the period to which it relates.
<b>Price Taker</b>	A quantity only Energy Bid with no associated price.
<b>Pricing Node (PNode)</b>	A single network Node or subset of network Nodes where a physical injection or withdrawal is modeled and for which a Locational Market Pricing is calculated and used for financial settlements.
<b>Primary CAISO Control Center</b>	The CAISO Control Center located in Folsom, California.
<b>Priority Nomination Process (PNP)</b>	The step in an annual CRR Allocation in years beyond CRR Year One through which CRR Holders re-nominate (1) Seasonal CRRs they were allocated in the prior year, (2) Long Term CRRs that are expiring, and (3) Existing Transmission Contracts and Converted Rights that are expiring.
<b>Priority Type</b>	The Bid component that indicates if applicable the scheduling priority for the Settlement Period for Reliability Must-Run Generation, if applicable.
<b>Project Sponsor</b>	A Market Participant or group of Market Participants or a Participating TO that proposes the construction of a transmission addition or upgrade in accordance with Section 24 of the CAISO Tariff.
<b>Proposal for Installation</b>	A written proposal submitted by a CAISO Metered Entity to the CAISO describing a proposal for the installation of additional Metering Facilities.
<b>PTO Service Territory</b>	The area in which an IOU, a Local Public Owned Electric Utility, or federal power marketing administration that has turned over

	information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.
<b>Seasonal Available CRR Capacity</b>	The upper limit of network capacity that will be used in the annual CRR Allocation and annual CRR Auction calculated by effectively reducing OTC for Transmission Ownership Rights as if all lines will be in service for the relevant year.
<b>Seasonal CRR</b>	A Congestion Revenue Right that is valid for one season and one time-of-use period in a given year.
<b>Seasonal CRR Eligible Quantity</b>	The MW quantity of CRRs an LSE is eligible to nominate for the relevant season in the annual CRR Allocation.
<b>Seasonal CRR Load Metric</b>	The lowest value among the Monthly CRR Load Metrics for a Load Serving Entity calculated across the relevant season.
<b>Secondary Registration System</b>	The computer interface through which CRR Holders and Candidate CRR Holders register any bilateral CRR transactions with the CAISO.
<b>Security</b>	The form of security provided by a Scheduling Coordinator pursuant to Section 12.1 of the CAISO Tariff (i.e., letter of credit, guarantee or cash deposit) to secure its trading obligations.
<b>Security Constrained Economic Dispatch (SCED)</b>	An algorithm performed by a computer program that simultaneously clears Energy Supply Bids, including Self-Schedules, against CAISO Demand Forecast to determine Dispatch Instructions.
<b>Security Constrained Unit Commitment (SCUC)</b>	An algorithm performed by a computer program over a multi-hour Time Horizon that determines the commitment status and Day-Ahead Schedules, AS Awards, RUC Awards, HASP Intertie Schedules and Dispatch Instructions for selected resources and minimizes production costs (Start-Up, Minimum Load and Energy Bid costs in IFM, HASP and RTM; Start-Up, Minimum Load and RUC Availability Bid Costs) while respecting the physical operating characteristics of selected resources and transmission constraints.
<b>Security Monitoring</b>	The real-time assessment of the CAISO Controlled Grid that is conducted to ensure that the system is operating in a secure state, and in compliance with all Applicable Reliability Criteria.
<b>Self-Commitment Period</b>	The portion of a Commitment Period of a unit with an Energy Self-

	methodology commencing January 1, 2001 through December 31, 2010.
<b>Take-Out Point</b>	The metering points at which a Scheduling Coordinator Metered Entity or CAISO Metered Entity takes delivery of Energy.
<b>Tax Exempt Debt</b>	Municipal Tax Exempt Debt or Local Furnishing Bonds.
<b>Tax Exempt Participating TO</b>	A Participating TO that is the beneficiary of outstanding Tax Exempt Debt issued to finance any electric facilities, or rights associated therewith, which are part of an integrated system including transmission facilities the Operational Control of which is transferred to the CAISO pursuant to the Transmission Control Agreement.
<b>Tie Point Meter</b>	A revenue meter, which is capable of providing Settlement Quality Meter Data, at a Scheduling Point or at a boundary between Utility Distribution Companies within the CAISO Controlled Grid.
<b>Tier 1 UIE</b>	The quantity of uninstructed energy deviation from the resource's Instructed Imbalance Energy.
<b>Tier 2 UIE</b>	The quantity of uninstructed energy deviation from the resource's Day-Ahead Schedule.
<b>Tier LT</b>	The tier of the annual CRR Allocation process through which the CAISO allocates Long Term CRRs.
<b>Time Horizon</b>	The time period to which a given CAISO Market optimization process applies. For the IFM and RUC the Time Horizon consists of each Trading Hour of the next Trading Day. For the HASP, the Time Horizon is 1.75 Trading Hours in fifteen-minute increments. For STUC the Time Horizon is 4.25 Trading Hours in fifteen-minute increments. For RTUC the Time Horizon is a variable number of fifteen-minute intervals that runs every fifteen minutes and covers 4 to 7 intervals. For the RTD, the Time Horizon is seven five-minute intervals span over thirty-five minutes.
<b>Time Period</b>	The period of time for Scheduling or Dispatch activities, which is a Trading Hour in the DAM and a Dispatch Interval in the RTM.
<b>TOC</b>	The single point of contact at the transmission operations center of Pacific Gas & Electric Company.
<b>Tolerance Band</b>	The tolerance band expressed in terms of Energy (MWh) for the performance requirement for Generating Units, System Units and imports from dynamically scheduled System Resources for each Settlement Interval will equal the greater of the absolute value of: 1) 5 MW divided by number of Settlement Intervals per Settlement Period

Attachment C - Exhibit No. ISO-1  
Direct Testimony of Dr. Lorenzo Kristov



**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**Long-Term Firm Transmission Rights    )  
in Organized Electricity Markets        )**

**Docket No. RM06-8-\_\_\_\_**

**PREPARED DIRECT TESTIMONY  
OF  
DR. LORENZO KRISTOV**

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1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**

4 **A.** My name is Lorenzo Kristov. My business address is 151 Blue Ravine Road,  
5 Folsom, California 95630.

6 **Q. By whom and in what capacity are you employed?**

7 **A.** I am the Principal Market Architect, within the Department of Market and  
8 Product Development at the California Independent System Operator, Inc.,  
9 (“CAISO”).

10 **Q. Please describe your professional and educational background.**

11 **A.** I have 15 years of experience in the electric utility industry, which began in 1991  
12 working on demand forecasting at the California Energy Commission. In 1993  
13 and 1994, I worked in Indonesia as a Fulbright scholar on the development of a  
14 commercial and regulatory framework to support private power investment. Then  
15 at the end of 1994 I returned to the California Energy Commission where for the  
16 next few years I represented the Commission in the retail electric restructuring  
17 proceedings and stakeholder working groups through which California was then  
18 developing the rules for Direct Access. In 1999, I joined the CAISO in the  
19 Department of Market Analysis and shortly thereafter became part of the internal  
20 team formed to reform the CAISO’s congestion management design. That effort  
21 was unfortunately interrupted by the crisis of 2000-2001, but at the end of 2001 I

1 was able to reconstitute the internal team and re-initiate the CAISO market  
2 redesign effort, which was the project known as Market Design 2002 or “MD02.”  
3 Since that time I have been one of a small group of internal experts working to  
4 finalize the CAISO Market redesign proposal, now renamed “MRTU.” I received  
5 a bachelor’s degree in Mathematics from Manhattan College, a master’s degree in  
6 Statistics from North Carolina State University, and a Ph.D. in Economics from  
7 the University of California at Davis.

8 **Q. Please describe your role in the development of the Long-Term Congestion**  
9 **Revenue Rights (“Long Term CRRs”) proposal.**

10 **A.** Shortly after the Commission’s Final Rule was issued in this proceeding, I was  
11 assigned Team Lead on the policy development for Long Term CRRs. In this  
12 role I was responsible for assembling and leading a team of internal and external  
13 experts qualified and knowledgeable of the CAISO’s MRTU market redesign and  
14 particularly the Congestion Revenue Rights (“CRRs”) element of that design, to  
15 develop the CAISO’s proposal in compliance with the Final Rule. The team then  
16 proceeded, over the last six months, to work with our stakeholders to develop a  
17 Long Term CRR proposal that fully meets the guidelines of the Commission’s  
18 Final Rule, fits elegantly into the conditionally approved MRTU market redesign,  
19 meets the expressed needs of stakeholders and balances conflicting needs and  
20 concerns where necessary, and crucially, is feasible to implement in conjunction  
21 with the start-up of the MRTU markets in January, 2008. On January 24, 2007, I

1 presented this proposal to the CAISO's Board of Governors and received their  
2 unanimous approval.

3 **Q. What is the purpose of your testimony in this proceeding?**

4 **A.** My testimony is intended to provide a thorough overview of the Long Term CRR  
5 proposal being filed by the CAISO in compliance with the Final Rule, including  
6 an explanation of the objectives and guiding principles of the Long Term CRR  
7 design effort, the process by which this proposal was developed, and the rationale  
8 behind the specific details and mechanics of the Long Term CRR design. The  
9 filing is supported by other experts – Dr. Susan Pope and Dr. Roger Treinen –  
10 who provide further rationale and support for various aspects of the proposal

11 **II. DESIGN OBJECTIVES AND PROCESS**

12  
13 **A. Design Objectives**

14 **Q. How did the CAISO establish its guiding principles and objectives in**  
15 **designing the Long Term CRR instruments in compliance with the**  
16 **Commission's Final Rule?**

17 **A.** The Commission's Final Rule was issued while the CAISO's Market Redesign  
18 and Technology Upgrade ("MRTU") was pending Commission approval and in  
19 the midst of CAISO's aggressive efforts to develop its business processes and  
20 systems to implement MRTU, which is a comprehensive redesign of the CAISO  
21 markets and congestion management approach to establish Locational Marginal  
22 Pricing ("LMP"). Such special circumstances required a careful balancing of

1 competing interests, which the CAISO was able to achieve successfully through  
2 this Long Term CRR proposal in compliance with the Final Rule. The main  
3 competing interests the CAISO faced revolved around the need to comply fully  
4 with both the substance and the filing deadline of the Commission's Final Rule,  
5 and to develop a proposal that the CAISO could implement at the start of MRTU,  
6 while not impeding the implementation of MRTU. The CAISO worked closely  
7 with its stakeholders, its design experts, Market Surveillance Committee ("MSC")  
8 and systems developers to articulate a set of guiding principles and objectives that  
9 captured these tensions. Through this process the CAISO established eight  
10 principles and objectives, which we emphasized in our white papers in this  
11 process to keep them in the foreground as a reminder to all participants of what  
12 we were trying to accomplish.

13 **Q. Please describe the CAISO's objectives and guiding principles for**  
14 **formulating the Long Term CRR proposal.**

15 **A.** The CAISO's first objective was to comply with the seven guidelines stated by  
16 the Commission in its Final Rule. Finding that the CAISO did not take issue with  
17 any of the Commission's seven guidelines, the CAISO did not seek rehearing of  
18 the Commission's Final Rule and immediately began to evaluate closely its ability  
19 to meet the seven guidelines, with a focus on the start-up of the MRTU markets.  
20 In this middle of this process, on September 21, 2006, the CAISO obtained  
21 conditional approval of its CRR program from the Commission. Given that the  
22 fundamentals of its conditionally approved CRR program was already largely

1 consistent with the Commission's seven guidelines, the CAISO believed that  
2 compliance with the seven guidelines was not overly problematic. The second  
3 goal the CAISO articulated was to utilize the flexibility offered by the Final Rule  
4 to develop a proposal that is most suited to the California context and the MRTU  
5 markets. The CAISO has learned a great deal from the experience of the Eastern  
6 ISO markets based on LMP, and the CAISO's conditionally approved CRR  
7 design drew upon many tested concepts and features of the financial transmission  
8 rights developed in those markets. Nevertheless, through the process of  
9 developing CRRs and other elements of the MRTU market redesign, the CAISO  
10 has found it important to recognize and respond to the specific needs of the  
11 CAISO participants and, more generally, the regional markets in the west. The  
12 Final Rule was well structured to identify clearly the design features that need to  
13 be universally captured in any compliant design, and to distinguish those from  
14 design issues that could be resolved in many alternative ways to meet the needs  
15 and preferences of each ISO's or RTO's situation and participants. Adding to this  
16 the unique situation of the CAISO and its participants having not yet operated  
17 LMP markets and being in the home stretch of implementing such markets, it was  
18 obvious that we needed to explore all the flexibility the Final Rule allowed to  
19 successfully balance the tension of competing interests I mentioned above.

20 **Q. Did the CAISO establish any objectives and principles related to the use of**  
21 **and investment in transmission and generation?**

1 A. Yes. The CAISO has always recognized the relationship between the availability  
2 of well-designed financial transmission rights and incentives for parties to utilize  
3 and invest in transmission and generating capacity. Therefore the CAISO adopted  
4 the two principles stating that the Long Term CRR design should promote  
5 efficient use of existing transmission and generation assets and facilitate efficient  
6 investment in new infrastructure. In stating the investment objective, however, I  
7 must remind readers that the CAISO has always recognized that well-designed  
8 transmission rights are just one necessary element of a framework to stimulate  
9 investment in new transmission and generating capacity, but they are not in and of  
10 themselves sufficient. In this regard the CAISO has continually emphasized the  
11 message that the implementation of LMP under MRTU – including the CRR and  
12 Long Term CRR elements of the market redesign – must occur in conjunction  
13 with an effective resource adequacy program and a transmission planning process,  
14 as well as the continuation of the reliable grid operating practices that have been  
15 an unwavering CAISO hallmark since our initial start-up in 1998. This big-  
16 picture view has pervaded the entire CAISO market redesign effort since the  
17 beginning, and was continually in the forefront as we conducted the Long Term  
18 CRR design effort.

19 **Q. Did MRTU implementation concerns factor into the design of the Long Term**  
20 **CRR instrument and allocation process?**

21 A. Of course, we carefully considered our ability to implement Long Term CRR in  
22 conjunction with the start of MRTU and the impacts on the MRTU project of



1 adding this new element as each potential design option and feature was raised for  
2 discussion. But this point should not be over-stated; in particular, I want to  
3 emphasize that the CAISO's proposal as filed in this proceeding is not and should  
4 not be seen as a compromise in order to minimize impacts on MRTU  
5 implementation. To make this point more clear, let me review a little of the  
6 chronology of the design process. At one point in the stakeholder process, in  
7 early November, the CAISO was struggling with how to fit Long Term CRR into  
8 MRTU start-up and presented to stakeholders what we called a "simplified"  
9 proposal that was less than fully desirable as an end-state design but appealing  
10 because it appeared straightforward to implement. In conjunction with this  
11 proposal we introduced the idea that this initial simplified design would be  
12 replaced with a complete "end-state" design in "CRR Year Two" (starting in  
13 January 2009 the annual CRR release process will be conformed to calendar  
14 years). Based on stakeholder responses to this proposal, the CAISO quickly  
15 abandoned the notion of starting MRTU with a simplified Long Term CRR design  
16 and trying to implement the end-state design later. Instead, we turned our focus  
17 on the end-state design with the objective of achieving it at MRTU start-up if  
18 possible. Around the same time, the management of the MRTU project was  
19 considering that a deferment of the MRTU start-up to January 31, 2008 would  
20 ensure that all the changes committed to in the MRTU tariff reply filings and that  
21 the Commission ordered in the September MRTU Order, as well as a more robust  
22 end-state Long-Term CRR model, could be accommodated. This shift of the  
23 start-up date enabled us to offer stakeholders, in mid-December, a Long Term

1 CRR design and release process that do not reflect a compromise with MRTU  
2 implementation, but rather constitute a complete Long Term CRR proposal.  
3 Granted, there are a couple of features I will discuss later that will need to wait for  
4 the second round of annual CRR allocation, but as I will explain later, these are  
5 not deficiencies in the Long Term CRR design as proposed in this filing.

6 **Q. Were there any instances where the CAISO had to reject design elements**  
7 **advocated by stakeholders based on MRTU implementation considerations?**

8 **A.** Yes. There was one notable example that arose in the last few weeks before the  
9 required compliance filing date. By the end of December, most stakeholders  
10 expressed significant support for the end-state design put forth by the CAISO.  
11 But at the beginning of January certain stakeholders urged us to add an auction  
12 process for Long Term CRRs to the mid-December proposal. This posed a  
13 considerable dilemma for the CAISO. As it was, the CAISO Long-term CRR  
14 proposal as it stood in mid-December – which the CAISO further refined since  
15 December to create the proposal presented in this filing – was carefully balanced  
16 to reflect adherence to the Commission’s guidelines, consistency with the overall  
17 MRTU design, absence of undesirable market incentives, and the diverse needs of  
18 the different load-serving entities who want Long Term CRRs. Adding a Long  
19 Term CRR auction step to this design this late in the process would require more  
20 than simply dropping another step into the allocation process. Such an addition  
21 would raise several likely controversial design issues that would require further  
22 design effort and stakeholder process, and therefore, given the time constraint

1 could not possibly be filed in time to meet the Commission's compliance deadline.  
2 Thus if the CAISO were to consider adding such an auction as an amendment at  
3 this time, this would extend the regulatory process and decision timeline beyond  
4 the date when the CRR release processes for MRTU start-up would need to begin.  
5 It is also fair to say that if the addition of an auction becomes the focus of  
6 modifications to the CAISO's proposal through the FERC process after this filing,  
7 we risk not being able to implement Long Term CRRs at the start of MRTU.  
8 Feeling confident that the CAISO proposal as filed in this compliance filing is just  
9 and reasonable without the additional Long Term CRR auction step proposed by  
10 certain stakeholders, the CAISO determined that it was unnecessary to risk not  
11 having a Long Term CRR design approved and implemented in the initial CRR  
12 allocation process and Long Term CRRs available for the start of MRTU. The  
13 CAISO therefore decided to keep this auction idea as a possible enhancement for  
14 subsequent years to be discussed with stakeholders later this year as we develop  
15 the scope of post-start-up enhancements to the MRTU markets.

16 **Q. What were the remaining objectives and principles that the CAISO adopted?**

17 **A.** The Long Term CRR proposal was also based on the CAISO's desire to promote  
18 an equitable allocation of long-term financial transmission rights to entities that  
19 pay for the transmission network. In particular, the Long Term CRR proposal  
20 creates a level playing field for one-year seasonal CRRs and Long Term CRRs, so  
21 that parties who prefer more or fewer of one or the other are not disadvantaged in  
22 the release process, a point that was emphasized in the Commission's Final Rule.

1 In addition, the CAISO recognized that it is important that any distribution of  
2 long-term financial transmission rights ensure that ownership of such instruments  
3 does not degrade energy and ancillary services market efficiency or system  
4 reliability. This required careful evaluation of the design to ensure that neither the  
5 allocation process nor the characteristics of the instrument create perverse  
6 incentives that would undermine MRTU rules carefully designed to ensure that  
7 the CAISO could both operate the system reliably and maintain efficient, stable  
8 and transparent spot markets. Finally, the CAISO also adopted the MSC's  
9 recommendation that the design should support secondary market activity for both  
10 short-term and long-term CRRs. The MSC felt this was important to allow parties  
11 that do not obtain the combination of Long Term CRRs that best meets their  
12 needs through the allocation process to participate in bilateral trades to enhance  
13 their portfolios.

14 **B. Stakeholder and Design Process**

15 **Q. How would you generally describe the CAISO's stakeholder and design**  
16 **process for developing its Long Term CRR proposal?**

17 **A.** The proposal put forth to the Commission in this filing is the product of a  
18 comprehensive development, review and evaluation process both internally and  
19 externally with stakeholders. Early in the process stakeholders reviewed an  
20 analysis of the Commission's Order No. 681, both its prescriptive features and  
21 those areas where flexibility is allowed to meet certain requirements.  
22 Stakeholders then considered and commented upon several major design options

1 and a number of specific features. The feedback from stakeholders was frequent  
2 and extensive throughout this process, and the CAISO's ultimate proposal was  
3 significantly shaped by this stakeholder input and their suggestions how to best  
4 meet the FERC guidelines for the design of Long Term Transmission Rights. The  
5 amount of time and effort by many stakeholders that went into the development of  
6 this proposal was really quite remarkable, especially considering that this Long  
7 Term CRR stakeholder process came in the midst of intensive collaborative  
8 efforts among stakeholders and the CAISO devoted to the implementation of  
9 MRTU systems and processes as well as continued efforts before the Commission  
10 to resolve MRTU related issues.

11 **Q. Please describe the early milestones within the CAISO's stakeholder process**  
12 **for designing the Long Term CRR proposal.**

13 **A.** Before embarking on its policy development, the CAISO held a conference call  
14 with stakeholders on August 10, 2006 focusing its discussion specifically on the  
15 process and timetable by which the CAISO would work with stakeholders to  
16 gather input, explore design alternatives, and develop a final proposal and tariff  
17 language. Following that call, stakeholders submitted written comments on  
18 August 18<sup>th</sup> providing their input into how the CAISO should proceed in  
19 compliance with the Final Rule. Thus, the CAISO actively sought stakeholder  
20 views on this process for developing the Long Term Transmission Rights even  
21 before getting into any specific substantive aspects of the Final Rule or the design  
22 of Long Term Transmission Rights.

- 1           • On September 26<sup>th</sup> the CAISO posted a White Paper describing its  
2           proposed process for meeting its compliance requirements, some starting  
3           assumptions, a description of the prescriptive and flexible aspects of the  
4           Final Rule, a preliminary discussion of certain prominent aspects of the  
5           Final Rule, a discussion of transmission planning aspects of the Final Rule,  
6           and a summary of the then pending PJM proposal on Long Term  
7           Transmission Rights. This paper can be found on the CAISO webpage at  
8           <http://www.caiso.com/187d/187de30844a40.pdf>. On October 3<sup>rd</sup> the  
9           CAISO held a day-long stakeholder meeting to discuss various aspects of  
10          this White Paper and the FERC Final Rule. Stakeholders submitted  
11          written comments about their design preferences based on these  
12          discussions on October 16<sup>th</sup>.
- 13          • On October 18<sup>th</sup> the CAISO hosted a half-day “Market Issues Forum” at  
14          which a panel of market participants, industry professionals, and market  
15          design experts including a member of the CAISO’s Market Surveillance  
16          Committee presented and led public discussion on what should be the  
17          appropriate design and distribution methodology for Long Term  
18          Transmission Rights.
- 19          • On November 7<sup>th</sup> the CAISO posted its first “Straw Proposal” for long-  
20          term firm transmission rights, which was discussed on November 9, at a  
21          public stakeholder meeting. This initial proposal suggested a strategy,  
22          which I discuss further later in this testimony, of starting with a  
23          “simplified” Long Term CRR design that would require minimal changes

1 to the existing CRR processes in order to make Long Term CRRs  
2 available at the start of MRTU, and then moving to a more complete “end-  
3 state” design a year later. The proposal identified certain specific  
4 enhancements that would comprise the end-state design, such as a  
5 dedicated allocation and auction tier for long-term transmission rights and  
6 a staggered release of transmission capacity for these long-term rights that  
7 might be offered a year or two after MRTU startup. On November 20<sup>th</sup>  
8 stakeholders submitted a third round of comments focusing on this initial  
9 Straw Proposal. Based on the stakeholder comments received,  
10 consultation with experts, and our own assessment the CAISO concluded  
11 that this bifurcated approach of starting with a simplified design and  
12 adding additional desirable features in later years, would cause significant  
13 uncertainty in the market and would result in an inefficient allocation of  
14 long-term CRRs for the first year.

- 15 • On November 28<sup>th</sup> the CAISO posted another White Paper outlining three  
16 broad options for the design and implementation of long-term rights,  
17 including the approach presented in the November 7<sup>th</sup> paper and adding  
18 two approaches with different timing scenarios for moving directly to an  
19 end-state design. The end-state approaches described in that White Paper  
20 introduced the idea of adding an additional, preliminary tier in the  
21 allocation process specifically for allocating Long Term CRRs. The  
22 CAISO raised these alternatives with stakeholders at that point because it  
23 was concurrently considering the impact of the MRTU order on its MRTU

1 implementation schedule and it had determined that creating an additional  
2 tier in the allocation process could be implemented upon MRTU startup if  
3 a modest delay of several months in the start of the MRTU markets were  
4 acceptable.

5 • On December 8<sup>th</sup> stakeholders submitted their fourth round of comments,  
6 largely in response to the alternatives presented in the November 28<sup>th</sup>  
7 White Paper. Based on the four rounds of comments, the stakeholder  
8 discussions, consultations with its internal and external experts, and with  
9 the confirmation that MRTU project plans had been modified for the  
10 MRTU start-up to occur in January 2008, the CAISO offered a new “Draft  
11 Proposal” in a December 15<sup>th</sup> White Paper. This “Draft Proposal,” which  
12 included the design of a Tier LT within the process conditionally approved  
13 by the Commission for annual allocation of CRRs, was the basis for this  
14 complete Long Term CRR design proposal which I will explain in the  
15 remaining sections of this testimony.

16 All of these CAISO White Papers, stakeholder written comments, agendas and  
17 presentations for stakeholder meetings are posted on the CAISO website at:  
18 <http://www.caiso.com/1845/1845dca750770.html>.

19 **Q. What additional actions did the CAISO take to complete its proposal?**

20 **A.** The December 15<sup>th</sup> “Draft Proposal” was reviewed with stakeholders initially  
21 during a public conference call on December 19<sup>th</sup>. Additional and more in-depth  
22 review and discussion of a more detailed version of this proposal, which the



1 CAISO released on January 5, 2007, continued at an all-day stakeholder meeting  
2 on January 9<sup>th</sup> as well as a public conference call on January 16<sup>th</sup>. Additional  
3 written comments from stakeholders were submitted by January 5<sup>th</sup> in response to  
4 the December 15<sup>th</sup> Draft Proposal, and on January 11<sup>th</sup> following the January 9<sup>th</sup>  
5 stakeholder meeting. After carefully considering all the discussions and  
6 stakeholder input the CAISO finalized its proposal and released the final version  
7 as part of the package of documents prepared for the January 24<sup>th</sup> meeting of the  
8 CAISO Board of Governors at which the Long Term CRR proposal was presented  
9 for and received Board approval.

10 **Q. In what ways did the CAISO modify its final proposal to accommodate**  
11 **specific stakeholder concerns?**

12 **A.** In response to certain specific concerns raised during the January stakeholder  
13 process and written comments, the CAISO modified its January 5<sup>th</sup> proposal in a  
14 number of areas to address these concerns. For example, stakeholders had  
15 strongly suggested, and the CAISO agreed, to: (1) change the historical period  
16 upon which CRR sources are verified in the first year of the CRR allocation to a  
17 more recent period (i.e., calendar year 2006); (2) explicitly permit expiring ETCs  
18 and expiring Long Term CRRs to be nominated for renewal within the Priority  
19 Nomination Process; (3) allocate any uplift charges needed to maintain full  
20 funding of CRRs to measured demand; and (4) allow entities serving Out-of-  
21 Control-Area Load to acquire Long Term CRRs by prepaying their Wheeling

1 Access Charges (“WAC”) through an annual pre-payment rather than a ten-year  
2 lump sum pre-payment.

3 **III. THE LONG TERM CONGESTION REVENUE RIGHTS**  
4 **DESIGN**

5

6 **A. Overview of the Long Term CRR Proposal**

7 **Q. Please provide an overview of the Long Term CRR proposal filed by the**  
8 **CAISO in this proceeding.**

9 **A.** The CAISO is proposing to adopt a Long Term CRR instrument and a Long Term  
10 CRR allocation process that largely builds upon the annual CRR process for the  
11 release of Seasonal CRRs, which was conditionally approved by the Commission  
12 in its September 21, 2006 order in the MRTU proceeding. The CAISO proposes  
13 to allow Load Serving Entities (“LSEs”) to nominate as Long Term CRRs a  
14 subset of the CRRs they receive in Tiers 1 and 2 of the CRR Year One annual  
15 allocation process (the source-verified tiers), or in Tier 1 of the CRR Year Two  
16 and subsequent annual allocation process (i.e., the Priority Nomination Process or  
17 “PNP”). Since the allocation of Long Term CRRs will be based on the annual  
18 CRR allocation of Seasonal CRRs to LSEs, the Long Term CRRs will inherit the  
19 basic design features of the Seasonal CRRs; that is, they will be obligation CRRs,  
20 differentiated by season and time of use (“TOU” is on-peak or off-peak.). The  
21 Long Term CRRs will differ from the Seasonal CRRs, however, by virtue of the  
22 fact their term will be ten years; that is, they will cover a single season and TOU  
23 combination over a horizon of ten consecutive years.

1 **Q. How will you be clearly differentiating between the seasonal and monthly**  
2 **CRRs described in the February 2006 MRTU tariff filing and the Long Term**  
3 **CRRs proposed here?**

4 **A.** Prior to the development of this proposal, the CAISO had only planned to make  
5 available one-year seasonal (*i.e.*, one season for one year) and monthly CRRs.  
6 The annual CRR process as filed previously would release eight sets of these  
7 seasonal CRRs (four seasons and two TOU periods) once a year for applicability  
8 over the next one-year period. With the addition of Long Term CRR to the  
9 MRTU design, the CAISO now uses the generic term “CRR” to refer  
10 comprehensively to all CRRs the CAISO releases, including (1) those defined for  
11 a particular season and time-of-use combination and valid over a 10-year horizon  
12 (*i.e.*, Long Term CRRs), (2) those defined for a particular season and time-of-use  
13 combination within a single year (“Seasonal CRRs”), and (3) those defined for a  
14 particular month and time-of-use combination within a single year (“Monthly  
15 CRRs”). Thus the February 2006 MRTU filing addressed only Seasonal CRRs  
16 and Monthly CRRs.

17 **Q. Does the Long Term CRR proposal have any effect on the characteristics of**  
18 **Seasonal and Monthly CRRs?**

19 **A.** Only one characteristic of those instruments – full funding – is affected by this  
20 Long Term CRR proposal. The Final Rule requires that Long Term CRR be fully  
21 funded, and the CAISO has decided to fully fund the Seasonal and Monthly CRRs  
22 as well in order to maximize their liquidity. Besides the introduction of full

1 funding, the features or characteristics of the conditionally approved Monthly and  
2 Seasonal CRR instruments are not affected by this proposal. In addition, the  
3 release process for Monthly CRRs remains completely intact and unchanged.

4 **Q. Does the Long Term CRR proposal have any effect on the annual release  
5 process for Seasonal CRRs?**

6 **A.** Yes. There are two specific impacts I will discuss: (1) the insertion of an  
7 additional tier for Long Term CRRs in the tiered annual CRR release process, and  
8 (2) changes to LSE eligibility limits for Seasonal CRRs to reflect awards of Long  
9 Term CRRs. With regard to the new tier, the CAISO proposes to conduct, within  
10 the previously filed annual CRR release process, an additional tier for allocation  
11 of Long Term CRRs that includes a nomination by LSEs of allocated Seasonal  
12 CRRs they want to extend to Long Term CRRs, an associated Simultaneous  
13 Feasibility Test (“SFT”) for testing the feasibility of the nominated Long Term  
14 CRRs over the 10-year horizon, and ultimately allocating those nominated Long  
15 Term CRRs that pass the SFT. This new tier will be designated “Tier LT” and  
16 will be performed right after Tier 2 of the annual allocation process in CRR Year  
17 One, and right after the PNP (Tier 1) in subsequent years.

18 **Q. How does the Long Term CRR proposal affect LSE eligibility for Seasonal  
19 CRRs?**

20 **A.** There are two impacts, both based on a common principle underlying the Long  
21 Term CRR proposal. That is, as a matter of principle the introduction of Long

1 Term CRRs does not alter the total megawatt (“MW”) eligibility of each LSE to  
2 be allocated CRRs. Thus the rules conditionally approved by the Commission for  
3 determining eligible quantities for Seasonal CRRs will now apply to each LSE’s  
4 total quantity of Seasonal CRRs and Long Term CRRs, and each LSE must  
5 decide how it wants to distribute its total MW eligibility in the annual allocation  
6 process across a mix of Seasonal CRRs and Long Term CRRs. Stated another  
7 way, once an LSE is allocated some Long Term CRRs, that MW quantity is set  
8 against the LSE’s eligibility for Seasonal CRRs in all subsequent annual CRR  
9 allocation processes for the term of the allocated Long Term CRRs. This is the  
10 first of the two impacts I just mentioned. Second, the MW quantity of previously  
11 allocated Long Term CRRs for each LSE is set against each LSE’s eligibility to  
12 use the PNP to renew previously awarded Seasonal CRRs that were not converted  
13 to Long Term CRRs. This provision ensures that LSEs who want to rely more  
14 heavily on the already existing yearly renewal of Seasonal CRRs do not have to  
15 compete in the PNP against LSEs that want yearly renewal on top of their  
16 allocated Long Term CRRs. These two provisions, combined with the  
17 incorporation of Tier LT into the annual allocation process, create a level  
18 opportunity for LSEs to choose their preferred mix of Seasonal CRRs and Long  
19 Term CRRs, without giving either type of CRR a preference in obtaining shares  
20 of grid capacity. This aspect of the CAISO’s proposal responds to the  
21 Commission’s direction in the Final Rule not to disadvantage LSEs who rely on  
22 shorter-term CRRs when we allocate the new Long Term CRR instrument.

1 **Q. What is the rationale for embedding Tier LT in the middle of the annual**  
2 **allocation process?**

3 **A.** Mainly, it is another way to avoid creating an inefficient incentive for LSEs to  
4 seek Long Term CRRs they don't really want. At one point in the design process  
5 the CAISO was considering creating a separate Long Term CRR Tier that would  
6 precede Tier 1 of the annual allocation of Seasonal CRRs, but this was rejected in  
7 the final design proposal. The important advantage of embedding the Long Term  
8 CRR allocation process within the annual CRR allocation process as we propose  
9 here – in contrast to the creation of a separate Long Term CRR Tier prior to Tier  
10 1 – is that parties who want to rely more heavily on Seasonal and Monthly rights  
11 would be competing on equal footing with parties who want Long Term rights.  
12 Within the stakeholder process we used the term “Tier 0” to refer to the idea of a  
13 Long Term CRR Tier conducted prior to Tier 1. With the Tier 0 approach as  
14 described in the CAISO's November 28 White Paper, LSEs who request Long  
15 Term CRRs would have the opportunity to obtain those rights without having to  
16 compete for scarce transmission capacity with LSEs seeking only Seasonal CRRs.  
17 This would create an undesirable incentive for LSEs who don't really want Long  
18 Term CRRs to try to obtain them anyway, out of a practical concern that  
19 transmission capacity would be more limited by the time Seasonal CRRs became  
20 available and therefore they might not get many of the Seasonal CRRs they want.  
21 In contrast, the Tier LT approach as filed in this proceeding avoids  
22 disadvantaging entities that want primarily Seasonal CRRs because all LSEs  
23 compete to obtain Seasonal CRRs first, and can nominate Long Term CRRs only

1 from the Seasonal CRRs that are feasible in Tier 1 (Tiers 1 and 2 in the first year).

2 A second advantage of the Tier LT approach is that it simplifies the process for  
3 determining LSE eligibility for Long Term CRRs. The proposal requires no  
4 source verification other than that already filed and approved for the annual  
5 allocation of CRRs, and builds off of the eligibility rules that were extensively  
6 discussed during the design of the tiers and PNP for the annual allocation of  
7 Seasonal CRRs.

8 **B. Definition of the Long Term CRR Instrument**

9 **Q. What are the features and characteristics of the Long Term CRR instrument**  
10 **the CAISO proposes to release?**

11 **A.** The proposed Long Term CRRs have essentially the same features as the  
12 Seasonal CRRs conditionally approved by the Commission for MRTU, except  
13 they cover a season and TOU combination for ten years instead of one year. Like  
14 Seasonal and Monthly CRRs, Long Term CRRs will be obligations. LSEs that are  
15 awarded Long Term CRRs will maintain financially responsible for the stream of  
16 payments and charges throughout the term of these instruments, unless the Long  
17 Term CRR is transferred and registered to another party through the CAISO's  
18 Secondary Registration System. Also, consistent with the conditionally approved  
19 Seasonal and Monthly CRRs, and consistent with Guideline 1 of the Final Rule  
20 each Long Term CRR will have a specific source, sink and MW quantity.  
21 Consistent with Guideline 4 of the Final Rule, the term for Long Term CRRs will  
22 be ten years, and there will be a process for renewing expiring Long Term CRRs

1 for another ten years, subject to simultaneous feasibility. Like the Seasonal and  
2 Monthly CRRs, Long Term CRRs will be differentiated by time-of-use (on-peak  
3 or off-peak), and like the Seasonal CRRs, the Long Term CRRs will be  
4 differentiated by seasons. Thus, each Long Term CRR will actually apply to a  
5 single season and TOU combination for a 10-year period, and eight separate Long  
6 Term CRRs would be necessary to cover every hour of the year over a 10-year  
7 period.

8 **Q. Will the Long Term CRRs be firm over the ten year term?**

9 **A.** Yes. The Final Rule requires firmness of long-term firm transmission rights in  
10 two respects. First, the rights, denominated in MW, awarded for the long-term  
11 firm transmission right must be fixed over the term. In other words, the MW  
12 amounts cannot be eroded over the term of the instrument. Second, the MW  
13 amounts allocated must be fully funded, which means that if congestion revenues  
14 in any given hour in the CAISO's day-ahead market are not sufficient to pay CRR  
15 holders the full LMP-based value of their CRRs, the CAISO will make up the  
16 insufficiency in an appropriate manner rather than allow CRR holders to suffer a  
17 payment shortfall. The first aspect of firmness is accomplished by allocating  
18 Long Term CRRs that are determined to be feasible in the SFT for Tier LT. Such  
19 Long Term CRRs are thus "MW firm" for a ten-year period over a transmission  
20 grid that is derated to seventy-five percent of its total capacity using the same  
21 network model used for Seasonal CRRs awarded in the same year. Under this  
22 approach, anticipated transmission upgrades would not be included in the network



1 model for CRRs until they are actually in operation. The second aspect of  
2 firmness, full funding, is achieved by ensuring that hourly revenue shortfalls due  
3 to grid conditions are tracked in the CRR balancing account for eventual true-up  
4 at the end of each month, supported if necessary by an uplift charge to Measured  
5 Demand (internal metered Demand plus real-time interchange export schedules).  
6 Therefore, should there be any congestion revenue insufficiency in any given  
7 trading hour, the holder of the instrument will receive the full value of the CRR  
8 through a monthly balancing process. This full funding principle also applies, of  
9 course, to CRRs that are on average negatively valued; that is, the holder of these  
10 “counterflow” CRRs will be charged the full value of the CRR through the same  
11 monthly balancing process. This is consistent with the Commission’s  
12 requirement of full-funding.

13 **Q. Are Long Term CRRs transferable and assignable?**

14 **A.** Subject to certain limitations, which I describe further below, Long Term CRRs  
15 may be transferred and registered to new holders in the CAISO Secondary  
16 Registration System. Starting in CRR Year Two (calendar year 2009) and beyond,  
17 Long Term CRRs may be subdivided and certain temporal segments may be sold  
18 in Seasonal or Monthly auctions for the term covered by the auction. As the  
19 CAISO described in its February 9, 2006 filing with regard to Seasonal and  
20 Monthly CRRs under MRTU, due to a software functionality limitation in CRR  
21 Year One, CRR Holders will not be immediately capable upon MRTU start-up to  
22 sell any CRRs back into a CAISO-managed auction. The CAISO intends to build

1 the capability for this feature sometime after MRTU start-up. Once this  
2 functionality is added, an LSE could, for example, offer year 2010 of a summer  
3 on-peak Long Term CRR for sale in the regular auction for 2010 summer on-peak  
4 CRRs. Similarly, the August 2010 on-peak hours of a summer Long Term CRR  
5 could be sold in the regular auction for the August 2010 on-peak period.

6 **Q. What is the other limitation on transfers of Long Term CRRs?**

7 **A.** The other limitation, which is a matter of policy not software, is that the holder of  
8 the Long Term CRR cannot offer for sale in a CAISO-managed auction any of the  
9 future years of the Long Term CRR beyond the year for which the auction is  
10 being conducted. The same limitation applies to bilateral transfers of Long Term  
11 CRRs via the CAISO's Secondary Registration System ("SRS"). That is, except  
12 for transfers to reflect load migration between LSEs, Long Term CRRs cannot be  
13 transferred via the SRS for years beyond the year covered by the most recent  
14 annual CRR allocation and auction process. For example, suppose the CAISO  
15 conducts the annual allocation and auction process for 2012 in September of 2011.  
16 Then prior to the completion of this process, the LSE holding a Long Term CRR  
17 cannot transfer through the SRS any portion of the Long Term CRR beyond the  
18 year 2011. Once the annual allocation process for 2012 seasonal CRRs is  
19 complete, the LSE may offer 2012 segments of its Long Term CRRs into the  
20 2012 CRR auction and may transfer such segments via the SRS. This limitation  
21 ensures that the subsequent-year portions of Long Term CRRs continue to be held  
22 by the LSEs to which they were allocated, so that such portions will be available

1 to be transferred in association with load migration consistent with Guideline 6 of  
2 the Final Rule. The above limitations do not, of course, prevent an LSE who was  
3 allocated Long Term CRRs from achieving the financial equivalent of a sale of its  
4 Long Term CRR via a bilateral transaction outside of the CAISO's SRS. The  
5 CAISO has no ability to monitor such transactions between parties. With such  
6 outside transactions, however, the original LSE remains the holder of record for  
7 CAISO settlement purposes until the Long Term CRRs are transferred in the SRS  
8 to reflect migration of load to another LSE, or sold in an auction process where  
9 permissible, as described above.

10

11 **C. Integration of the Long Term CRR Allocation into the Current**  
12 **MRTU Structure**

13 **Q. Does the Long Term CRR proposal modify the conditionally approved CRR**  
14 **allocation procedure under MRTU?**

15 **A.** Yes it does; it modifies the annual allocation process for Seasonal CRRs in the  
16 ways I have discussed earlier, that is, by inserting a new Tier LT into the  
17 sequence of tiers, and by adjusting each LSE's MW eligibility for Seasonal CRRs  
18 based on previously allocated Long Term CRRs. These impacts of modifications  
19 on the Seasonal CRR process are quite modest, however, because the Long Term  
20 CRR process does not alter any of the fundamentals of the conditionally approved  
21 CRR design and release processes. To be more specific, this proposal does not  
22 modify the rules regarding calculation of LSE MW quantities based on load, the  
23 CRR Year One source verification process, the general structure of the three-

1 tiered annual allocation process for Seasonal CRRs, and it does not modify any  
2 aspect of the annual CRR auction process or the monthly CRR allocation and  
3 auction processes.

4 **Q. Would you summarize the conditionally approved CRR release process as**  
5 **background for understanding how the Long Term CRR allocation process**  
6 **will work?**

7 **A.** Yes. A good understanding of the existing CRR release process will enable  
8 participants to better understand the Long Term CRR allocation process. I  
9 therefore provide below a summary of the CRR allocation and auction processes  
10 as proposed in the February 9, 2006 MRTU tariff filing and conditionally  
11 approved by the Commission. For the full description and details parties should  
12 refer to the testimony filed on behalf of the CAISO in the MRTU proceeding in  
13 FERC Docket No. ER06-615-000, Section 36 of the MRTU Tariff as filed and  
14 modified in that docket, subsequent filings in that docket and the September 21,  
15 2006 order issued by the Commission in that docket. All this material may be  
16 accessed on the CAISO webpage at  
17 <http://www.caiso.com/17ba/17ba873e19350.html>.

18 **Q. When will the annual allocation of Seasonal CRRs for CRR Year One take**  
19 **place?**

20 **A.** A few months prior to the start-up of the MRTU markets on January 31, 2008, the  
21 CAISO will allocate to eligible LSEs the Seasonal CRRs that will be effective for

1 CRR Year One. The term of CRR Year One will be January 31, 2008 to  
2 December 31, 2008.

3 **Q. Who can participate in this allocation process?**

4 **A.** Only internal LSEs plus those external load serving entities that have fulfilled the  
5 requirements for external load-serving entities described in Section 36 of the  
6 CAISO MRTU Tariff may participate in this allocation process.

7 **Q. What amount of transmission capacity will be made available for this  
8 allocation?**

9 **A.** These LSE allocations will be subject to a test of simultaneous feasibility on a  
10 model using 75 percent of transmission capacity and accounting for any awards of  
11 CRRs to merchant transmission projects and capacity subject to Existing  
12 Contracts Rights (“ETCs”), Converted Rights (“CVRs”) and Transmission  
13 Ownership Rights (“TORs”). One further limitation on the capacity available in  
14 the allocation is the set-aside of some import capacity on each of the interties, to  
15 ensure that some import capacity is available for the auction process that follows  
16 the allocation. This set-aside is included in the CRR provisions conditionally  
17 approved by the Commission, and is not altered by the introduction of Long Term  
18 CRRs.

19 **Q. What amount of their load may LSEs nominate in this process?**

20 **A.** The CAISO will calculate a “Load Metric” for each LSE, for each season/TOU  
21 combination. The Load Metric will be the 99.5 percentile point of their previous

1 year's load duration curve for that season and TOU period, after adjusting for load  
2 migration between LSEs where appropriate. For LSEs that utilize the Default  
3 LAP for load scheduling and settlement and serve load in more than one Default  
4 LAP, this calculation is performed and CRRs are allocated separately for each  
5 Default LAP in which the LSE serves load. For LSEs that utilize custom LAPs  
6 for load scheduling and settlement, this calculation is performed and CRRs are  
7 allocated separately for each custom LAP. The CAISO will then calculate the  
8 "Adjusted Load Metric" for each individual LSE, which is its Load Metric minus  
9 the megawatts of that LSE's load that is covered by ETCs, CVRs or TORs. The  
10 CAISO then will calculate the Seasonal Eligible Quantity ("SEQ") for each  
11 season and TOU, which is seventy-five percent of the Adjusted Load Metric.  
12 LSEs will be allowed to nominate no more MW of CRRs than their SEQ in the  
13 three-tier annual allocation process.

14 **Q. How does the CAISO allocate Seasonal CRRs through this process?**

15 **A.** The conditionally approved annual allocation process for Seasonal CRRs provides  
16 for three allocation tiers for parties to seek allocations of CRRs, which  
17 progressively provide LSEs an ability to obtain CRRs for more of their SEQ.

18 **Q. What rules and procedures govern the CRR sources LSEs may nominate in  
19 this CRR Year One allocation process?**

20 **A.** Prior to the start of the allocation tiers, LSEs will submit documentation upon  
21 which their CRR Source eligibility for Tiers 1 and 2 of CRR Year One will be

1 based. The nominated CRR sources in Tiers 1 and 2 must be verifiably tied to  
2 supply sources that were owned or under contract to the LSE during the period  
3 from January 1 through December 31, 2006. Consistent with the conditionally  
4 approved February filing, the verified CRR sources may include Generating Units,  
5 Trading Hubs and Scheduling Points. On this topic I should note that the  
6 February 2006 MRTU tariff filing stated the historical reference period as  
7 September 1, 2004 to August 31, 2005, but after considering numerous comments  
8 from stakeholders that this period was too far in the past relative to the MRTU  
9 start-up date, the CAISO recently announced its intent to make the reference  
10 period more current, *i.e.*, calendar year 2006. We will be submitting this change  
11 to the Commission in a separate filing, since the change is required for purposes  
12 of overall CRR allocation and is not required specifically by the introduction of  
13 Long Term CRRs.

14 **Q. Please describe Tier 1 of the CRR Year One allocation process.**

15 **A.** For Tier 1, LSEs may nominate up to fifty percent of their SEQ, which is  
16 equivalent to 37.5 percent (the product of 50 percent and 75 percent) of each  
17 LSE's ALM for a particular season, TOU and LAP. Also, over Tiers 1 and 2  
18 LSEs may nominate up to 75 percent of (1) the PMax of a verified generating unit,  
19 or (2) the average hourly quantity of energy contractually delivered to a trading  
20 hub during the historical period. LSEs may also nominate import CRR sources  
21 based on 75 percent of the PMax for generators outside the CAISO control area  
22 that were verifiably owned or under contract during the historical period, and for

1           which the LSE demonstrates transmission arrangements to transport energy from  
2           the external generator to the CAISO Scheduling Point. After the CAISO  
3           performs the Simultaneous Feasibility Test (SFT) and performs any needed  
4           reduction of these nominations, LSEs will be notified of their allocated CRRs,  
5           which are then reserved within the SFTs for Tiers 2 and 3.

6   **Q.    Please describe the second tier of this allocation process.**

7   **A.**   Tier 2 is similar to Tier 1, except that an LSE now may nominate up to 75 percent  
8           of its SEQ (equivalent to 56.25% (or 75% times 75%) of its ALM) minus the  
9           quantity of Seasonal CRRs awarded in Tier 1 for that season and time-of-use  
10          period. Like Tier 1, Tier 2 requires that nominated CRR sources be verified.

11 **Q.    Please describe the third tier of this allocation process.**

12 **A.**   Tier 3 is often referred to as the “free choice tier” because this tier differs from the  
13          prior two tiers in that there is no source verification required. Each LSE may  
14          nominate up to 100 percent of its SEQ less the Seasonal CRRs already awarded in  
15          Tiers 1 and 2. LSEs may nominate from any generator Pricing Node, Trading  
16          Hub or Scheduling Point. Also, in Tier 3 LSEs whose load is settled at a default  
17          LAP may nominate CRRs that sink at a sub-LAP of that Default LAP. This  
18          differs from Tiers 1 and 2, in which all CRR nominations by LSEs whose load is  
19          settled at a Default LAP must sink at the Default LAP.

20 **Q.    Will the CAISO make any CRRs available in an auction for CRR Year One?**



1    **A.**     For CRR Year One and subsequent years the CAISO will conduct an auction for  
2            Seasonal CRRs following the allocation of Seasonal CRRs to LSEs. All qualified  
3            market participants, which could include but is not limited to LSEs, may submit  
4            bids by season and time-of-use, and may utilize a broader set of CRR sources and  
5            sinks than was allowable in the allocation process. The annual auction of  
6            Seasonal CRRs, like the annual allocation, will be based on a grid model for each  
7            season and TOU period that uses 75 percent of transmission capacity and  
8            accounts for any awards of CRRs to merchant transmission projects and capacity  
9            subject to any applicable existing contractual, converted or ownership rights. In  
10           addition, the Seasonal CRRs allocated in the three-tier allocation process will be  
11           modeled as fixed CRRs in the network model for the auction, so that the auction  
12           does not affect the feasibility of the previously issued CRRs. In CRR Year Two  
13           and beyond, LSEs who hold allocated CRRs will be able to offer those for sale in  
14           the auction, but this functionality will not be available in CRR Year One. All this  
15           was discussed fully in the CAISO's February 9, 2006 MRTU filing. Finally, it  
16           should be noted that the intertie import capacity I mentioned earlier that was set  
17           aside in the allocation process will be restored to the network in the auction  
18           process.

19    **Q.**     **Will the CAISO continue to allocate CRRs for years beyond CRR Year One?**

20    **A.**     Yes. Each year, before the start of the next calendar year, the CAISO will  
21           conduct an annual allocation for Seasonal CRRs. After CRR Year One, the  
22           CAISO will standardize CRR years to coincide with calendar years. Thus, CRR

1 Year Two will begin on January 1, 2009. As in CRR Year One, all subsequent  
2 annual allocations of seasonal CRRs will be based on a grid model that includes  
3 75 percent of transmission capacity and that accounts for any awards of CRRs to  
4 merchant transmission projects and capacity subject to existing contractual or  
5 ownership rights, and incorporates the set-aside of intertie import capacity to be  
6 available in the auction. In addition, with the introduction of Long Term CRR as  
7 proposed here, the network model for each annual allocation of CRRs will take  
8 account of all previously-released Long Term CRRs. Also, after CRR Year One,  
9 verification of sources for CRR nominations will not be performed.

10 **Q. Besides elimination of source verification, does the allocation process for**  
11 **CRR Year Two and beyond differ from the CRR Year One process in other**  
12 **ways?**

13 **A.** The annual allocation process in CRR Year Two and beyond retains the three-tier  
14 structure of the CRR Year One process, but Tier 1 becomes a special tier known  
15 as the PNP, and Tiers 2 and 3 are both “free choice” tiers.

16 **Q. Please describe the Priority Nomination Process.**

17 **A.** In Tier 1 of the annual allocation process for Seasonal CRRs in years subsequent  
18 to CRR Year One, which is the PNP, LSEs may nominate for renewal any of the  
19 Seasonal CRRs they were allocated in the previous year’s annual allocation  
20 process for the same season, TOU and sink location. Only renewal nominations  
21 will be accepted in the PNP, so as to provide the greatest likelihood that parties

1 will be able to renew those CRRs they most wish to retain. Nominations of these  
2 high-priority seasonal CRRs are likely to be renewed because they were feasible  
3 in the previous year and they would be the first nominations run through the SFT  
4 for the annual allocation of seasonal CRRs.

5 **Q. How much of their load may LSEs nominate through the PNP process for**  
6 **CRR Year Two?**

7 **A.** As originally stated in the February 9, 2006 MRTU filing, each LSE may  
8 nominate up to 33.3 percent of its SEQ in the CRR Year Two PNP, and up to 66.7  
9 percent of its SEQ in the CRR Year Three and subsequent PNP, assuming of  
10 course that the LSE was allocated at least that many CRRs in the prior year  
11 allocation process. FERC's September 21 MRTU Order, paragraph 805, asked  
12 the CAISO to reconsider the level of this CRR Year Two upper bound, and in  
13 conjunction with this Long Term CRR proposal the CAISO now proposes to  
14 increase the CRR Year Two PNP upper bound to 66.7% of the SEQ to make it  
15 consistent with the PNP upper bound for CRR Year Three and subsequent. Note  
16 that 66.7 percent of SEQ translates to 50 percent of the Adjusted Load Metric.

17 **Q. Please describe Tiers 2 and 3 of the CRR Year Two and later allocation**  
18 **processes.**

19 **A.** In Tier 2 an LSE may nominate up to 66.7 percent of its SEQ, minus any Seasonal  
20 CRRs awarded in Tier 1, plus up to 50 percent of the net load it has gained  
21 through load migration during the current year. Note that 66.7 percent is the same

1 upper limit as in Tier 1. The rationale for this is that Tier 2 is a free choice tier,  
2 and because free choice of CRR sources is not allowed in Tier 1, the Tier 2 upper  
3 bound provides a catch-up opportunity for LSEs who do not want to renew  
4 Seasonal CRRs they were awarded the previous year, or want to renew only a  
5 small portion of them, perhaps because their supply arrangements have changed  
6 substantially. Note also that the 66.7 percent limit on Tier 2 represents another  
7 change to the February 2006 filing. A change is needed because the originally  
8 filed limit was chosen based on the filed 33 percent limit on the PNP. Because  
9 the CAISO is changing the limit on the PNP, consistency requires that we change  
10 the limit on Tier 2. In Tier 3, an LSE may nominate up to 100 percent of its SEQ,  
11 less any Seasonal CRRs awarded in Tiers 1 and 2. Also, as in Tier 3 of CRR Year  
12 One, LSEs whose load is scheduled and settled at a default LAP may nominate  
13 CRRs that sink at a sub-LAP of the default LAP. Finally, I'd like to point out that  
14 with the changes on the Tier 1 and Tier 2 upper bounds I just mentioned for CRR  
15 Year Two, the rules for the CRR Year Two annual CRR allocation process would  
16 be identical to the rules for subsequent years.

17 **D. Additional Elements of the Long Term CRR Release Process**

18 **Q. Now that you've reviewed the filed tariff provisions regarding release of**  
19 **Seasonal and Monthly CRRs, please complete the description of the Long**  
20 **Term CRR proposal.**

21 **A.** In the following sections I will explain a number of important aspects of this Long  
22 Term CRR proposal. Specifically, I will discuss the following:

- 1           1. The MW upper bound on LSE nominations of Long Term CRRs
- 2           2. The upper bound on grid capacity available for Long Term CRRs
- 3           3. The Tier LT Simultaneous Feasibility Test
- 4           4. Allocation of Long Term CRRs to entities serving load outside the CAISO
- 5           Control Area
- 6           5. Renewal of Long Term CRRs
- 7           6. Obtaining Long Term CRRs from new source locations
- 8           7. Full Funding of CRRs
- 9           8. Exclusion of Trading Hubs as Long Term CRR sources
- 10          9. Load Migration during the term of Long Term CRRs
- 11          10. Allowing expiring ETCs to use the PNP
- 12          11. Withdrawal of PTO Facilities from the CAISO Grid.

13

14       **E.     Quantity of Long Term CRRs Available**

15   **Q.     What is the upper bound on the amount of Long Term CRRs an LSE can**  
16   **nominate?**

17   **A.**    Each LSE can nominate up to 50 percent of its Adjusted Load Metric in Long  
18   Term CRRs, provided it received at least that many Seasonal CRRs in the  
19   allocation tiers preceding Tier LT. For CRR Year One, Tier LT occurs after Tier  
20   2 of the allocation process for Seasonal CRRs (*i.e.*, after the two source verified  
21   tiers), where as for CRR Year Two and subsequently, Tier LT occurs after Tier 1  
22   (the PNP). Assuming the LSE received at least 50 percent of its Adjusted Load  
23   Metric in these prior tiers, it may nominate Long Term CRRs from among those

1 awards up to that upper bound. There is an important qualification, however. An  
2 LSE's eligibility to nominate new Long Term CRRs is reduced by the quantity of  
3 Long Term CRRs that were previously allocated to it and are still valid for the  
4 term covered by the current allocation process, except for Long Term CRRs that  
5 were transferred under the rules for transferring allocated CRRs to reflect load  
6 migration between LSEs.

7 **Q. How did the CAISO select 50 percent of Adjusted Load Metric as the upper**  
8 **bound on LSE Long Term CRR nominations?**

9 **A.** The rationale for the 50 percent upper bound is that it is a reasonable proxy for an  
10 LSE's base load, *i.e.*, the amount of load it must serve in virtually all hours of the  
11 CRR term, *i.e.*, the particular season and TOU period used to calculate the Load  
12 Metric. The data and analysis we used to determine this reasonable proxy are  
13 described in the testimony of Dr. Roger Treinen in Exhibit No. ISO-3. That data  
14 indicates that, on average, an LSE's minimum hourly load in any season and TOU  
15 combination is about 50 percent of its maximum hourly load. Linking Long Term  
16 CRR eligibility to LSE base load is a principle that several stakeholders have  
17 advocated in the Long Term CRR process and appears to be consistent with  
18 FERC's guidance in Order No. 681. Thus the CAISO believes that this upper  
19 bound on Long Term CRR nomination allows LSEs a reasonable opportunity to  
20 obtain Long Term CRRs in order to support their long-term energy supply  
21 arrangements.

1 **Q. How much transmission capacity can be allocated as Long Term CRRs**  
2 **under this proposal?**

3 **A.** The additional SFTs for Tier LT will be performed on a grid model whose  
4 capacity limits are reduced to 60 percent of their ratings, rather than the full 75  
5 percent used for the SFTs to allocate Seasonal CRRs in Tiers 1, 2 and 3 of the  
6 annual allocation process.

7 **Q. What is the reason for this limit on grid capacity for Tier LT?**

8 **A.** A primary reason for using only 60 percent of grid capacity for the Tier LT SFTs  
9 instead of 75 percent is to ensure that any binding constraints occurring in Tier LT  
10 do not adversely impact future years' allocation of the Seasonal CRRs. Because  
11 the Long Term CRRs awarded through Tier LT must be modeled as fixed CRRs  
12 in the network for the annual CRR processes in subsequent years, if we used the  
13 full 75 percent in Tier LT and Tier LT resulted in binding constraints, these  
14 binding constraints would likely have severe impacts limiting the availability of  
15 CRRs in subsequent years' allocation process, particularly the Tier 1 PNP that  
16 will be used by LSEs who want to rely on year-to-year renewal of seasonal CRRs  
17 to manage their congestion cost exposure. Moreover, such adverse impacts would  
18 endure for the entire 10-year horizon of the Long Term CRRs, to be relieved only  
19 when and to the extent that new transmission capacity is added by upgrades.  
20 Derating grid capacity for Tier LT to 60 percent instead of utilizing the full 75  
21 percent available for seasonal CRRs ensures that there will be an additional  
22 amount of capacity across the entire grid for each year's annual CRR process,

1 beyond the amount utilized by the fixed Long Term CRRs previously released.  
2 The CAISO incorporated this provision after careful consideration of a point  
3 raised by several parties in the stakeholder discussion, namely, that if the Long  
4 Term CRR awards in CRR Year One are substantially different from parties'  
5 expectations and do not meet their needs, these results should not preclude later  
6 opportunities to meet their needs via subsequent steps in the CRR process. The  
7 60 percent limitation will provide some assurance that, at a minimum, the annual  
8 PNP for year-to-year renewal of seasonal CRRs will not be adversely affected by  
9 the Long Term CRR awards.

10 **F. Long Term CRRs and ETCs**

11 **Q. How does the holding of ETCs or CVRs affect eligibility for Long Term**  
12 **CRRs?**

13 **A.** First of all, the holding of ETC rights or CVRs affects an entity's eligibility for  
14 CRRs in general, as specified in the conditionally approved MRTU design filing.  
15 That is, the total quantity of CRRs that can be allocated to any eligible entity can  
16 be no greater than its Adjusted Load Metric for any given season and time-of-use  
17 period, which is calculated to reflect the amount of load the entity serves that is  
18 not insulated from congestion charges under ETCs or CVRs. Then, a maximum  
19 of 75 percent of the Adjusted Load Metric can be allocated as a mix of Seasonal  
20 CRRs and Long Term CRRs, and the entity can nominate its desired mix of these  
21 two instruments in accordance with the rules and procedures I described earlier.  
22 Beyond the calculation of the Adjusted Load Metric and the generic limit on all



1 LSEs to receive through allocation no more than 50 percent of the Adjusted Load  
2 Metric, there is no further limitation on Long Term CRR nominations due to the  
3 holding of ETCs or CVRs.

4 **Q. Why did the CAISO decide not to deduct ETC and CVR amounts from an**  
5 **LSE's eligibility for Long Term CRRs?**

6 **A.** Some stakeholders did suggest that the CAISO go further than what I just  
7 described and deduct an entity's ETC and CVR quantities from its eligibility for  
8 Long Term CRRs, on the grounds that ETC rights and CVR are long-term in  
9 nature and, absent the proposed additional restriction, would effectively allow the  
10 holder of those rights to obtain long-term transmission right coverage for more  
11 than 50 percent of its unadjusted Load Metric, while non-holders of such rights  
12 would be limited to 50 percent. The intent of the proposed provision was not to  
13 reduce the entity's total eligibility for Seasonal CRRs and Long Term CRRs, but  
14 just to shift the entity's holdings more towards the Seasonal CRRs so that in total  
15 its coverage in long-term transmission rights would not exceed 50 percent of its  
16 unadjusted Load Metric.

17 **Q. How did the suggestion for the proposed deduction of the ETC and CVR**  
18 **amounts arise?**

19 **A.** This suggestion arose, as I recall, in response to the Commission's order on  
20 rehearing in this docket, wherein the Commission replied to the New York  
21 Independent System Operator ("NYISO") that it could subtract an entity's

1 coverage of grandfathered transmission rights from its eligibility for long-term  
2 transmission rights to the extent the grandfathered rights meet the Final Rule's  
3 guidelines.

4 **Q. What did the CAISO conclude in response to these developments?**

5 **A.** The CAISO considered this idea carefully and soon realized that, while it seemed  
6 a reasonable concept, it would have very little applicability in our case. There  
7 were two observations that led to this conclusion. First, the vast majority of ETCs  
8 and all CVRs fall at least a few years short of the 10-year coverage required by  
9 the Final Rule guidelines. Thus they would not satisfy the stipulation the  
10 Commission made in response to the NYISO. Second, in cases where the ETCs  
11 meet the 10-year coverage guideline (which amounts to roughly 400 MW of ETC  
12 rights), the rights holding entities are virtually fully covered by their ETC rights.  
13 Thus under our CRR rules their Adjusted Load Metrics and hence their eligibility  
14 for any CRRs at all would be zero or very close to zero. Based on these  
15 observations the CAISO concluded that there would be negligible value in  
16 pursuing this additional restriction.

17 **Q. Are there any provisions to smooth the transition for parties whose ETCs or  
18 CVRs expire?**

19 **A.** Yes. In the CAISO's previously filed CRR proposal we included a provision to  
20 allow CVR holders, at the time their CVRs expire at the end of 2010, to nominate  
21 them for renewal in the PNP as if these rights were previously-allocated Seasonal

1 CRRs. This is not, of course, a guarantee that 100 percent of expiring CVRs  
2 would be allocated as CRRs. The CVR holder would still be subject to the same  
3 quantity limitations that apply to other LSEs in the allocation process, regarding  
4 eligible quantities for Seasonal CRR nominations in the tiered structure and  
5 eligibility to nominate allocated Seasonal CRRs as Long Term CRRs. Since the  
6 original filing in February of 2006, the CAISO has determined that it would be  
7 appropriate to extend the same capability to ETC holders upon expiration of their  
8 rights. I note that the CAISO does not expect this provision to adversely affect  
9 other entities that are allocated CRRs and utilize the PNP. The reason is that while  
10 the ETCs and CVRs are in effect the CAISO must model their expected use in the  
11 SFTs for CRR release, to reflect the fact that the “perfect hedge” settlement  
12 treatment will cause the CAISO not to fully collect congestion revenues in the  
13 day-ahead market. When the ETCs and CVRs expire, they no longer need to be  
14 modeled in the SFTs, thus releasing the grid capacity that was previously  
15 encumbered by the ETCs and CVRs. This new provision therefore seems  
16 perfectly reasonable, and will offer the holders of these rights the possibility of  
17 smoother continuity of coverage when the rights expire.

18 **G. The Tier LT Simultaneous Feasibility Tests**

19 **Q. How will the CAISO assess the feasibility of Long Term CRR nominations?**

20 **A.** The CAISO would test the feasibility of the nominated Long Term CRRs for the  
21 full 10-year term by means of a special set of Tier LT SFTs. Consider the CRR  
22 Year One allocation process. These additional SFTs are needed because the

1 subset of the Tier 1 and 2 CRR awards nominated as Long Term CRR may not be  
2 fully feasible in the absence of the other Tier 1 and 2 CRR awards that were not  
3 nominated as Long Term CRR. That is, the Seasonal CRRs nominated as Long  
4 Term CRR may require certain counterflows created by the other Seasonal CRRs  
5 to be feasible. In order to ensure the MW firmness of the Long Term CRR over  
6 future years, the CAISO must consider the fact that some of these other Seasonal  
7 CRRs may not be nominated for renewal and, as a result, any counterflows they  
8 may have provided to support the Long Term CRRs would be absent in the later  
9 years. Thus the Tier LT SFT would test the simultaneous feasibility of just those  
10 awarded Tier 1 and 2 CRRs that are nominated as Long Term CRRs, in the  
11 absence of the other awarded Tier 1 and 2 CRRs, and if necessary, the Long Term  
12 CRR nominations may be reduced to achieve feasibility. For the CRR Year One  
13 allocation of Long Term CRRs, this assessment will require a set of eight SFTs  
14 for the four seasons and two TOU periods.

15 **Q. Will the same procedure be followed for CRR Year Two and subsequent**  
16 **years?**

17 **A.** Yes, but instead of just eight SFTs we will need to run multiples of eight SFTs.  
18 Here's why. For years subsequent to CRR Year One, the Tier LT SFTs must also  
19 incorporate as fixed CRRs any Long Term CRRs that were previously awarded  
20 for each season/TOU. Suppose CRR Year One is up and running, and the next  
21 CRR allocation process is releasing Seasonal CRRs for CRR Year Two and Long  
22 Term CRRs for years 2-11. Suppose Tier 1 (the PNP) is completed and parties

1 want to nominate some of their newly awarded Seasonal CRRs as Long Term  
2 CRRs. To perform the SFTs for these nominations, the CAISO must distinguish  
3 between the periods of CRR Years Two to Ten for which some Long Term CRR  
4 capacity was released the previous year, versus CRR Year Eleven for which no  
5 Long Term CRRs have been previously released. Thus it will take 16 SFTs to  
6 perform this test – eight SFTs for the period of CRR Years Two to Ten and  
7 another eight SFTs for CRR Year Eleven.

8 **Q. What happens if, for any given season and TOU, the SFT for CRR Years**  
9 **Two to Ten give a different result to the SFT for CRR Year Eleven?**

10 **A.** Clearly these two sets of SFTs could – and almost certainly will – produce  
11 different results regarding the full feasibility of the nominated rights. Yet the  
12 definition of the Long Term CRR instrument requires that it be a fixed quantity of  
13 MW over the entire 10-year horizon. Because this problem does not arise until we  
14 have to run the CRR Year Two allocation process, the CAISO will be able to  
15 implement a “multi-period” constraint that will, when applied to the running of  
16 multiple sets of SFTs simultaneously, allocate constant-MW 10-year Long Term  
17 CRRs in an optimal manner. In the example above, we would run the CRR Year  
18 Two ten SFTs and the CRR Year Eleven SFTs simultaneously. Then, for a Long  
19 Term CRR nomination that is, say, 50 MW from PNode A to the SCE Default  
20 LAP, we would apply a multi-period constraint that tells the software to output a  
21 feasible A-to-SCE Long Term CRR with a single fixed MW value, while

1 minimizing the overall quantity of Long Term CRR nominations that need to be  
2 reduced to achieve feasibility.

3 **Q. What are the possible results of these Tier LT SFTs?**

4 **A.** As the above discussion suggests, an LSE that has submitted Long Term CRR  
5 nominations may be awarded the entire MW amount as Long Term CRRs, or  
6 might receive only a reduced quantity. It is important to point out, however, that  
7 any reduction would only affect the long-term aspect of the nominated CRR, *i.e.*,  
8 the last nine years of the nominated 10-year Long Term CRR. The one-year  
9 Seasonal CRRs that were awarded in Tiers 1-2 for CRR Year One or Tier 1 for a  
10 later year would not be affected. In addition the “MW firmness” of the previously  
11 released Long Term CRRs is protected in this process. After running Tier LT the  
12 CAISO would provide the results of the Tier LT SFT to those LSEs who made  
13 Long Term CRR nominations, so they would know their Long Term CRR awards  
14 before submitting their nominations for Seasonal CRRs for the subsequent tiers.

15 **H. Allocation of Long Term CRRs to Entities Serving External Load**

16 **Q. Will LSEs serving load outside the CAISO Control Area be eligible to be**  
17 **allocated Long Term CRRs?**

18 **A.** Yes, OCALSE can nominate Long Term CRRs for allocation under rules  
19 analogous to the requirements (in Section 36.9 of the filed MRTU tariff) for  
20 OCALSEs who want to nominate Seasonal or Monthly CRRs. Those rules  
21 require a demonstration of legitimate need and prepayment of Wheeling Access  
22 Charges for the term of the CRRs they want to nominate. The same rules will

1 apply to OCALSEs who want to nominate Long Term CRRs in the allocation  
2 process, with one modification. Instead of having to prepay Wheeling Access  
3 Charges for the entire ten-year term of the Long Term CRRs the OCALSE can  
4 agree to prepay one year at a time in annual payments, made at the time the  
5 CAISO conducts the annual CRR allocation process. The CAISO will develop a  
6 standard contract for this purpose.

7 **Q. Please summarize the filed rules regarding allowable source nominations by**  
8 **OCALSEs who want to be allocated Seasonal or Monthly CRRs.**

9 **A.** The present proposal does not modify MRTU tariff Section 36.9 with respect to  
10 how an OCALSE qualifies for allocation of Seasonal CRRs or Monthly CRRs. In  
11 particular, the requirement for a showing of legitimate need (Section 36.9.1) is not  
12 affected. To be eligible for allocation of Seasonal or Monthly CRRs the OCALSE  
13 must demonstrate legitimate need based on ownership of or bilateral energy  
14 contract with generation inside CAISO control area, and such generation will  
15 define the eligible sources the OCALSE may nominate for CRR allocation. Thus  
16 intertie Scheduling Points cannot be nominated by OCALSEs as sources for CRR  
17 allocation. This limitation preserves the priority for native CAISO control area  
18 load in obtaining import CRRs. OCALSEs who rely on sources outside the  
19 CAISO control area and other parties who wheel power through the CAISO and  
20 desire CRRs must acquire them through the CRR auction processes or the  
21 secondary market.

1 **Q. How many Seasonal or Monthly CRRs may an OCALSE obtain through the**  
2 **allocation process?**

3 **A.** This Long Term CRR proposal also does not modify the filed MRTU tariff  
4 provisions on calculation of the CRR eligible quantity (Section 36.9.3). For an  
5 OCALSE the Load Metric, Adjusted Load Metric and the Seasonal Eligible  
6 Quantity (“SEQ”) will all be based on historical hourly export data for each  
7 export Scheduling Point the OCALSE desires to nominate as a CRR Sink. Of  
8 course, it is possible that the MW quantity of the OCALSE’s verified generation  
9 inside the CAISO Control Area turns out to be less than the Load Metric or the  
10 SEQ calculated from the historical export data, in which case the generation MW  
11 would set the upper bound on CRRs available to the OCALSE through the  
12 allocation process.

13 **Q. How do these provisions apply to Long Term CRRs?**

14 **A.** The allocation of Long Term CRRs to OCALSEs occurs through the same  
15 process as allocation to internal LSEs. First, the OCALSE must obtain Seasonal  
16 CRRs through the annual allocation process. Once the OCALSE obtains the  
17 Seasonal CRRs, it can nominate such rights to be extended to Long Term CRR up  
18 to a maximum of 50 percent of its Adjusted Load Metric. In CRR Year One the  
19 OCALSE will participate in the verified tiers to obtain Seasonal CRRs, whereas  
20 in years subsequent to CRR Year One the OCALSE will be allowed to nominate  
21 for renewal in the PNP any previously allocated Seasonal CRRs, and then could  
22 nominate these for Long Term CRR. In order to participate in the PNP, the



1 OCALSE will have to demonstrate continued need for the CRR based on  
2 continuation of generator ownership or bilateral contract (per Section 36.9.5 of  
3 the filed MRTU tariff). Thus, following in an analogous manner the quantity  
4 limitations specified above for internal LSEs, the OCALSE could potentially  
5 acquire through this allocation process a quantity of Long Term CRRs equal to 50  
6 percent of its Adjusted Load Metric for each export Scheduling Point.

7 **I. Renewing Long Term CRRs and Obtaining Long Term CRRs From**  
8 **New Sources**

9 **Q. How can Long Term CRRs be renewed?**

10 **A.** In the annual allocation process conducted in the year when a Long Term CRR  
11 expires, the LSE can nominate the same source, sink and MW quantity for  
12 renewal in the PNP. This renewal nomination would be treated the same as  
13 Seasonal CRRs nominated for renewal in the PNP, and if it is awarded to the LSE  
14 the LSE can then nominate it to be extended to a Long Term CRR in Tier LT. As  
15 an example, suppose LSE A is awarded a Long Term CRR in Year 1, and seeks  
16 Long Term CRR coverage for the following twenty years. During CRR Year Ten,  
17 when the CAISO performs the annual allocation process for CRR Year Eleven,  
18 the LSE can nominate its expiring Long Term CRR as a Seasonal CRR (with a  
19 one-year term) within the PNP tier. Assuming this nomination is awarded, the  
20 LSE would then nominate this Seasonal CRR as a Long Term CRR. If this  
21 nomination passes the Tier LT SFT, the LSE would then have a new Long Term  
22 CRR to be effective from CRR Year Eleven through CRR Year Twenty.  
23 Similarly, during CRR Year Twenty the LSE can follow the same process to

1 renew the Long Term CRR for CRR Years Twenty-One through CRR Year  
2 Thirty. There is no limit to how many times the LSE may renew the Long Term  
3 CRR in this manner. Note that under the above procedure, nominations for  
4 renewal in the PNP are not guaranteed but do have a high probability of being  
5 awarded because the PNP is conducted prior to the “free choice” tiers 2 and 3  
6 where LSEs may nominate CRR Sources they were not previously allocated.

7 **Q. How can an LSE obtain Long Term CRRs sourced at a location from which**  
8 **that LSE had not previously been allocated CRRs?**

9 **A.** As I’ve already discussed, any further Long Term CRR nominations after CRR  
10 Year One must come from among the Seasonal CRRs an LSE is allocated in the  
11 PNP. Thus when an LSE wants to obtain a Long Term CRR from a new source, a  
12 source from which it was not allocated Seasonal CRRs in the previous year, it  
13 requires participating in annual allocation processes for two consecutive years.  
14 First the LSE must nominate and be allocated a CRR from the new source in a  
15 free choice tier. Suppose the LSE does this in 2009 and is allocated a Seasonal  
16 CRR for 2010. Then in 2010 the LSE may nominate this CRR for renewal in the  
17 PNP of the allocation process for 2011. If this nomination is awarded, the LSE  
18 will have a Seasonal CRR for 2011, and may then nominate it as a Long Term  
19 CRR for the years 2011 through 2020.

20 **Q. What is the rationale for requiring nomination in two consecutive annual**  
21 **allocation processes in order to obtain a Long Term CRR from a new source?**

1    **A.**     As new sources are added, they must first be nominated in a free choice tier so as  
2           not to compete with and potentially displace Seasonal CRRs that LSEs were  
3           previously allocated and want to renew. Under the CAISO’s design of Seasonal  
4           CRRs and Long Term CRRs, both instruments offer long-term certainty for their  
5           holders. Whereas the Long Term CRR offer long-term certainty through the MW  
6           firmness and full funding provisions, Seasonal CRRs rely on the PNP instead of  
7           MW firmness. The PNP is somewhat less firm than the Long Term CRR because  
8           the PNP is an annual SFT in which not all nominations may be fully allocated.  
9           Nevertheless, the CAISO has designed the Long Term CRR process to fit into the  
10          annual allocation of CRRs in a manner that maximizes the flexibility of LSEs to  
11          choose their preferred mix of Long Term CRRs and Seasonal CRRs, without  
12          creating inefficient incentives for parties to nominate Long Term CRRs simply  
13          because of a fear that relying on seasonal renewal would be too risky. If the  
14          CAISO allowed new sources to compete in the PNP the first year they are  
15          nominated, it would undermine the carefully crafted balance of incentives and  
16          opportunities for Seasonal CRRs and Long Term CRRs.

17        **J.     Full Funding of Long Term CRRs**

18        **Q.     How does the CAISO proposal provide for full funding of Long Term CRRs?**

19        **A.**     First of all, the CAISO proposes to fully fund all CRRs, regardless of whether  
20           they are Long Term, Seasonal or Monthly CRRs. This will be accomplished  
21           through a combination of a CRR Balancing Account that is cleared monthly, plus  
22           an uplift charge or payment that is allocated to Measured Demand (metered

1 internal load plus real-time interchange export schedules). The CRR Balancing  
2 Account is not a new feature with this proposal and the CAISO will continue to  
3 use the CRR Balancing Account largely as described in the conditionally  
4 approved MRTU tariff filing. One important difference between this and the  
5 previously filed proposal is that this balancing account will be cleared monthly  
6 instead of rolling end-of-month balances over to an annual end-of-year clearing.  
7 Monthly clearing is appropriate with a monthly uplift allocated to Measured  
8 Demand, which will be settled monthly.

9 **Q. What funds will go into the balancing account?**

10 **A.** First, on an hourly basis the CAISO's day-ahead Integrated Forward Market  
11 ("IFM"), whose prices are used to calculate CRR payments and charges will in  
12 some hours generate a surplus. This occurs when total congestion revenues plus  
13 the charges to negatively-valued CRRs exceed total payments to positively-valued  
14 CRRs. These hourly surpluses will go into the CRR Balancing Account. Second,  
15 auction revenues from the annual and monthly CRR auctions will go into the  
16 CRR Balancing Account for the appropriate month. Auction revenues generated  
17 in the annual auction for each season are allocated uniformly across the three  
18 monthly accounts comprising the season. The addition of auction revenues to the  
19 CRR Balancing Account represents a change to the previously filed MRTU  
20 proposal. The CAISO believes it is appropriate here due to the introduction of  
21 full-funding as required by the Commission's Final Rule in Order No. 681.  
22 Under the previously filed proposal, auction revenues were to be paid to

1 Participating Transmission Owners, to flow back eventually to Load through  
2 reductions in the Transmission Access Charge (TAC) and Wheeling Access  
3 Charge (WAC). Thus the change proposed here is not so great a change, but it  
4 makes more practical sense to combine the monthly clearing of the balancing  
5 account, the allocation of the full funding uplift charge (or possibly payment) and  
6 the allocation of auction revenues into the regular monthly settlement process.

7 **K. Exclusion of Trading Hubs as Allowable Long Term CRR Sources**

8 **Q. Why are Long Term CRR source nominations from Trading Hubs not**  
9 **allowed?**

10 **A.** This is largely a cautionary measure deriving from our recent observations during  
11 the CRR Dry Run. What we observed is that, because Trading Hubs are made up  
12 of all the generator PNodes within the geographic area defined by each Trading  
13 Hub, CRRs sourced at a Trading Hub compete for transmission capacity with  
14 CRRs sourced at any of the generators comprising the Trading Hub and, when  
15 such competition leads to binding constraints in the SFT, the individual generator  
16 CRRs get reduced first because they are almost always more effective at relieving  
17 the constraint. This is so because the Trading Hub CRR typically has very small  
18 effectiveness on any one constraint, whereas a generator at the right location will  
19 have very high effectiveness. In the three-tier allocation process for Seasonal  
20 CRRs this is a lesser problem because if a constraint is binding and Trading Hub  
21 CRRs get some advantage in tier 1, when we get to tiers 2 and 3 Trading Hubs  
22 will now be disadvantaged because any binding constraint from the previous tier

1 will make Trading Hub CRRs infeasible, whereas most of the individual generator  
2 PNodes will still be feasible. In fact the CRR Dry Run has resulted in substantial  
3 reductions in nominations of Trading Hub CRRs in tiers 2 and 3. Thus one way  
4 to think of this is that the tiered structure provides a natural correction to such  
5 outcomes, because the effect is tier 1 gets reversed to a large extent in tier 2. In  
6 the Long Term CRR process, however, there is only one tier so the corrective  
7 effect of the multi-tier structure is not present. Moreover, the results of Tier LT  
8 will be in place and firm for ten years. The long-term MW firmness of Long Term  
9 CRRs released through this proposed process is an explicit requirement stated as  
10 guideline 2 of the Final Rule. This means that the Long Term CRRs, once issued,  
11 should not be subsequently modified (except by mutual consent of the CAISO and  
12 the holder of the rights) even in light of unintended consequences that may affect  
13 other participants. Suppose that LSEs in aggregate nominate both significant  
14 quantities of Trading Hub Long Term CRRs as well as CRRs for major portions  
15 of the capacity of specific generating units included in the Trading Hubs. This  
16 will increase the likelihood of constraints associated with specific generator  
17 PNodes binding in Tier 1 which would then, for the same network assumptions,  
18 prevent virtually any allocation of Trading Hub CRRs or CRRs sourced at those  
19 generator PNodes in subsequent annual CRR allocation processes for the entire  
20 10-year term of the Long Term CRRs.

21 **Q. Does the CAISO have any plans to address this problem prior to start-up of**  
22 **the MRTU markets?**

1    **A.**     Absolutely. Over the next several weeks we will be discussing the CRR Dry Run  
2            results with stakeholders – both in a public setting to discuss aggregate results and  
3            specific cases in an anonymous fashion, as well as in one-on-one meetings with  
4            individual LSEs to discuss their specific results. The purpose of this process is to  
5            identify any aspects of the filed CRR Allocation rules that are problematic and to  
6            develop appropriate solutions prior to starting the production CRR processes  
7            leading to MRTU start-up. Any changes to the previously filed CRR provisions  
8            developed in this process will be submitted to the Commission in early April. I  
9            would note, however, that just because the CRR Dry Run produced some results  
10           that differed from parties’ expectations, this does not automatically mean that  
11           there is a problem that requires changes to the filed CRR provisions. As I stated  
12           above, there are corrective effects inherent in the tier structure of the annual  
13           process that may, once participants fully understand how the rules and the  
14           optimizations work, be workable and acceptable. Alternatively, as the CAISO and  
15           market participants gain experience with the CRR allocation process and with the  
16           LMP markets, this policy restriction on nominating Long Term CRRs sourced at  
17           Trading Hubs can be reconsidered. These issues will all be discussed in the  
18           upcoming stakeholder process.

19    **Q.**     **What provisions are there for LSEs who rely on Trading Hub energy**  
20            **contracts and need Trading Hub CRRs to manage their congestion costs?**

21    **A.**     This Long Term CRR proposal has been carefully designed to provide balanced  
22            opportunities to obtain Long Term CRRs and to renew Seasonal CRRs annually.

1 Although Long Term CRR sourced at Trading Hubs are not allowed, there is no  
2 restriction on nominating Seasonal CRRs sourced at Trading Hubs in the PNP.  
3 Moreover, the limit of 60 percent on the grid capacity available in Tier LT means  
4 that even if there are binding constraints in Tier LT, there will always be  
5 significant capacity available for Trading Hub CRRs in the PNP due to the higher  
6 75 percent limit on grid capacity in the three tiers of the allocation of Seasonal  
7 CRRs. The CAISO therefore believes that parties that need Trading Hub CRRs  
8 will be able to obtain them as renewable Seasonal CRRs.

9 **L. Load Migration During the Term of Long Term CRRs**

10 **Q. How does this proposal address the transferability or assignability of Long**  
11 **Term CRRs when load migrates from one LSE to another?**

12 **A.** The present proposal extends in a natural way the provisions for Seasonal CRRs  
13 contained in the CAISO's conditionally approved MRTU design. Section  
14 36.8.5.1.1 of the filed MRTU tariff, as revised November 20, 2006, requires an  
15 LSE that loses load through direct access load migration during the annual CRR  
16 Allocation cycle to transfer a proportionate share of its allocated seasonal CRRs  
17 for the remainder of the annual cycle, or the financial equivalent, to the LSE that  
18 gained the load. The CAISO proposes to apply the same requirement to allocated  
19 Long Term CRRs, with certain modifications. First, the option to transfer the  
20 financial equivalent of Long Term CRRs rather than the CRRs themselves will be  
21 limited in a manner congruent with the limitations on the ability of LSEs to trade  
22 Long Term CRRs bilaterally via the CAISO's SRS. In other words, for the years



1 of a Long Term CRR beyond the year for which bilateral SRS transfers are  
2 allowed, the LSE who loses load must transfer the actual CRRs and cannot  
3 transfer a financial equivalent. For example, suppose the year is 2011 and the  
4 CAISO has not yet conducted the annual allocation process for 2012. Also,  
5 suppose LSE-1 holds Long Term CRRs that are valid through the end of 2018.  
6 Then if a share of LSE-1's load migrates to LSE-2 at this time, LSE-1 must  
7 transfer a share of its Long Term CRR for the years 2012 through 2018 to LSE-2.  
8 There will be no option for LSE-1 to make a cash payment to LSE-2 as an  
9 alternative to the Long Term CRR transfer. If, however, the migration of load  
10 occurs after the CAISO has performed the annual allocation process for 2012 and  
11 Seasonal CRRs for 2012 have been released, then the rules allowing the financial  
12 equivalent for the year 2012 would apply. Thus LSE-1 would be required to  
13 transfer a portion of its Long Term CRRs for the years 2013 through 2018, and  
14 would have the option of either transferring CRRs or paying a financial equivalent  
15 for the year 2012. The second modification has to do with enforcement of the  
16 required transfer. In several comments to the filed CRR proposal, parties argued  
17 that relying on the LSEs to perform the required calculations and transfers would  
18 likely result in disputes, and that therefore the CAISO should take on the  
19 responsibility of performing the transfers according to clearly specified and  
20 transparent procedures. The CAISO believes this suggestion has merit, and notes  
21 that PJM performs the analogous transfers within its markets. The CAISO  
22 therefore intends to develop the specifics of the needed procedures in consultation  
23 with stakeholders over the next several months and will submit the associated

1 change to its filed tariff in an April filing in conjunction with any other CRR  
2 items that require modification to tariff language.

3 **M. Withdrawal of Participating Transmission Owner Facilities from the**  
4 **CAISO Controlled Grid**

5 **Q. Why could the withdrawal of CAISO Controlled Grid facilities by a PTO**  
6 **have a significant impact upon Long Term CRRs?**

7 **A.** Because a PTO can withdraw some or all of its transmission facilities from the  
8 CAISO controlled grid with two years notice, Long Term CRRs having a 10-year  
9 term would clearly be affected if such a withdrawal were to occur. It is a  
10 fundamental principle of financial transmission rights that the CAISO's ability to  
11 pay the holders of rights issued based on a particular network model depends on  
12 the CAISO's ability to collect congestion charges deriving from the use of the  
13 facilities included in that network model. If the CAISO no longer schedules the  
14 use of those facilities and collects the associated congestion charges, it loses the  
15 source of revenues needed to pay CRR holders. The CAISO believes that  
16 withdrawal of PTO facilities would constitute an extraordinary event against  
17 which the CAISO cannot be expected to guarantee either firmness of MW or full  
18 funding for Long Term CRRs that were released based on the pre-PTO-  
19 withdrawal CAISO grid. The present Long Term CRR proposal therefore includes  
20 provisions for how to treat outstanding Long Term CRR in the event of PTO  
21 withdrawal of facilities.

1 **Q. What would the CAISO do in the event a PTO withdraws facilities from the**  
2 **CAISO?**

3 **A.** The CAISO would invoke a two step process: (1) re-configuration of outstanding  
4 Long Term CRR based on the “new” CAISO grid, and (2) performance of  
5 simultaneous feasibility tests for each relevant CRR time period (season and TOU)  
6 with possible pro-rationing to minimize any potential uplift cost for fully funding  
7 the resulting reconfigured set of Long Term CRR. To illustrate this process,  
8 suppose PTO-A withdraws from the CAISO grid, so that PTO-A’s transmission  
9 facilities that were included in the “old grid” are no longer included in the “new  
10 grid.” The CAISO would first redefine its Full Network Model (“FNM”) so that  
11 connections between PTO-A’s facilities and the new grid become new intertie  
12 scheduling points. Note also that old-grid intertie scheduling points that  
13 connected to PTO-A’s facilities would no longer exist in the FNM. Therefore, any  
14 Long Term CRR whose source or sink was within PTO-A’s system or at an old-  
15 grid Scheduling Point, while its other end (sink or source) was still within the new  
16 grid, would have to be reconfigured to utilize a new-grid intertie Scheduling Point  
17 in place of its former source or sink in PTO-A’s system. Long Term CRRs whose  
18 source and sink were both within the new grid or utilized intertie scheduling  
19 points that connected to the new grid would not need to be reconfigured. Long  
20 Term CRRs whose source and sink were both within PTO-A’s grid would cease  
21 to exist. After re-configuration of the outstanding Long Term CRRs the CAISO  
22 would run a set of SFTs on the re-configured set of rights and if necessary reduce  
23 some of their MW values to yield a feasible set of Long Term CRRs. The

1 temporal granularity of these SFTs would be analogous to the Tier LT SFTs the  
2 CAISO runs each time new Long Term CRRs are requested in the annual  
3 allocation process. That is, there would need to be separate SFTs for each season  
4 and TOU period over the time horizon of the outstanding Long Term CRRs, and  
5 possibly a separate set of SFTs for each year of that time horizon due to the mix  
6 of term lengths among the outstanding Long Term CRRs. As in the annual Tier  
7 LT process, once the CAISO implements the necessary software enhancements  
8 after MRTU start-up it will be possible to utilize a multi-period constraint across  
9 years to ensure that each Long Term CRR resulting from this process has a  
10 constant MW value over its remaining term, while performing any necessary MW  
11 reduction in the most efficient manner. As a result of this two-step process, the  
12 “new” outstanding Long Term CRRs would be defined on the “new grid” and  
13 would meet a consistent standard of simultaneous feasibility.

14 **Q. Does this conclude your testimony?**

15 **A.** Yes, it does.

16

17

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**California Independent System Operator )  
Corporation )**

**Docket No. RM06-8-\_\_\_**

I, Lorenzo Kristov, declare under penalty of perjury, that the foregoing questions and answers labeled as my testimony were prepared by me, with the assistance of others working under my direction and supervision; and that the facts contained in my answers are true and correct to the best of my knowledge, information and belief.

Executed on:

1/23/07  
Date

  
Lorenzo Kristov

Attachment D - Exhibit No. ISO-2  
Direct Testimony of Dr. Susan Pope



## Susan Liese Pope, Principal, LECG

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### BIO/SUMMARY

#### EDUCATION

Ph.D., Business Economics, Harvard University, Cambridge, MA

National Science Foundation Fellowship.

Areas: Industrial Organization, Applied Microeconomics, and Management of Technology.

A.B., *cum laude* in Applied Mathematics, Harvard College, Cambridge, Ma

Elizabeth Cary Agassiz Certificate of Merit, Harvard College Scholarship.

Wellesley College

National Merit Scholarship. Ranked first in freshman class.

#### PRESENT POSITION

LECG, Cambridge, MA, 1998 – present  
*Principal*

#### OTHER POSITIONS HELD

PUTNAM, HAYES & BARTLETT, INC.  
Principal, 1995 - December 1998

Associate, 1989-1995

HARVARD BUSINESS SCHOOL, 1987 - 1988  
Associate in Research

#### CONSULTING EXPERIENCE

Dr. Pope is a member of a team of LECG consultants that specializes in the economic and public policy analysis of electricity market design. She advises clients on the creation of independent system operators and independent transmission companies and on the design of bid-based electricity



spot markets, two-settlement systems, and ancillary service markets. Dr. Pope has particular expertise with regard to the design of auctions and allocation mechanisms for financial transmission rights. She works with many types of clients to develop rules and structures for efficient electricity markets that meet both federal and state requirements.

### **Electric Utility**

- Currently working with the California ISO in their stakeholder process to develop rules for the definition, allocation and auction of financial transmission rights, in support of their filing to implement LMP as part of their MRTU.
- Assisted the Midwest ISO in developing rules for allocating financial transmission rights, and all other market rules pertaining to financial transmission rights, in support of their LMP market system; worked intensively with their Transmission Rights Task Force.
- Worked with the NYISO to develop a process for awarding incremental financial transmission rights to parties that build new transmission.
- Served as a consultant to the NYISO in developing market rules to address revenue shortfalls that occur in the settlement of financial transmission rights when transmission lines are out of service, or for other reasons; assisted in testing methodology and with tariff filings.
- Advised Entergy and the SeTrans ISA Sponsors in developing rules for allocating financial transmission rights and awarding incremental financial transmission rights to parties that “participant fund” expansions to the transmission system, in support of an LMP market system.
- Advised the NYISO in analyzing the cause of a substantial congestion rent shortfall, and in addressing the settlement consequences of the shortfall.
- Prepared a paper for Mirant showing how a demand/supply imbalance in the West contributed to spikes in electricity prices from May 2000 to June 2001.
- Assisted several clients in determining how to perform the analyses required to provide financial transmission rights as options.
- Assisted the NY ISO, ISO New England and Ontario IMO in assessing alternative approaches to creating a combined day-ahead electricity market for the Northeast.
- Worked with a large Midwestern utility to create a proposal for an independent transmission company that would operate a bid-based electricity spot market and use locational pricing.
- Advised the Northwest RTO on market-based systems for congestion management, the creation of an electricity spot market and the design and allocation of financial transmission rights.
- Assisted in testing the pricing software of the NY ISO prior to startup.
- Assisted in developing methodologies for performing price verification for the NY ISO's LMP system.
- Assisted ISO New England in developing a congestion management system based on locational pricing and financial transmission rights.
- Led seminars on LMP and financial rights for many companies, such as Ontario Hydro.
- Participated in meetings with FERC economic staff to discuss issues such as participant funding of transmission expansion under LMP.



- Served as a consultant to the New York utilities in the development of plans and filings for restructuring the New York Power Pool as the New York Independent System Operator.
  - Evaluated alternative models for pricing energy, transmission, capacity and ancillary services within a competitive power market.
  - Developed market-based energy, transmission and ancillary services pricing systems, including the two-settlement system, locational pricing and financial transmission rights.
  - Participated in the development of regulatory filings and regulatory strategy for implementing electric industry restructuring and a competitive generation market.
  - Developed systems for allocating financial transmission rights, including a multi-round auction, auction revenue rights, and the “business solution”.
  - Assisted in developing alternative methods for transmission pricing.
- Participated in the development of the LMP system for the PJM interconnection.
- Assisted diverse parties, such as independent generators and marketers, in assessing restructured electricity markets in the U.S.
- Performed detailed analyses and built models of the impact of market and regulatory changes on the value of electric utility generation assets.
- Assisted with the development of models to forecast locational electricity prices.
- Evaluated the fit between restructured electricity markets and retail access programs.
- Estimated real and reactive locational marginal cost prices of power using linear programming models.
- Developed linear programming models to estimate ex post locational marginal cost electricity prices.
- Assessed market and regulatory risks confronting a consortium of energy utilities and analyzed the potential impact on their value and cost of capital.
- Developed testimony and analyses to assess regulatory policies requiring monetization of environmental externalities.
- Assessed the economic benefits of consolidating Massachusetts’s electric utilities.

**Other Consulting**

- Developed economic arguments and damages estimates for a case concerning alleged price discrimination in the wholesale gasoline market.
- Analyzed learning curves to support expert testimony concerning predatory behavior and patent infringement in the semiconductor industry.
- Estimated the market value of a closely held private company for a tax arbitration case.
- Assisted large multinational oil and gas clients in developing an economic foundation for cost allocation for an arbitration proceeding.
- Participated in evaluating the antitrust liability of a group of consumer product companies accused of price fixing.
- Developed data and economic arguments to support expert testimony concerning an allegation of tying of software products.

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**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**Long Term Firm Transmission Rights            )  
in Organized Electricity Markets                )**

**Docket No. RM06-8-\_\_\_**

**PREPARED DIRECT TESTIMONY  
OF  
DR. SUSAN L. POPE  
FOR THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**

January 29, 2007

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1 **I. EXECUTIVE SUMMARY**

2 In this filing, the CAISO seeks to provide long-term firm transmission rights in the CAISO, in  
3 compliance with the Commission's Final Rule and Order on Rehearing in this proceeding.<sup>1</sup> In  
4 the Final Rule, the Commission requires transmission organizations to offer long-term firm  
5 transmission rights with characteristics that will support long-term power supply arrangements.  
6 My testimony explains the economic rationale and benefits of many elements of the CAISO's  
7 proposal, and how these elements work within the previously proposed rules for the annual CRR  
8 Allocation to provide a complete and coherent plan for making Long Term Congestion Revenue  
9 Rights ("Long Term CRRs") available in the CAISO.

10 The CAISO's proposal for Long Term CRRs satisfies the seven guidelines that the  
11 Commission set forth in the Final Rule and, at the same time, requires minimal additions or  
12 changes to the CRR market rules contained in the CAISO's conditionally accepted  
13 Comprehensive Market Redesign and Technology Upgrade filing ("MRTU Tariff Filing"). The  
14 flexibility offered under the Final Rule has enabled the CAISO to propose a Long Term CRR  
15 allocation process that is integrated within its conditionally accepted annual allocation process  
16 for Seasonal CRRs.

17 Long Term CRRs are allocated in a new Tier LT, which has been added to the CAISO's  
18 conditionally-approved annual CRR allocation process. The additional Tier LT market rules  
19 offer LSEs an opportunity to extend the term of a portion of their Seasonal CRRs for nine

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1 FERC Final Rule, 116 FERC ¶61,077, 18 CFR Part 42, Docket No. RM06-8-000, Order No. 681, Long Term Firm Transmission Rights in Organized Electricity Markets, issued July 20, 2006 ("Final Rule"). FERC Order on Rehearing and Clarification, 117 FERC ¶61,201, 18 CFR Part 42, Docket No. RM06-8-000, Order No. 681-A, Long Term Firm Transmission Rights in Organized Electricity Markets, issued November 16, 2006 ("Order on Rehearing").

1 additional years. LSEs cannot obtain a quantity of Long Term CRRs that is in addition to the  
2 quantity of Seasonal CRRs for which they were eligible under the MRTU Tariff Filing. Tier LT  
3 thus provides LSEs with an additional choice for managing their congestion charges, within a  
4 combined cap on Seasonal CRR and Long Term CRR holdings, adding to the MRTU Tariff  
5 Filing provision that provides a priority process for LSEs to renew their Seasonal CRRs  
6 annually. Tier LT also makes use of the load metrics, procedures for CRR source validation and  
7 CRR nomination rules that were developed for the MRTU Tariff Filing. The usage of these  
8 previously-defined metrics and procedures greatly simplified the development of the Long Term  
9 CRR proposal, and will also simplify both the initial and on-going implementation of Tier LT.

10 Two major benefits stem from the CAISO's proposed integration of the Long Term CRR  
11 Allocation process into its allocation process for Seasonal CRRs. First, the approach maintains  
12 the equity balance among different CAISO stakeholder groups that was achieved in the CRR  
13 market rules that are part of the MRTU Tariff Filing. It would have been very difficult to make  
14 this Long Term CRR filing within the Commission's timetable, while also allowing sufficient  
15 time for stakeholder discussion, if many of the substantial CRR equity issues addressed in the  
16 MRTU Tariff Filing had been reopened.

17 Second, the additional rules introduced for the allocation of Long Term CRRs and the  
18 minor changes proposed to the rules for the allocation of Seasonal CRRs<sup>2</sup> maintain the market  
19 efficiency benefits that were carefully thought through in the design of the rules for the MRTU  
20 markets. The addition of Long Term CRRs is expected to bring further efficiency benefits by  
21 providing load serving entities with an additional way to manage the congestion charges

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<sup>2</sup> "Prepared Direct Testimony of Lorenzo Kristov," Docket No ER06-615-000, Exh. ISO-1. January 29, 2006, p. 11 (hereafter Kristov Testimony).

1 associated with their long-term energy supply arrangements. The availability of Long Term  
2 CRRs will be evaluated by LSEs, along with the cost of a range of transmission and generation  
3 alternatives, in determining how to most cost-effectively serve their load in the long run. In  
4 compliance with Guideline 2 of the Commission’s Final Rule, Long Term CRRs (as well as  
5 Seasonal CRR and Monthly CRRs) will be fully funded and also firm in megawatt quantity,  
6 which will reduce the risk that LSEs and other parties may face in developing new generation  
7 sources to serve their load.

8           The flexibility of the Final Rule enabled the CAISO to tailor the proposed Long Term  
9 CRR market rules to address issues that stakeholders raised in a number of stakeholder meetings  
10 and in written comments. The CAISO’s response to stakeholder views and suggestions is  
11 particularly relevant to several features of the CAISO proposal: the decision to propose a Long  
12 Term CRR market design that can be fully implemented at the time of MRTU start-up, rather  
13 than a market design that would need to be implemented in stages or in a scaled-down form; the  
14 proposal that load serving entities should be entitled to nominate tier 1 CRRs corresponding to  
15 sources and sinks of their Existing Transmission Contract (“ETC”) rights in the year following  
16 the expiration of an ETC contract; the proposal to move the historic period for CRR source  
17 verification up to a more recent year; and the proposal to allocate the cost of CRR full funding to  
18 Measured Demand.

19

## 20 **II. INTRODUCTION**

### 21 **1. Experience**

22 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

1 A. Susan L. Pope. My business address is Suite 300, 350 Massachusetts Avenue,  
2 Cambridge MA 02139.

3 **Q. DR. POPE, WHAT IS YOUR OCCUPATION?**

4 A. I am a principal with LECG, LLC an economic and management consulting company.

5 **Q. DR. POPE, PLEASE DESCRIBE YOUR QUALIFICATIONS.**

6 A. I have been working on the economic and public policy analysis of electricity market  
7 restructuring for over ten years. Starting in 1994 I was a consultant to the New York  
8 member systems concerning all aspects of the development of the market design and  
9 regulatory filings to restructure the New York Power Pool into the New York  
10 Independent System Operator (“NYISO”), including the design of the NYISO’s bid-  
11 based electricity markets, two-settlement system, and system of financial transmission  
12 rights (“FTRs”). I participated in the testing of the NYISO’s electricity markets and,  
13 after the start of the NYISO, contributed to several efforts to improve their markets,  
14 including a study of possible approaches to coordinating the day-ahead forward markets  
15 in the Northeast, and the design of a pre-scheduling system.

16 In the mid-1990s I was also involved in the development of market-based energy  
17 and transmission pricing systems for the PJM, Interconnection (“PJM”), leading to its  
18 implementation of Locational Marginal Prices (“LMPs”). In the late 1990s, I was  
19 involved in the NEPOOL stakeholder process that developed ISO-New England’s LMP-  
20 based multi-settlement system, and also led a number of stakeholder meetings on  
21 electricity market design in the Northwest (RTO West).

1           Since about 2001, my work has centered on the development and refinement of  
2           systems for allocating, auctioning and settling financial transmission rights. During the  
3           period 2001 to 2003, I worked intensively for the Midwest Independent Transmission  
4           System Operator, Inc., (“MISO”) in its stakeholder process to design the market rules for  
5           converting existing entitlements to transmission usage into financial transmission rights,  
6           and all other aspects of their FTR markets. Starting in 2003, I also assisted the SeTrans  
7           Sponsors with similar issues, helping them to develop rules for allocating financial  
8           transmission rights and awarding incremental financial transmission rights to parties that  
9           “participant fund” expansions to the transmission system. During this period, I consulted  
10          to the NYISO, leading stakeholder processes to develop incentives for improved  
11          transmission outage performance that are related to the funding of financial transmission  
12          rights and to develop market rules for awarding incremental financial transmission rights  
13          to parties funding transmission upgrades. This work for the NYISO led to substantial  
14          progress in the discussion and understanding of how to implement the simultaneous  
15          feasibility test for financial transmission rights that are issued as options.

16          I have worked with the CAISO since 2004, when I was a coauthor of an initial set  
17          of comments discussing issues relating to the original MD02 proposal for the Market  
18          Redesign and Technology Upgrade (“MRTU”) market rules (“LECG Report”).<sup>3</sup> I was  
19          the primary author of Section 8 of the LECG Report, which evaluated the financial  
20          transmission right elements (called Congestion Revenue Rights, or “CRRs” in the  
21          CAISO) of the MRTU rules. Beginning in May 2005, my colleague, Scott M. Harvey,

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<sup>3</sup> Scott M. Harvey, William W. Hogan, and Susan L. Pope, “Comments on the California ISO MRTU LMP Market Design,” February 23, 2005.

1 and I assisted the CAISO with the stakeholder process tasked with developing the details  
2 of the definition, allocation and auction of CRRs. We assisted the CAISO with the  
3 preparation of educational and discussion materials for stakeholder meetings, and led  
4 discussions and answered questions at the meetings. As part of this work, we prepared the  
5 CRR Study 2 Report,<sup>4</sup> and a subsequent addendum,<sup>5</sup> that analyzed the results of the  
6 CAISO's trial allocation process for CRRs. The intensive 2005 stakeholder process ended  
7 with the MRTU Tariff Filing at FERC on February 9, 2006.

8 The issues that I have addressed in the CAISO Long Term CRR market design  
9 process are similar to those that I have analyzed previously in the aforementioned work  
10 on behalf of the NYISO, MISO, SeTrans and the CAISO. My CV is attached as  
11 Appendix 1.

## 12 **2. Description of Work Performed**

13 **Q. PLEASE DESCRIBE THE WORK THAT YOU HAVE BEEN PERFORMING**  
14 **FOR THE CALIFORNIA ISO IN DEVELOPING THE LONG TERM**  
15 **CONGESTION REVENUE RIGHT ("LONG TERM CRR") DESIGN**  
16 **CONTAINED IN THIS FILING.**

17 **A.** Since October 2006 I have been meeting with the CAISO and participating in stakeholder  
18 meetings to assist in developing the proposed Long Term CRR market rules. I have  
19 attended some of these meetings in person and have participated in others by conference

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<sup>4</sup> Scott M. Harvey and Susan L. Pope, "CRR Study 2 Evaluation of Alternative CRR Allocation Rules," August 24, 2005.

<sup>5</sup> Scott M. Harvey and Susan L. Pope, "CRR Study 2 Addendum," September 30, 2005.

1 call. I have listened to issues raised by stakeholders and the CAISO and have provided  
2 information and assessments of economic and market issues based on my understanding  
3 of the MRTU Tariff Filing, experience with CRR market design and knowledge of CRR  
4 rules in other ISOs operating under LMP. I have provided comments on multiple drafts of  
5 the white paper that the CAISO has developed to describe the proposed Long Term CRR  
6 market rules.

7 **3. Purpose of Testimony**

8 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

9 **A.** The purpose of my testimony is to provide a conceptual explanation of CRRs, to  
10 summarize at a high level the CAISO's proposal for the definition and allocation of Long  
11 Term CRRs and to explain how the Long Term CRR proposal meets the requirements of  
12 the Commission's Order Nos. 681 and 681-A (*i.e.*, the Final Rule and the Order on  
13 Rehearing) and the goals established by the CAISO for its design of Long Term CRRs.  
14 My testimony will explain the economic rationale and benefits of a number of elements  
15 of the Long Term CRR proposal, and how these elements work along with the CAISO's  
16 previously filed rules for the annual CRR Allocation to provide a complete and coherent  
17 plan for making Long Term CRRs available in the CAISO to provide load serving  
18 entities with an opportunity to manage the congestion charges incurred for their long-  
19 term supply arrangements. I should note that the scope of my testimony does not include  
20 the CAISO's compliance with Commission orders regarding CRRs (both long-term and  
21 short-term) for sponsors of merchant transmission projects. The Transmittal Letter

1 submitted with this filing explains the CAISO's plan to develop the methodology for  
2 CRRs associated with merchant transmission projects.

3 **Q. WHAT IS THE DIFFERENCE IN PURPOSE BETWEEN YOUR TESTIMONY**  
4 **AND THAT OF DR. LORENZO KRISTOV?**

5 **A.** The testimony of Dr. Lorenzo Kristov in Exhibit No. ISO-1 provides a more detailed  
6 explanation of the proposed process for allocating Long Term CRRs and other elements  
7 of this Long Term CRR compliance filing. He provides practical explanations of a  
8 number of elements of the proposed definition and allocation of Long Term CRRs, and of  
9 related topics such as the allocation of CRRs to out-of-control area load and to retail load  
10 that changes its retail service provider. While both pieces of testimony discuss CAISO  
11 and stakeholder issues and concerns that affect the design of the Long Term CRR market  
12 rules, my testimony primarily focuses on economic and market issues.

13 **4. Organization of Testimony**

14 **Q. PLEASE DESCRIBE HOW YOUR TESTIMONY IS ORGANIZED.**

15 **A.** Following the executive summary and this introductory section, my testimony explains a  
16 number of CRR concepts, such as revenue adequacy and simultaneous feasibility, that are  
17 foundational knowledge for discussion of CRR market design. The next section, Section  
18 IV, describes the characteristics of the proposed Long Term CRR instrument, and how  
19 this is a longer-term version of the Seasonal CRRs and Monthly CRRs that are already  
20 part of the CAISO's MRTU rules. Section V summarizes the proposal for allocating  
21 Long Term CRRs by adding a Tier LT to the three tiers already filed for the annual



1 allocation of Seasonal CRRs. This section contains Table A, summarizing how Tier LT  
2 fits within the four tier structure of the annual allocation process. In Section VI, I discuss  
3 how the CAISO Long Term CRR proposal satisfies each of guidelines in the  
4 Commission's Final Rule, and three additional goals that the CAISO articulated at the  
5 beginning of the Long Term CRR stakeholder process.

### 6 **III. LONG TERM CRR BACKGROUND**

#### 7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS SECTION?**

8 **A.** The purpose of this section is to provide a conceptual explanation of Long Term CRRs  
9 and of how conceptual issues impacting the overall CRR market design extend to Long  
10 Term CRRs. This provides background for discussion of the specific Long Term CRR  
11 definition, design and allocation choices that are being proposed by the CAISO in the  
12 following sections of this testimony.

#### 13 **Q. WHAT IS A LONG TERM CRR AS THAT TERM IS USED IN THE CAISO** 14 **PROPOSAL?**

15 **A.** In LMP markets such as those coordinated by PJM, NYISO, ISO-NE and MISO, and in  
16 the LMP market under development by the CAISO, traditional firm transmission rights  
17 have been largely replaced by source-to-sink financial transmission rights called CRRs.<sup>6</sup>

---

<sup>6</sup> The concept of financial transmission rights was originally developed by William Hogan and it was first implemented in PJM on April 1, 1998. Source-to-sink financial transmission rights are referred to as FTRs in PJM, New England and the Midwest, TCCs in NYISO, and were referred to as CRRs in the FERC NOPR for a standard market design. In developing its LMP market design the CAISO uses the term CRRs to distinguish the new LMP-based financial instruments from the "Firm Transmission Rights" or "FTRs" that exist within the current zonal market design in California. Most of these regions had provisions for "grandfathering" some traditional third-party transmission rights in the transition to CRRs

1 The Long Term CRR product the CAISO intends to offer is developed based on the  
2 CRRs conditionally approved by the Commission for implementation under the CAISO's  
3 MRTU. Therefore Long Term CRRs possess essentially the same features as the shorter  
4 term CRRs already contemplated under MRTU. With the inclusion of Long Term CRRs,  
5 the Annual and Monthly CRRs under the conditionally approved MRTU Tariff Filing  
6 have been renamed as "Seasonal" and "Monthly" CRRs. Therefore, the CAISO will now  
7 make available three types of CRRs: Seasonal CRRs that are allocated yearly, Monthly  
8 CRRs and now Long Term CRRs.<sup>7</sup> These instruments possess the same characteristics,  
9 as I will explain further below, differing only in the length of their terms and the process  
10 through which they are allocated and/or auctioned.

11 **Q. DESCRIBE THE FEATURES OF THE LONG TERM CRR.**

12 **A.** Like the shorter-term CRRs, ownership of Long Term CRRs serves to hedge market  
13 participants that have long-term load serving obligations and resource commitments  
14 against changes in the level of LMP-based congestion charges that they incur in  
15 scheduling energy from these resources to meet their load in the day-ahead market. Also,  
16 just like CRRs, the owner of a Long Term CRR obligation pays or is paid the hourly cost  
17 of congestion (\$/MWh) between specified locations on the transmission system in every  
18 hour of the period to which the Long Term CRR applies.<sup>8</sup> Specifically, a Long Term  
19 CRR from location A to location B entitles the holder to be paid the difference between

---

<sup>7</sup> A fourth type of CRR will be allocated in respect of the incremental transmission capacity created by parties that fund merchant transmission upgrades.

<sup>8</sup> CRRs may be issued as "options" or "obligations," but have generally been implemented as obligations. Unless specifically stated to the contrary, the term CRR or Long Term CRR will be used to mean a CRR obligation or Long Term CRR obligation in this testimony. CRR options will be discussed in a later section.

1 the congestion component of the day-ahead LMP price at B and the congestion  
2 component of the day-ahead LMP price at A.<sup>9</sup> Since the formula used to determine  
3 payments to Long Term CRR holders is identical to the formula used to calculate  
4 congestion charges, if a market participant schedules injections and withdrawals of power  
5 in the day-ahead market at the source and sink of its Long Term CRR in the megawatt  
6 amount of its Long Term CRR, the payment and charge will net to zero and the market  
7 participant will incur no net congestion charges for its transmission usage (the CRR  
8 Holder would pay Congestion Component<sub>b</sub> – Congestion Component<sub>a</sub> in congestion  
9 charges for transmission use, injecting power at A and withdrawing it at B, and receive  
10 Congestion Component<sub>b</sub> – Congestion Component<sub>a</sub> for its Long Term CRRs). Like the  
11 shorter-term CRRs, a Long Term CRR is therefore financially equivalent to a firm  
12 transmission right for transactions scheduled in the day-ahead market because the holder  
13 is able to inject power at A and withdraw power at B without paying for congestion.  
14 CRR ownership, of either shorter-term CRRs or Long Term CRRs, provides the financial  
15 equivalent of firm point-to-point transmission service if the transmission usage the CRR  
16 Holder schedules in the day-ahead market matches its financial rights.

17 **Q. WHAT DISTINGUISHES A LONG TERM CRR FROM OTHER CRRS?**

---

<sup>9</sup> CAISO LMP prices will reflect differences in both congestion and losses so CRRs will be settled based on the difference in the congestion components of the LMP prices. In LMP pricing systems that do not include the cost of losses, the difference in the congestion components of the LMP prices is equal to the difference in the LMP prices themselves so CRRs can be settled in such systems based on the difference in LMP prices between the source and sink.

1 A. Only the term (duration) of the CRR, and in the case of the CAISO, the process through  
2 which the Long Term CRR is allocated. Like other CRRs, a Long Term CRR is defined  
3 by a source, sink, a number of megawatts and the period for which it is valid.

4 **Q. HAVE LONG TERM CRRS BEEN IMPLEMENTED IN OTHER ISOS WITH**  
5 **ELECTRICITY MARKETS BASED ON LMP?**

6 A. No, although other areas may also be filing plans for Long Term CRRs concurrently with  
7 the CAISO in compliance with the Commission's Final Rule. The Commission  
8 conditionally approved tariff amendments, with modification, to implement long-term  
9 auction revenue rights ("LT ARR") in PJM.<sup>10</sup> I will discuss similarities and  
10 differences between the CAISO Long Term CRR proposal and the PJM LT ARR system  
11 at relevant points in this testimony. I will not comment on the Long Term CRR or LT  
12 ARR approaches that are under development in other ISOs, since these may not  
13 necessarily be in their final form at the time of this writing.

14 **1. CRR Quantity, Transfer Capability and Revenue Adequacy**

15 **Q. HOW MANY LONG TERM CRRS CAN BE AWARDED?**

16 A. The award of Long Term CRRs is constrained by the same consideration that limits the  
17 overall award of any set of CRRs that will be valid at the same time. A fundamental  
18 principle running through the design of CRR systems is that there is a tradeoff between  
19 the quantity of CRRs that may be issued and whether or not sufficient congestion charges

---

<sup>10</sup> "Order Accepting Long Term Transmission Rights Proposal, Subject to Modifications," 117 FERC ¶ 61,220 (November 22, 2006) ("PJM LT ARR Order").

1 will be collected in the settlement of an LMP system to fully fund the payments due to  
2 the holders of these CRRs.

3 **Q. PLEASE EXPLAIN THE OVERALL LIMIT ON THE AWARD OF CRRS.**

4 **A.** Like traditional firm transmission rights, the award of financial transmission rights such  
5 as CRRs is intended to be limited by the transfer capability of the transmission system.  
6 The number of CRRs awarded, including any CRRs that are Long Term CRRs, is limited  
7 by a simultaneous feasibility test (“SFT”) to ensure that the awarded CRRs do not exceed  
8 the transfer capability of the transmission system. The reason for this link between the  
9 award of CRRs and the transfer capability of the transmission system is that payments to  
10 CRR Holders must be funded. These payments are intended to be funded by the  
11 congestion charges collected by the CAISO in settling the day-ahead market, which in  
12 turn depends on the transmission transfer capability that is available for day-ahead  
13 schedules.

14 **Q. HOW DO CONGESTION CHARGES ARISE IN SETTLING LMP MARKETS**  
15 **AND HOW ARE THEY LIMITED BY DAY-AHEAD TRANSMISSION**  
16 **TRANSFER CAPABILITY?**

17 **A.** When there is congestion under an LMP pricing system, there will be differences  
18 between locational prices across the grid reflecting congestion charges that will cause the  
19 ISO to collect congestion revenues or rents.<sup>11</sup> This must be the case under an LMP

---

<sup>11</sup> Congestion rents are produced by the difference between the prices paid to generators and paid by loads. The total congestion rents in an hour are calculated by multiplying the net injections at each location on the CAISO grid by the congestion component of the LMP price at that location.

1 pricing system because the existence of congestion necessarily implies that some  
2 generator will be paid a lower price for its power than the price at which that power will  
3 be sold to load located within a constrained region. It is these congestion rents that are the  
4 primary source of funding for payments to all CRR Holders, including holders of Long  
5 Term CRRs. The congestion rents collected by an ISO, in the form of congestion  
6 charges, will be limited, however, by the physical transfer capability of the transmission  
7 system. For this reason, the physical transfer capability of the transmission system also  
8 limits the CRR payments that can be funded from these congestion rents.

9 **Q. HOW WILL THE CAISO DETERMINE WHETHER SEASONAL, MONTHLY**  
10 **AND LONG TERM CRRS ISSUED CAN BE FUNDED FROM THE**  
11 **CONGESTION CHARGES COLLECTED FOR THE USE OF TRANSMISSION**  
12 **SYSTEM?**

13 **A.** The determination that a set of CRRs, which in the case of the CAISO will consist of  
14 Seasonal CRRs, Monthly CRR and Long Term CRRs, can be funded with reasonable  
15 assurance from the congestion rents the ISO collects is called CRR revenue adequacy.  
16 The property of revenue adequacy for a set of CRRs means that the congestion rents an  
17 ISO collects in charges for congestion under LMP pricing will be sufficient for the ISO to  
18 fund payments to CRR Holders, *regardless of the differing uses of the grid in any actual*  
19 *hour*. Revenue adequacy is an important issue for CRR systems and is governed by  
20 several revenue adequacy theorems. The most basic of these revenue adequacy theorems

1 is William Hogan's 1992 proof that a set of CRR obligations<sup>12</sup> is revenue adequate if the  
2 market is cleared and prices are determined in a least-cost, contingency-constrained  
3 dispatch, and the set of injections and withdrawals corresponding to the CRRs is  
4 simultaneously feasible in a contingency constrained dispatch of the same grid that is  
5 used to clear the market.<sup>13</sup> An important point is that this proof does not require the  
6 CRRs to match the energy schedules in the market. *Any* simultaneously feasible set of  
7 net injections and loads can describe a set of revenue-adequate CRRs, and that set of  
8 CRRs will remain revenue-adequate for that grid (transmission facilities and contingency  
9 set) *even if actual energy schedules on the grid differ from the set of injections and loads*  
10 *matching the CRRs*. The significance and usefulness of the revenue adequacy theorem is  
11 that a set of CRRs satisfying the simultaneous feasibility criteria will be revenue adequate  
12 not only when grid use (injections and withdrawals) matches CRR sources and sinks but  
13 even when grid use is entirely different from the sources and sinks of the awarded CRRs,  
14 as long as the transmission grid that was the basis for the simultaneous feasibility test  
15 remains fully available in the dispatch used for CRR settlements. The award of  
16 financial transmission rights such as CRRs in either an auction or allocation process is  
17 therefore intended to be limited by a simultaneous feasibility condition to reasonably  
18 ensure that the congestion charges collected by the ISO are sufficient to fund payments to  
19 CRR Holders. The simultaneous feasibility condition for CRRs issued as obligations is  
20 that the awarded CRRs must be simultaneously feasible in a contingency constrained

---

<sup>12</sup> CRR obligations entitle the holder to payments if the difference in congestion components between the CRR sink and source is positive, but require payments if the difference is negative.

<sup>13</sup> See William W. Hogan, "Contract Networks for Electric Power Transmission," *Journal of Regulatory Economics*, Vol. 4 #3, September 1992, pp. 211-242.

1 dispatch of the transmission system used to schedule the market. In the application of  
2 this test for a given time period, such as a season, each CRR that is valid or proposed to  
3 be valid in the time period is modeled as an injection at the CRR source and a withdrawal  
4 at the CRR sink of the appropriate number of megawatts.

5 **Q. HOW IS THE APPLICATION OF THE SIMULTANEOUS FEASIBILITY TEST**  
6 **AFFECTED BY THE INTRODUCTION OF LONG-TERM CRRS?**

7 **A.** Each time that a test is run to determine the simultaneous feasibility of a set of CRRs,  
8 such as the tests that will be conducted annually for the allocation of Seasonal CRRs, all  
9 Long Term CRRs that will be valid during the time period covered by the test must be  
10 included and modeled as a fixed injection at the Long Term CRR source and a fixed  
11 withdrawal at the Long Term CRR sink for the appropriate number of megawatts.<sup>14</sup>

12 **Q. WILL THE CONGESTION RENTS COLLECTED BY THE CAISO IN THE**  
13 **DAY-AHEAD MARKET ALWAYS BE SUFFICIENT TO FULLY FUND**  
14 **PAYMENTS TO CRR HOLDERS?**

15 **A.** No. The CAISO will settle CRRs based on prices in the day-ahead market and the  
16 congestion rents collected by the CAISO in the day-ahead market will not necessarily be  
17 sufficient to fully fund payments to CRR Holders if the grid model used to test  
18 simultaneous feasibility is different from the grid model used to settle the CRRs in the  
19 day-ahead market. LMP-based congestion rent collections may be insufficient to fully  
20 fund the required payments to CRR Holders if elements of the transmission grid that were

---

<sup>14</sup> See Proposed Tariff at § 36.4.1.



1 modeled as in service in the simultaneous feasibility test for CRRs are modeled as out of  
2 service in the market in which the CRRs are settled, as a result of either maintenance or  
3 forced outages.<sup>15</sup> In essence, the payments due to CRR Holders are hedged by the  
4 transfer capacity of the transmission system, and if the transfer capability of the  
5 transmission system is reduced, the hedge provided by the transmission system is no  
6 longer necessarily sufficient to cover these payments. Conversely, if transmission lines  
7 modeled as out of service in the simultaneous feasibility test in the CRR Allocation or  
8 auction process are available in the market in which CRRs are settled, then there is a  
9 potential for the collection of a congestion rent surplus in settling the market.<sup>16</sup> All  
10 LMP-based markets must account in one manner or another for the possibility of  
11 congestion rent short-falls (or surpluses) arising from transmission outages and returns to  
12 service.

13 **Q. WILL THE INTRODUCTION OF LONG-TERM CRRS AFFECT THE**  
14 **REVENUE ADEQUACY OF THE CRRS, INCLUDING SEASONAL AND**  
15 **MONTHLY CRRS, ISSUED BY THE CAISO?**

16 **A.** No, as long as the CAISO takes Long Term CRRs into account in determining the  
17 simultaneous feasibility of the additional Seasonal and Monthly CRRs that it issues in the  
18 future, and so long as it also applies tests to insure that the Long Term CRRs that it issues

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<sup>15</sup> Revenue inadequacy may also occur due to other changes in grid availability in the day-ahead market relative to that modeled in the simultaneous feasibility test for CRRs. These include differences in unscheduled grid use (loop flow), phase angle regulator settings, and transmission limits. There may also be revenue inadequacy if the prices used to settle CRRs are not the result of a least-cost dispatch.

<sup>16</sup> It is also possible in some circumstances for the return to service of a line modeled as out of service in the preceding auction or allocation to give rise to congestion rent shortfall but this is an unusual circumstance.

1 are simultaneously feasible on a stand-alone basis, without regard to which Seasonal or  
2 Monthly CRRs might be issued.

3 **2. CRR Options and Obligations**

4 **Q. DESCRIBE THE DIFFERENCES BETWEEN, AND THE POSSIBLE PURPOSES**  
5 **FOR, CRR “OBLIGATIONS” AND CRR “OPTIONS.”**

6 **A.** CRRs may be divided into two types with respect to how they are settled by the ISO, in  
7 addition to distinctions arising from differences in term length. A CRR obligation entitles  
8 the holder to a payment when the difference in congestion components between the sink  
9 and the source of the CRR is positive, but requires a payment by the holder if the  
10 difference is negative. A CRR obligation can provide a perfect congestion hedge even in  
11 the circumstance in which the CRR obligation entails a payment by the CRR Holder,  
12 because the transaction hedged by that CRR would receive an offsetting congestion  
13 payment for providing counterflow so the net congestion charge would still be zero.  
14 Under LMP, a transmission schedule from a high priced location to a low priced location  
15 is paid for providing counterflow rather than being charged for congestion. The potential  
16 for a CRR to entail payments rather than the receipt of revenues means that CRR  
17 obligations can be risky, however, if the CRR is held for speculation rather than to hedge  
18 a transaction. It is also possible to issue CRRs as options. CRRs issued as options entitle  
19 the holder to the difference in congestion components between the CRR source and sink  
20 if the difference is positive, but do not require payment when it is negative. The principal  
21 difficulty in implementing a system including CRR options has been the complexity of  
22 implementing a revenue adequacy test for CRR options. A set of CRR options is revenue

1 adequate if the set of injections and withdrawals corresponding to the CRR options is  
2 simultaneously feasible in a contingency constrained dispatch for all possible exercise  
3 levels and combinations of exercise levels for every CRR issued as an option.<sup>17</sup> This  
4 means that all possible combinations of the CRR options must be simultaneously  
5 feasible.

6 **Q. CAN LONG-TERM CRRS BE EITHER OBLIGATIONS OR OPTIONS?**

7 **A.** Yes, but as described in more detail below, the CAISO is proposing Long Term CRRs  
8 that would be obligations.

9 **IV. DESCRIPTION OF PROPOSED LONG TERM CRR INSTRUMENT**

10 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR TESTIMONY IN THIS**  
11 **SECTION.**

12 **A.** In this section I will explain the definition and design of the Long Term CRR financial  
13 instrument that is being proposed by the CAISO.

14 **Q. PLEASE DESCRIBE THE LONG TERM CRRS PROPOSED BY THE CAISO.**

15 **A.** Long Term CRRs will be source-to-sink financial rights allocated to LSEs and eligible  
16 out-of-Control Area load serving entities (“OCALSEs”), defined identically to the CRRs  
17 proposed by the CAISO in its MRTU Tariff Filing and approved by the Commission on

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<sup>17</sup> Scott M. Harvey, William W. Hogan, and Susan L. Pope, “Transmission Capacity Reservations and Transmission Congestion Contracts” (hereafter Harvey-Hogan-Pope 1996) June 6, 1996 (revised March 8, 1997), pp. 41-44. William Hogan, “Financial Transmission Right Formulations,” March 31, 2000.

1           September 21, 2006.<sup>18</sup> The primary difference is that they are valid for a longer term  
2           than CRRs, and have their own allocation and trading rules.

3   **Q.    WILL THE LONG TERM CRRS PROPOSED BY THE CAISO BE ISSUED AS**  
4   **OBLIGATIONS OR OPTIONS?**

5   **A.**   Like CRRs, Long Term CRRs allocated to LSEs and eligible OCALSEs will only be  
6           issued as obligations. As explained previously, this means that the CRR payment could  
7           be positive or negative.<sup>19</sup>

8   **Q.    PLEASE DESCRIBE THE OTHER WAYS IN WHICH LONG TERM CRRS ARE**  
9   **DEFINED LIKE CRRS.**

10   **A.**   Long Term CRRs will be purely point-to-point financial rights; they will be settled in the  
11           day-ahead market identically to Seasonal and Monthly CRRs. The payment to the Long  
12           Term CRR obligation holder will be the difference between the congestion component of  
13           the LMP price in the day-ahead market at the Long Term CRR sink and at the Long Term  
14           CRR source. In the case of Long Term CRRs sinking at a Load Aggregation Point  
15           (“LAP”), the congestion component will be the weighted average of the congestion  
16           components of the individual nodes comprising the LAP, based on the weights used to  
17           define the LAP in the day-ahead market.<sup>20</sup> Long Term CRRs will not convey any

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<sup>18</sup> *California Independent System Operator Corporation*, 116 FERC ¶ 61,274 (2006) (“September 21 Order”).

<sup>19</sup> MRTU Tariff, Sections 11.2.4.2.2 and 36.2.1.

<sup>20</sup> MRTU Tariff, Section 11.2.4.2. It is my understanding that the CAISO intends to ultimately calculate LAP prices for CRR settlements using the same weights used to define the LAP in the simultaneous feasibility test, providing greater assurance of revenue adequacy. This is consistent with the way FTRs sinking at load zones are settled in PJM. It is my understanding, however, that software limitations will not permit CRRs to be valued in the day-ahead market using LAP weights from the simultaneous feasibility test at the time of MRTU

1 scheduling priority in the day-ahead market or in real-time operations and the Long Term  
2 CRR holder will be paid regardless of whether it schedules a transaction matching its  
3 CRR in the day-ahead market and regardless of the pattern of its real-time generation and  
4 loads.

5 **Q. WILL THE AWARDED LONG TERM CRRS SATISFY A SIMULTANEOUS**  
6 **FEASIBILITY TEST?**

7 **A.** Yes. The Long Term CRRs awarded in each year will satisfy a simultaneous feasibility  
8 test in combination with reservations for existing transmission rights, transmission  
9 ownership rights, CRRs awarded to parties that have funded merchant transmission  
10 upgrades, set-asides of intertie capacity for the CRR auctions and any previously issued  
11 Long Term CRRs. Long Term CRR awards must satisfy this simultaneous feasibility test  
12 for every year in which they will be valid, taking into account differences in existing  
13 transmission rights, converted transmission rights, transmission ownership rights (those  
14 not already included in the transmission model), CRRs awarded to parties that have  
15 funded merchant transmission upgrades, set-asides of intertie capacity for the CRR  
16 auctions. and previously issued Long Term CRRs pertaining to each year.

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start-up. The proposed settlement methodology that will be used at start-up is workable and is consistent with the way CRRs sinking at load zones have been settled in NYISO. There is, however, a potential for revenue inadequacy as a result of this difference between the load weights used in the various CRR simultaneous feasibility tests and in determining LAP prices in the day-ahead market. In implementing the methodology in the software that will be used at the time of MRTU start-up it will be important to limit the potential for substantial congestion rent shortfalls arising from the potential infeasibility of CRRs sinking at LAPS defined based on day-ahead market load weights. To do this, the CAISO should use load weights in the CRR simultaneous feasibility test that are centered on the load weights that will be used in the day-ahead market when the system has high congestion costs to the LAP. This task is likely to be complicated by the broad extent of the LAPs, which can lead to multiple potential constrained subregions. The issue I just described exists for the conditionally-approved one-year CRRs (*i.e.*, Monthly and Seasonal CRRs) as well as Long Term CRRs.

1 **Q. PLEASE DESCRIBE THE SETTLEMENT ASPECTS OF LONG TERM CRRS**  
2 **(E.G., THE TIMING OF CONGESTION PAYMENTS AND RECEIPTS).**

3 **A.** Market participants will in general be credited with Long Term CRR settlements on the  
4 same monthly invoice on which congestion charges and other CRR payments and credits  
5 are assessed.

6 **Q. PLEASE DESCRIBE THE TERM OF THE LONG TERM CRRS THAT WILL BE**  
7 **AWARDED BY THE CAISO.**

8 **A.** Long Term CRRs that are allocated to LSEs and eligible OCALSEs through an annual  
9 allocation process will have a term of 10 years. The Long Term CRRs are in addition to  
10 Seasonal CRRs, which will be allocated and auctioned in an annual process, and Monthly  
11 CRRs, which will be allocated and auctioned monthly.

12 **Q. WILL LONG TERM CRRS BE DEFINED BY SEASONS?**

13 **A.** The Long Term CRRs allocated to LSEs and eligible OCALSEs through the annual  
14 allocation process will be defined by the same seasonal definitions used for the Seasonal  
15 CRRs that will be allocated annually by the CAISO. For both Long Term CRRs and  
16 CRRs, the seasons will correspond to the four calendar quarters.

17 **Q. IS THE SEASONAL DEFINITION PROPOSED BY THE CAISO DIFFERENT**  
18 **THAN THE DEFINITION CONTAINED IN ITS FEBRUARY 9, 2006 MRTU**  
19 **TARIFF FILING?**

20 **A.** Yes. The CAISO previously proposed to use the WECC's definition of seasons. In the  
21 process of preparing for the CRR Dry Run, however, the participants argued that it would

1 be more appropriate for California to use conventional calendar quarters to define the  
2 seasons for CRRs, and since this view was unopposed the CAISO decided to adopt this  
3 definition for both the CRR Dry Run and the actual production CRR allocation and  
4 auction processes. The design of the CAISO's Long Term CRR proposal dictates that  
5 whatever definition of seasons is adopted for Seasonal CRRs apply to Long Term CRRs  
6 as well.

7 **Q. WILL LONG TERM CRRS BE DEFINED BY TIME OF USE?**

8 **A.** Yes. All Long Term CRRs will be defined by time of use. Each Long Term CRR will be  
9 valid in either the on peak period or the off peak period.

10 **Q. WHAT ENTITIES WILL BE ALLOCATED LONG TERM CRRS?**

11 **A.** Long Term CRRs will be allocated to LSEs and eligible OCALSEs. As the MRTU Tariff  
12 Filing indicates in Section 36.11, the CAISO will also make available CRRs for parties  
13 that fund transmission upgrades or expansions but do not recover such costs through a  
14 regulatory cost recovery mechanisms. As explained by Dr. Kristov in his testimony, the  
15 CAISO will develop the details of this methodology in compliance with Commission  
16 orders in the MRTU Docket No. ER06-615.

17 **Q. WILL PARTIES HAVE TO SATISFY CREDIT REQUIREMENTS TO HOLD**  
18 **LONG TERM CRRS?**

19 **A.** Yes. Because Long Term CRRs are issued as obligations, some Long Term CRRs may,  
20 in effect, be counterflow in some hours, or become counterflow over time. When a CRR  
21 is counterflow, it means that the holder will be obligated to make a payment, rather than

1 receive a payment, based on the prices in the day-ahead market. The award of other  
2 positively valued Long Term CRRs or Seasonal or Monthly CRRs may have been found  
3 to be feasible only because of the presence of these counterflow Long Term CRRs. The  
4 CRRs awarded by the CAISO will only be revenue adequate, however, if the holders of  
5 negatively valued Long Term CRRs make the payments to which they are obligated. It is  
6 therefore necessary to apply credit standards to Long Term CRR holders. This is  
7 particularly important in case of Long Term CRRs because of the long-term nature of the  
8 obligation, and the possibility that the congestion value of the Long Term CRR could  
9 change over time due to changes in the network configuration and flows.

10 **Q. WILL THE LONG TERM CRR DESIGN PROPOSED BY THE CAISO**  
11 **PROVIDE LSES WITH INSULATION FROM ALL CONGESTION COSTS IN**  
12 **EVERY HOUR OF THE YEAR?**

13 **A.** No. The ability of LSEs and eligible OCALSEs to protect themselves against congestion  
14 costs with CRRs and Long Term CRRs under the CAISO's proposed design is limited by  
15 the transfer capability of the grid. So load serving entities in aggregate will not be able to  
16 obtain CRRs and Long Term CRRs that cover their entire load against congestion  
17 charges. The amount of load within constrained regions that can be met with low cost  
18 generation located outside the constrained area is limited by the ability of the  
19 transmission system to support imports. If congestion exists, not all load can be met with  
20 low cost generation located outside the constrained region and some high cost generation  
21 located within the constrained region will be dispatched at the margin to meet load. In  
22 these congested situations, the load in the congested region will pay a high LMP price  
23 because of the need at the margin to dispatch high-cost local generation; this price



1 includes congestion costs. Neither CRRs, Long Term CRRs nor traditional firm  
2 transmission rights can provide full protection against the congestion costs implicitly paid  
3 when it is necessary to dispatch high-cost local generation.

4 **Q. ARE HOLDERS OF LONG TERM CRRS FULLY PROTECTED FROM**  
5 **CONGESTION REVENUE INSUFFICIENCY?**

6 **A.** Yes. As explained in the testimony of Dr. Lorenzo Kristov and in Section VI.1.b of this  
7 testimony, the CAISO is proposing that both short-term CRRs (*i.e.*, Seasonal and  
8 Monthly CRRs) and Long Term CRRs will be fully funded. Full funding means that a  
9 Long Term CRR holder will be paid the full congestion value of its Long Term CRR in  
10 every hour of the day-ahead market.

11 **Q. WILL SEASONAL AND MONTHLY CRRS ALSO BE FULLY FUNDED?**

12 **A.** As also explained in the testimony of Dr. Lorenzo Kristov, in complying with the  
13 Commission's requirement to fully fund Long Term CRRs, the CAISO is also proposing  
14 to fully fund Seasonal CRRs and Monthly CRRs.<sup>21</sup>

15 **Q. DOES THE LONG TERM CRR DESIGN PROTECT LOAD SERVING**  
16 **ENTITIES AGAINST VOLATILITY IN THE COST OF TRANSMISSION**  
17 **LOSSES?**

18 **A.** No. Just like the CRR design conditionally approved by the Commission in the  
19 September 21, 2006 Order, Long Term CRRs will only cover the congestion component

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<sup>21</sup> See Proposed Tariff § 11.2.4.4.1.

1 of CAISO transmission charges. If load serving entities wish to hedge themselves against  
2 increases in the price of power that would correspondingly raise loss charges, they could  
3 do so by entering into forward energy contracts covering their estimated loads plus  
4 transmission losses.

5 **V. LONG TERM CRR ALLOCATION PROCESS**

6 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR TESTIMONY IN THIS**  
7 **SECTION.**

8 **A.** In this section, I will summarize the process that the CAISO is proposing to use annually  
9 to allocate Long Term CRRs to LSEs and eligible OCALSE. This process is embedded  
10 within the annual allocation process for Seasonal CRRs that was submitted as part of the  
11 MRTU Tariff Filing and conditionally approved by the Commission in the September 21  
12 Order. For this reason, this section will summarize the annual CRR Allocation process at  
13 a high level and also explain the additional steps that have been proposed to provide for  
14 the annual allocation of Long Term CRRs. Discussion and evaluation of the proposed  
15 Long Term CRR Allocation rules occurs in Section VI.

16 **Q. PLEASE PROVIDE AN OVERVIEW OF THE CRR ALLOCATION AND**  
17 **AUCTION PROCESSES THAT HAVE ALREADY BEEN CONDITIONALLY**  
18 **APPROVED BY THE COMMISSION.**

19 **A.** Under the MRTU, ETCs pre-dating the formation of the CAISO will be honored by  
20 providing transmission service without charging for congestion. Taking ETCs, Converted  
21 Rights (“CVRs”) and Transmission Ownership Rights (“TORs”) into account, the  
22 CAISO will allocate additional CRRs in annual and monthly processes to the CAISO

1 LSEs on behalf of the CAISO load that they serve (and to entities serving external loads  
2 that qualify). Finally, the CAISO will also hold auctions of CRRs following each annual  
3 and monthly allocation process.

4 **Q. WHICH OF THESE PROCESSES ARE AFFECTED BY AND INTEGRATED**  
5 **WITH THE LONG-TERM CRR ALLOCATION PROPOSAL?**

6 **A.** The Long Term CRR Allocation proposal is integrated with the existing process for the  
7 allocation and auction of Seasonal CRRs. The processes for auctioning Seasonal and  
8 Monthly CRRs, and for allocating Monthly CRRs are not affected by the Long Term  
9 CRR allocation proposal and will not be discussed further within this testimony.

10 **Q. WILL THE ELIGIBILITY OF LOAD-SERVING ENTITIES TO RECEIVE AN**  
11 **ALLOCATION OF CRRS REMAIN AS FILED IN THE MRTU DOCKET?**

12 **A.** Yes. Each load serving entity's eligibility for Seasonal and Monthly CRRs, as filed in  
13 the MRTU Filing, has not changed, but load-serving entities will have the additional  
14 alternative of requesting that a portion of their Seasonal CRRs be extended as Long Term  
15 CRRs.

16 **Q. CAN LSES SERVING LOADS EXTERNAL TO THE CAISO ACQUIRE LONG**  
17 **TERM CRRS IN THE ALLOCATION PROCESS?**

18 **A.** Yes. As discussed in the testimony of Dr. Lorenzo Kristov, the CAISO has defined a  
19 firm transmission service product that will entitle entities serving external loads,  
20 generally referred to as out-of-Control Area load serving entities or OCALSEs to  
21 nominate Long Term CRRs in the annual CRR Allocation process, so long as they make

1 a showing of legitimate need for the Long Term CRRs they nominate and annually  
2 prepay the appropriate wheeling access charge for the Long Term CRRs they are  
3 awarded.<sup>22</sup> OCALSEs that prepay for transmission service will incur the same  
4 continuing obligation to pay the embedded costs of the CAISO grid as CAISO LSEs do  
5 and will be able to nominate Long Term CRRs in the annual process. Their nominations  
6 will be considered simultaneously with Long Term CRR nominations from the internal  
7 LSEs.

8 **Q. PLEASE PROVIDE AN OVERVIEW OF THE PROPOSED PROCESS FOR**  
9 **ALLOCATING LONG TERM CRRS.**

10 **A.** Table A below summarizes the annual process that the CAISO is proposing to allocate  
11 both Seasonal CRRs and Long Term CRRs. Tiers 1, 2 and 3 shown in the table are the  
12 steps for allocating Seasonal CRRs, which the Commission has conditionally approved.  
13 The CAISO is now proposing to add Tier LT in order to extend the allocation process to  
14 Long Term CRRs. The table shows that Tier LT is embedded within the annual  
15 allocation process for Seasonal CRRs. In Tier LT, a LSE or an eligible OCALSE may  
16 request that a portion of the Seasonal CRRs that it has been allocated in tiers 1 and 2, for  
17 CRR Year One, or in tier 1, for years beyond CRR Year One be extended as Long Term  
18 CRRs.

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<sup>22</sup> MRTU Tariff. Section 36.9. CRR Allocation to LSEs Serving External Load. Also see Sections 36.9.1-36.9.5

**TABLE A  
ANNUAL ALLOCATION TIERS FOR SEASONAL CRRS AND LT CRRS  
(applies separately to allocation process for each season and time-of-use)**

	<b>TIER 1</b>	<b>TIER LT (follows tier 2 in CRR Year One)</b>	<b>TIER 2</b>	<b>TIER 3</b>
<b>LSE Nomination Limit For Tier</b>	CRR Year One: 50% * SEQ Beyond CRR Year One (PNP): minimum of (a) (66.7% * SEQ) – LT CRRs allocated in previous years or (b) LSE’s prior year CRR allocation quantity (reduced for load migration) + expiring ETC or CVR + expiring LT CRRs	All years: 50% * ALM – LT CRRs allocated in previous years	CRR Year One: (75% * SEQ) – tier 1 allocation Beyond CRR Year One: (66.7% * SEQ) – tier 1 CRRs – LT CRRs allocated in previous years + 50% * net load gained from load migration	All CRR Years: (100% * SEQ) – tier 1 and tier 2 CRR allocations – LT CRRs allocated in previous years
<b>Allowed CRR Sources for Tier</b>	CRR Year One: verified generation source or trading hub source (up to 75% of P <sub>max</sub> or hub contract quantity) + interties (up to 75% of veri- fied intertie source plus share of residual intertie capacity) <sup>1</sup> Beyond CRR Year One (PNP): CRRs allocated in prior year (reduced for load migration) + expiring ETC or CVR + expiring LT CRRs	CRR Year One: CRRs allocated in tier 1 or tier 2 Beyond CRR Year One : CRRs allocated in tier 1 All CRR Years: no trading hub sources	CRR Year One: same as for CRR Year One, tier 1 Beyond CRR Year One: any source -- PNode, trading hub, scheduling point, except that OCAL must use validated sources. No source validation	All CRR Years: any source -- PNode, trading hub, scheduling point (interties), except that OCAL must use validated sources. All years: no source validation
<b>Allowed CRR Sinks for Tier</b>	All CRR Years: default LAPs, custom LAPs and interties (for OCAL only)	All CRR Years: same as for tier 1	All CRR Years: same as for tier 1	All CRR Years: default LAPs, custom LAPs, sub- LAPs and interties
<b>Transmission Capacity Available in SFT</b>	75%	60%	75%	75%
<b>Capacity Reserved in SFT for:</b>	ETC, CVR, TOR (if not already in trans model), LT CRRs allocated in previous years, CRRs transferred to LSEs for migration of direct access load, one half of residual intertie capacity, and CRRs allocated to parties funding merchant upgrade	For each season and TOU of 10 year period: unexpired ETC, CVR, TOR (if not already in trans model), LT CRRs allocated in previous years, one half of residual intertie capacity, and CRRs allocated to parties funding merchant upgrade	ETC, CVR, TOR (if not already in trans model), LT CRRs allocated in previous years, tier 1 CRR allocation, one half of residual intertie capacity, and CRRs allocated to parties funding merchant upgrades	ETC, CVR, TOR (if not already in trans model), LT CRRs allocated in previous years, tier 1 and tier 2 CRR allocations, one half of residual in- terties capacity, and CRRs allocated to parties funding merchant upgrades

SEQ: Seasonal Eligible Quantity. 75% \* Adjusted Load Metric  
 ALM: Adjusted Load Metric = Load Metric – ETC – CRR – TOR (if not already included in transmission model)  
 Load Metric and Adjusted Load Metric are measured separately for each season and TOU  
 TOU: Time of Use  
 ETC: Existing Transmission Contracts  
 CVR: Converted Rights  
 TOR: Transmission Ownership Rights  
 PNP: Priority Nomination Process  
 OCAL: Out of Control Area Load

1 **Q. WHICH CRRS MAY A LOAD-SERVING ENTITY NOMINATE AS LONG**  
2 **TERM CRRS?**

3 **A.** For the CRR Year One allocation, a LSE or an eligible OCALSE may request that any  
4 CRR that it has been awarded in tier 1 or in tier 2 of the annual allocation of Seasonal  
5 CRRs be extended as a Long Term CRR. In CRR Year One, the CRRs awarded in tiers 1  
6 and 2 must have validated source locations or be sourced at interties for up to the LSE's  
7 pro-rata share of residual inter-tie capacity (*i.e.*, capacity at a Scheduling Point). Source  
8 validation means that a load serving entity must demonstrate that the source for its CRR  
9 request is either (1) a Generating Unit that it either owned or had under contract during  
10 the historical period to provide energy for a contract term of at least one month or (2) a  
11 Trading Hub at which it had a contract for energy to serve its load during the historical  
12 period for a contract term of at least one month. The LSE or eligible OCALSE must  
13 demonstrate that during the relevant period it could schedule energy from the source to  
14 serve its load. Valid sources include Generating Units located outside of the ISO control  
15 area that were owned or under contract to a CAISO LSE and for which the LSE had firm  
16 transmission to the CAISO border. For CRRs sourced outside the CAISO control area,  
17 the CAISO LSE would nominate import CRRs sourced at the intertie for the energy  
18 import. In addition to nominating CRRs from validated sources in tiers 1 and 2 of the  
19 first annual allocation, CAISO LSEs will also be permitted to nominate import CRRs for  
20 up to their pro-rata share of residual intertie capacity (*i.e.*, capacity at a Scheduling  
21 Point). In a filing to be made in the spring of 2007, the CAISO plans to propose to  
22 change the historical validation period to January 1, 2006 through December 31, 2006.

23 With this change, the validation period will still remain in the past which, as

1 explained in my prior testimony with Scott Harvey, is important from the perspective of  
2 economic efficiency.<sup>23</sup> After CRR Year One, the sources for CRR nominations for tiers  
3 1 and 2 will no longer be validated and, instead, tier 1 will have a Priority Nomination  
4 Process (“PNP”). After CRR Year One, a LSE or eligible OCALSE may nominate that  
5 any Seasonal CRR that it has been awarded in the tier 1 PNP of the annual allocation to  
6 be extended as a Long Term CRR.

7 **Q. WHY WILL LONG TERM CRRS ALLOCATED TO LSES BE DEFINED BY**  
8 **SEASON AND TIME OF USE?**

9 **A.** Because they will be nominated from the set of CRRs that are awarded in tier 1 of each  
10 annual allocation. The tier 1 CRRs are distinguished by season and time of use, and this  
11 designation flows through to the Long Term CRRs.

12 **Q. IS THERE A LIMIT ON THE QUANTITY OF LONG TERM CRRS IN TOTAL**  
13 **THAT EACH LSE MAY REQUEST?**

14 **A.** Yes. The total megawatt quantity of Long Term CRRs that a LSE may request to be  
15 allocated for load in a specific LAP is 50% of its Adjusted Load Metric (“ALM”) for a  
16 specific season and time of use. In CRR Year One, a LSE may therefore request Long  
17 Term CRRs in a quantity that is less than or equal to 50% of its Adjusted Load Metric.  
18 After CRR Year One, the additional quantity of Long Term CRRs that a LSE may  
19 request is equal to 50% of its Adjusted Load Metric, minus the quantity of unexpired  
20 Long Term CRRs that it already holds.

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<sup>23</sup> “Prepared Direct Testimony of Scott M. Harvey and Susan L. Pope,” Docket No ER06-615-000, Exh. ISO-2 at pp 108-109 (“Harvey/Pope Testimony”).

1 **Q. WHAT IS THE LOAD METRIC AND THE ADJUSTED LOAD METRIC AND**  
2 **HOW ARE THEY RELATED TO THE SEASONAL ELIGIBLE QUANTITY?**

3 **A.** The Load Metric will be calculated from the seasonal on-peak or off-peak load duration  
4 curve<sup>24</sup> for each LSE for each LAP in which it serves load. The Load Metric is the level  
5 of load that is exceeded only 0.5% of the time for the relevant seasonal or monthly time-  
6 of-use period. The load metric data used for the annual allocations will be adjusted to  
7 incorporate all load migration that has occurred up to the time of the annual allocation.  
8 The Adjusted Load Metric is the Load Metric minus the MWs of Load covered by ETC,  
9 CVR, and TOR. The Seasonal Eligible Quantity (“SEQ”) is a benchmark used in the  
10 annual allocation of Seasonal CRRs, but not directly in the allocation of Long Term  
11 CRRs. The Seasonal Eligible Quantity is the quantity of CRRs that a LSE is eligible to  
12 request for a LAP for a seasonal time-of-use period. It is equal to 75 percent of the  
13 Adjusted Load Metric.

14 **Q. WHAT QUANTITY OF LONG-TERM CRRS WILL BE ALLOCATED TO LSES**  
15 **IN COMPARISON WITH THE QUANTITY OF SEASONAL AND MONTHLY**  
16 **CRRS?**

17 **A.** The Long Term CRR Allocation will have no impact on LSE eligibility for Monthly  
18 CRRs, or on the percentage of CAISO transmission capacity that will be allocated and  
19 auctioned as Monthly CRRs (25%). The only change introduced by the Long Term CRR  
20 proposal is that each LSE may choose to nominate up to 50% of its Adjusted Load Metric

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<sup>24</sup> MRTU Tariff. Section 36.8.2 Quantity of Load Eligible for CRRs. Section 36.8.2.1 Seasonal CRR Eligible Quantity. Section 36.8.2.2 Monthly CRR Eligible Quantity.



1 as Long Term CRRs, and if allocated, the megawatt quantity of the allocated Long Term  
2 CRRs will reduce the quantity of Seasonal CRRs that the LSE subsequently is eligible to  
3 receive (*i.e.*, the MWs of the allocated Long Term CRRs will count toward the LSE's  
4 SEQ). In other words, each LSE may nominate up to 75% of its Seasonal Load Metric as  
5 Seasonal CRRs, after subtracting its holdings of unexpired Long Term CRRs.

6 **Q. IS A LSE'S ELIGIBILITY TO NOMINATE LONG TERM CRRS REDUCED BY**  
7 **THE QUANTITY OF ITS LOAD SERVED BY ETC AND CVR?**

8 **A.** There are two aspects to this question. A LSE's total eligibility to nominate Long Term  
9 CRRs and Seasonal CRRs is reduced by the megawatts of its load served by ETC and  
10 CVR, because the ETC and CVR are subtracted from the Load Metric in calculating the  
11 Adjusted Load Metric, and each LSE's eligibility to nominate Long Term CRRs and  
12 Seasonal CRRs can be in total be no greater than 75% of its Adjusted Load Metric.  
13 Moreover, the load serving entity's eligibility to nominate Long Term CRRs is limited to  
14 50 % of the Adjusted Load Metric. For this reason, a LSE cannot nominate Long Term  
15 CRRs for the portion of its load served by ETC and CVR. A further point, though, is that  
16 ETC and CVR are not subtracted again in calculating a LSEs eligibility to nominate up to  
17 50% of its Adjusted Load Metric as Long Term CRRs. A LSE could hold Long Term  
18 CRRs that are up to 50% of its Adjusted Load Metric, which would be over and above its  
19 holdings of ETC or CVR. The suggestion to subtract ETC and CVR from the Adjusted  
20 Load Metric was put forward by a stakeholder and duly considered by the CAISO. The  
21 rule could provide increased equity in LSEs' eligibility for long-term instruments for  
22 managing exposure to transmission congestion, because some ETC and CVR are such  
23 long-term instruments, like Long Term CRRs. However, the CAISO found that the rule

1 would have relatively little impact because parties with ETC and CVR have, with only a  
2 few exceptions, almost no eligibility for either Seasonal CRRs or Long Term CRRs.  
3 This occurs because their ETC and CVR holdings are for such a large proportion of their  
4 load that their Adjusted Load Metric, which is the basis for their Seasonal CRR and Long  
5 Term CRR nomination limit, is close to zero. For these reasons, as Dr. Lorenzo Kristov  
6 explains in his testimony, the CAISO decided not to subtract ETC and CVR in  
7 calculating LSEs' and eligible OCALSEs' eligibility to nominate Long Term CRRs

8 **Q. WHAT INFORMATION MUST LSES PROVIDE WHEN THEY REQUEST**  
9 **LONG-TERM CRRS IN THE ALLOCATION PROCESS?**

10 **A.** LSEs and eligible OCALSEs will submit their Long Term CRR nominations to the  
11 CAISO by specifying source, sink (which is the Default LAP or may be an intertie for  
12 eligible OCALSEs), MW quantity and time-of-use. Entities may request different Long  
13 Term CRRs for each season and time-of-use period.

14 **Q. WHAT ARE THE ELIGIBLE SOURCES AND SINKS FOR LSE LONG-TERM**  
15 **CRR REQUESTS?**

16 **A.** The eligible sources and sinks for Long Term CRR requests will, with one exception, be  
17 the same as those permitted for Seasonal CRRs requested in tiers 1 and 2 of CRR Year  
18 One of MRTU operation, or tier 1 of the following years. Thus, the source locations for  
19 Long Term CRRs allocated to LSEs may, as a general matter, be generator PNodes or  
20 Scheduling Points which means that they may be a single generator node or an intertie

1 point.<sup>25</sup> In the case of LSEs with ETC rights that do not sink at the location of the LSE's  
2 load, the LSE may also nominate Long Term CRRs sourced at the sink of the ETC  
3 right.<sup>26</sup> Long Term CRRs allocated to LSEs must sink at one of the defined LAPs, with  
4 the exception of Long Term CRRs allocated to pumped storage load or metered sub-  
5 systems ("MSS") electing net settlement. MSS entities that elect net settlement will settle  
6 their imbalances at the MSS price and may designate Long Term CRRs sinking at the  
7 MSS LAP.<sup>27</sup> LSEs may not nominate Long Term CRRs with sub-LAP sinks because  
8 sub-LAP sinks are not permitted in tiers 1 or 2 of the CRR Year One annual allocation  
9 process, or in tier 1 of the years thereafter.

10 **Q. WHAT IS THE EXCEPTION TO THE SIMILARITY BETWEEN THE**  
11 **SOURCES AND SINKS THAT WILL BE ALLOWED FOR CRRS AND LONG-**  
12 **TERM CRRS?**

13 **A.** Trading hubs will not be allowed as the source location for Long Term CRRs, at least for  
14 the initial implementation of MRTU. In his testimony, Dr. Lorenzo Kristov explains that  
15 this limitation is a precautionary measure that the CAISO is adopting until the  
16 interactions among trading hub nominations, the pro-rationing methodology used to  
17 ensure simultaneous feasibility in the allocation of CRRs, and the tiered allocation  
18 process are fully understood. The prohibition of trading hub sources is applied to Long

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<sup>25</sup> MRTU Tariff. Section 36.8.4 Eligible Sources for CRR Allocation. CAISO Tariff Appendix A. Pricing Node (PNode).

<sup>26</sup> MRTU Tariff. Section 36.8.3.4. Source Verification.

<sup>27</sup> MRTU Tariff. Sections 36.8.4 and 11.2.3.2-11.2.3.2.2.

1 Term CRRs, but not to Seasonal or Monthly CRRs, because of extra caution applied to  
2 making the long-term commitment required by Long Term CRRs.

3 **Q. HOW WILL LSES THAT UTILIZE TRADING HUBS AS SOURCES FOR**  
4 **THEIR ENERGY SUPPLY HAVE AN OPPORTUNITY TO MANAGE THE**  
5 **CONGESTION CHARGES OF LONGER-TERM ENERGY SUPPLY**  
6 **CONTRACTS?**

7 **A.** Importantly, Trading Hubs will be permitted as sources for CRRs in the annual and  
8 monthly allocation processes. Moreover, load serving entities will establish their  
9 eligibility to nominate CRRs from Trading Hub sources in tiers 1 and 2 of the CRR Year  
10 One annual allocation using the same process as that used to establish eligibility to  
11 nominate from generating sources. Load serving entities that need CRRs from Trading  
12 Hub sources may participate on an equal basis in the validated tiers of the CRR Year One  
13 allocation process. Inclusion of Trading Hub sources in the CRR Allocation market rules  
14 was originally considered in response to stakeholder suggestions. Once a load serving  
15 entity has been allocated a CRR sourced at a Trading Hub, it may seek to renew this CRR  
16 yearly in tier 1 of the CAISO's annual allocation process for CRRs. In the tier 1 PNP load  
17 serving entities may request renewal of any CRR allocated in the previous year, including  
18 CRRs needed to manage the congestion charges associated with long-term energy supply  
19 contracts sourced at Trading Hubs. The PNP provides load serving entities with Trading  
20 Hub sources with a reasonable degree of assurance that once they are awarded a CRR  
21 sourced at a Trading Hub, they can continue to nominate that CRR in the priority tier and  
22 be allocated that CRR.

1 **Q. WHY DO LSES THAT UTILIZE TRADING HUBS AS SOURCES FOR THEIR**  
2 **SEASONAL CRRS HAVE A REASONABLE DEGREE OF ASSURANCE THAT**  
3 **THESE CRRS WILL BE RENEWED ANNUALLY IN THE PRIORITY**  
4 **NOMINATION TIER (TIER 1)?**

5 **A.** Load serving entities will have a fair and reasonable opportunity to renew CRRs sourced  
6 at Trading Hubs in the priority nomination tier because each load serving entity's  
7 eligibility to nominate CRRs in this tier is reduced by its holding of Long Term CRRs.  
8 Therefore, load-serving entities seeking to renew Seasonal CRRs in this tier will not be  
9 competing with CRR requests for the portion of load serving entity load that is already  
10 covered by Long Term CRRs. For instance, any load serving entity that holds Long  
11 Term CRRs equal to 50% of its Adjusted Load Metric will not be able to nominate CRRs  
12 in tier 1. An additional point is that the CRRs that load serving entities will be permitted  
13 to nominate in tier 1 will already have passed one or more simultaneous feasibility tests  
14 in the previous annual allocation. For this reason, it is expected that tier 1 requests to  
15 renew CRRs will be granted except in situations when: (1) there is an increase in tier 1  
16 CRR requests, relative to the previous year, that cause flows over constraints that are  
17 binding in tier 1; or (2) there is a decrease in tier 1 CRR requests, relative to the previous  
18 year, that provide counterflow over constraints that are binding in tier 1. A final point is  
19 that the Long Term CRR market rules have been designed to ensure that new CRRs  
20 sourced at Trading Hubs will be available every time the CAISO conducts tier 1. Only  
21 60% of the transmission system capacity will be made available in the simultaneous  
22 feasibility test for Long Term CRRs in Tier LT, whereas 75% will be available in tiers 1,  
23 2 and 3 of the annual CRR Allocation process. This procedure ensures that at least 10 %

1 of the transmission capacity on each rated constraint will be available in tier 1, over and  
2 above any transmission capacity required to support previously allocated Long Term  
3 CRRs. Since CRRs sourced at Trading Hubs will likely have small shift factors over a  
4 large number of constraints, this procedure provides assurance that some transmission  
5 capacity will be available on every constraint, facilitating the allocation of CRRs to load  
6 serving entities requesting renewal of CRRs sourced at Trading Hubs or new CRRs  
7 sourced at Trading Hubs.

8 **Q. WHAT HAPPENS AFTER EACH LSE SUBMITS ITS ANNUAL NOMINATIONS**  
9 **FOR LONG TERM CRRS?**

10 **A.** The ISO will perform a simultaneous feasibility test for the Tier LT requests and  
11 determine the set of Long Term CRRs that can be awarded.

12 **Q. PLEASE PROVIDE AN OVERVIEW OF THE SIMULTANEOUS FEASIBILITY**  
13 **TEST FOR TIER LT.**

14 **A.** For the simultaneous feasibility test, the CAISO will use its most up-to-date DC network  
15 model, which is based on the full network AC model used in the day-ahead market; this  
16 is the same DC network model that will be used for the annual allocation of Seasonal  
17 CRRs. The annual transmission model generally will assume that all lines are in service,  
18 but will take into account long-term scheduled transmission outages, Operating Transfer  
19 Capability (“OTC”) adjusted for any long-term derates, and TOR . A new transmission  
20 facility will be included in annual allocation models once it is energized. The CAISO  
21 simultaneous feasibility test for the Long Term CRR Allocation will take ETCs, CVRs,  
22 TORs, intertie capacity reserved for the Seasonal CRR Auction, CRRs allocated to

1 parties that have funded merchant transmission upgrades and previously allocated Long  
2 Term CRRs into account so that the new Long Term CRRs allocated to LSEs will not  
3 cause revenue inadequacy. It will evaluate the feasibility of ETCs, CVRs, previously  
4 allocated Long Term CRRs, CRRs awarded to parties that fund transmission upgrades  
5 and new LSE Long Term CRR nominations simultaneously, as well as any TOR capacity  
6 that has not been captured by adjustments to the network model and intertie capacity  
7 reserved for the Seasonal CRR Auction. Higher priorities or weights will be assigned to  
8 ETC reservations and CVR than to Long Term CRR nominations to ensure that Long  
9 Term CRR nominations are prorated to accommodate ETC and CVR reservations.  
10 Seasonal CRRs will not be reserved in the simultaneous feasibility tests run in Tier LT.  
11 The purpose of Tier LT is to determine the set of Long Term CRR nominations that are  
12 simultaneously feasible in the absence of any counterflow that might be provided by the  
13 current set of Seasonal CRRs. Since the Seasonal CRRs may change every year, the Long  
14 Term CRRs must be simultaneously feasible without any presupposition of the Seasonal  
15 CRRs that might or might not be awarded. A Tier LT simultaneous feasibility test will be  
16 performed covering the entire term of the newly allocated Long Term CRRs. In practice,  
17 this will be accomplished by running a separate simultaneous feasibility test for each year  
18 with a different set of reservations for ETC, CVR or previously-allocated Long Term  
19 CRRs. The CAISO will then inform each LSE of the Long Term CRRs that it has been  
20 awarded; these CRR awards will be final.

21 **Q. HOW MUCH TRANSMISSION CAPACITY WILL BE AVAILABLE IN THE**  
22 **TIER LT SIMULTANEOUS FEASIBILITY TEST?**

1 A. The CAISO is proposing to include 60% of the seasonal transmission capacity of each  
2 facility in the Tier LT simultaneous feasibility test. This limit has been set below the  
3 percentage that will be available in tier 1 in order to ensure that a margin of transmission  
4 capacity is available on each constraint in tier 1 in each year above the capacity required  
5 to support previously allocated Long Term CRRs. In comparison with an approach that  
6 would include 75% of the transmission capacity of each facility in the Tier LT  
7 simultaneous feasibility test, the CAISO proposal will insure that LSEs will be able to  
8 obtain new CRRs from Trading Hubs and specific generation sources in each annual  
9 allocation. As discussed in the testimony of Dr. Lorenzo Kristov in Exhibit No. ISO-1  
10 there is a concern that the congestion of a single constraint could foreclose the  
11 availability of CRRs sourced at Trading Hubs through all tiers of the annual allocation,  
12 since such CRRs have a small shift factor from every generator node to the LAP.

13 **Q. WHAT METHOD WILL BE USED TO DETERMINE WHICH LOAD SERVING**  
14 **ENTITY LONG TERM CRR NOMINATIONS ARE AWARDED AND WHICH**  
15 **ARE NOT, WHEN A REDUCTION IN AWARDED CRRS IS NEEDED TO**  
16 **MAINTAIN SIMULTANEOUS FEASIBILITY FOR A GIVEN RUN OF THE**  
17 **MODEL?**

18 A. The reductions will be determined through the optimization formula used for the CRR  
19 Allocation. This formula will maximize the total megawatts of Long Term CRRs that are  
20 allocated, so the determination of which Long Term CRRs are reduced depends on the  
21 relative effectiveness of reductions in the award of different Long Term CRRs in  
22 relieving constraints that are binding or overloaded in the power flow for the  
23 simultaneous feasibility test.



1 **Q. DOES A LOAD SERVING ENTITY LOSE ITS TIER 1 CRRS IF THEY CANNOT**  
2 **BE EXTENDED AS A LONG-TERM CRR IN TIER LT?**

3 **A.** No, the outcome of Tier LT does not affect the previous allocation of Seasonal CRRs in  
4 tiers 1 and 2 of CRR Year One, or in tier 1 of the following years of the annual CRR  
5 Allocation. If a Long Term CRR award is made in Tier LT, it extends the term of a  
6 previously awarded Seasonal CRR for an additional nine years (years two through ten),  
7 but if it is not awarded, then the Seasonal CRR awarded for CRR Year One remains  
8 intact.

9 **Q. ARE THERE ANY POTENTIAL DRAWBACKS TO THE PRORATION ASPECT**  
10 **OF THE OPTIMIZATION FORMULA PROPOSED FOR THE LONG TERM**  
11 **CRR ALLOCATION?**

12 **A.** Yes. An issue can arise with the optimization formula because a very small difference in  
13 the shift factor of two Long Term CRR requests (*i.e.*, requests from two different  
14 source/sink combinations) over a binding constraint can lead to a large reduction in the  
15 Long Term CRR request with the larger impact and no reduction in the Long Term CRR  
16 request with the smaller impact. Some mitigation of the possible impact of the  
17 optimization formula occurs for the case of Long Term CRRs because when a Long Term  
18 CRR is not awarded in Tier LT, the associated Seasonal CRR remains intact. This  
19 Seasonal CRR can be nominated into the priority nomination tier in the annual allocation  
20 for the following year and, if it is awarded, the load serving entity can again request that  
21 it be extended as a Long Term CRR in Tier LT. Thus, tiering is not introduced in the  
22 allocation of Long Term CRRs, as it was in the annual allocation, in part to mitigate the  
23 possible impact of the SFT optimization formula. A load serving entity is not left

1 without congestion protection for the coming year if it is not allocated a Long Term  
2 CRR, and it has a continuing opportunity to obtain a Long-Term CRR in subsequent  
3 years. The CAISO is aware of possible issues arising from the form of the SFT objective  
4 function, and part of the reason for precaution in awarding Long Term CRRs sourced at  
5 Trading Hubs stems from a need to understand how the SFT optimization formula will  
6 perform in conjunction with CRRs sourced at Trading Hubs.

7 **Q. ARE THERE ANY DIFFERENCES BETWEEN THE ALLOCATION PROCESS**  
8 **THAT WILL BE USED FOR THE FIRST YEAR OF THE LONG TERM CRR**  
9 **ANNUAL ALLOCATION AND THE PROCESS THAT WILL BE USED FOR**  
10 **SUBSEQUENT YEARS?**

11 **A.** The only difference is that in CRR Year One Tier LT will occur after tiers 1 and 2 and  
12 any CRR awarded in tier 1 or 2 is eligible for nomination as a Long Term CRR. In years  
13 beyond CRR Year One, Tier LT will occur after tier 1, and only CRRs awarded in tier 1  
14 will be eligible for nomination as Long Term CRRs.

15 **Q. CAN LONG TERM CRRS BE TRADED IN SECONDARY MARKET**  
16 **BILATERAL TRANSACTIONS?**

17 **A.** The CAISO is proposing to restrict registered bilateral trading of Long Term CRRs to the  
18 portion of the term of a Long Term CRR that corresponds to the most recent CRR annual  
19 allocation process. At present, this restriction is needed in order to enable the CAISO to  
20 appropriately reallocate Long Term CRRs to LSEs that gain load through direct access  
21 load migration. Under the MRTU Tariff Filing a LSE that loses load due to direct access  
22 load migration must transfer a portion of each of its allocated Seasonal CRRs for the

1 remainder of the year, or the financial equivalent, to the LSE that gained load. The  
2 CAISO is proposing to extend this rule to Long Term CRRs, except that the opportunity  
3 to transfer a financial equivalent of the Long Term CRRs instead of the Long Term CRR  
4 instruments themselves will only be allowed for the portion of the Long Term CRR term  
5 that is covered by the most recent annual CRR Allocation process. Bilateral trading  
6 registered in the Secondary Registration System will be limited to the portion of Long  
7 Term CRRs corresponding to the most recent annual allocation process in order to insure  
8 that LSEs can comply with the rules for reallocating Long Term CRRs when they  
9 experience direct access retail load migration.

10 **Q. WHY WON'T LSES LOSING LOAD DUE TO RETAIL LOAD MIGRATION BE**  
11 **PERMITTED TO TRANSFER THE FINANCIAL EQUIVALENT OF THEIR**  
12 **LONG TERM CRRS TO THE LSE GAINING LOAD, RATHER THAN THE**  
13 **LONG TERM CRRS THEMSELVES?**

14 **A.** The two approaches that have been considered at this time for implementing a  
15 requirement to pay the financial equivalent of a Long Term CRR both have major  
16 drawbacks. One approach would be to require the LSE losing retail access load to pay the  
17 LSE gaining load for the financial equivalent of the Long Term CRRs one year at a time.  
18 Each year the annual value of the Long Term CRRs corresponding to the migrating load  
19 could be calculated from the CRR values arising from the annual or monthly auctions, or  
20 might even be based on actual day-ahead congestion charges. A major difficulty with this  
21 approach is the risk of default on the part of the LSE carrying the financial obligation to

1 pay annually for its lost load, and the concomitant practical complications arising from  
2 the possible need for CAISO involvement in enforcing such a rule.<sup>28</sup> A second approach  
3 would be to require the LSE losing retail access load to make a lump sum payment of the  
4 financial equivalent of the corresponding Long Term CRRs to the LSE gaining load at a  
5 single time. The major drawback of this approach is the need to determine a  
6 methodology to calculate the financial equivalent for the future years of the Long Term  
7 CRR term, beyond the time period covered by the last annual allocation. The annual  
8 CRR Auction held for Seasonal CRRs at the end of each allocation cycle provides market  
9 prices that may be used to estimate CRR market value only for the time period covered  
10 by the auction.

11 **Q. WILL THERE BE AN AUCTION FOR LONG TERM CRRS?**

12 **A.** At this time, the CAISO is not proposing an auction for Long Term CRRs. Holders of  
13 Long Term CRRs may sell seasonal portions of their Long Term CRRs in the seasonal  
14 auctions that will be conducted annually, or may sell monthly portions of their Long  
15 Term CRRs in the monthly auctions.

16 **Q. PLEASE SUMMARIZE THE ELEMENTS OF THE PROCESSES FOR**  
17 **ALLOCATING SEASONAL AND MONTHLY CRRS THAT CHANGE WITH**  
18 **THE PROPOSED PROCESS FOR ALLOCATING LONG TERM CRRS.**

19 **A.** The transmission capacity corresponding to Long Term CRRs must be taken into account  
20 every time a simultaneous feasibility test is conducted for the allocation or auction of

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<sup>28</sup> A payment could be required from the LSE *gaining* load to the LSE *losing* load if the annual value of the financial value of the Long Term CRR were negative.

1 Seasonal or Monthly CRRs. In addition, Long Term CRR holdings will be deducted in  
2 calculating the headroom available to each LSE to nominate CRRs in each tier of the  
3 annual allocation process for Seasonal CRRs, and of the monthly allocation process for  
4 Monthly CRRs. In addition, although this is not an allocation issue, the proposed market  
5 rules for Seasonal and Monthly CRRs will be changed to reflect the proposal to fully  
6 fund all CRRs.

7 **VI. COMMISSION GUIDELINES AND CAISO GOALS**

8 **1. Guideline 1: Source, Sink and MW Quantity**

9 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
10 **GUIDELINE 1?**

11 *The long-term firm transmission right should specify a source (injection node or nodes)*  
12 *and sink (withdrawal node or nodes), and a quantity (MW).<sup>29</sup>*  
13

14 **A.** The CAISO's Long Term CRR proposal satisfies Guideline 1 because, consistent with  
15 the existing CAISO CRR market design, Long Term CRRs must be defined by a specific  
16 source, sink and megawatt quantity. The Final Rule clarified that boundary locations and  
17 zonal pricing points, such as LAPs, are acceptable sources and sinks.

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<sup>29</sup> Order on Rehearing at p. 15.

1           **2. Guideline 2: Full Funding**

2   **Q.    DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
3   **GUIDELINE 2?**

4           *The long-term firm transmission right must provide a hedge against day-ahead locational*  
5           *marginal pricing congestion charges or other direct assignment of congestion costs for*  
6           *the period covered and quantity specified. Once allocated, the financial coverage*  
7           *provided by a financial long-term right should not be modified during its term (the “full*  
8           *funding” requirement) except in the case of extraordinary circumstances or through*  
9           *voluntary agreement of both the holder of the right and the transmission organization.*<sup>30</sup>

10  
11   **A.**    Yes. In its Long Term CRR market rules, the CAISO is proposing to fully fund all CRRs:  
12           Long Term CRRs, Seasonal CRRs and Monthly CRRs. Holders of each Long Term CRR,  
13           Seasonal CRR or Monthly CRR will be paid the full difference between the day-ahead  
14           congestion component of the LMP at the sink for their CRR, minus the day-ahead  
15           congestion component of the LMP at the source for their CRR, for the full megawatt  
16           quantity of their CRR for every hour of the day-ahead market for which their CRR is  
17           valid. A CRR from source X to sink Y in the CAISO will fully offset the congestion  
18           charge that a party will incur for scheduling a transaction in the same number of  
19           megawatts from source X to sink Y in the day-ahead market.

20   **Q.    WHY IS THE CAISO PROPOSING TO FULLY FUND BOTH SHORT TERM**  
21   **AND LONG TERM CRRS, WHEN THE FINAL ORDER ONLY REQUIRES THE**  
22   **LATTER?**

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<sup>30</sup> Order on Rehearing at p. 15.

1 A. The Commission specifically encouraged transmission organizations to evaluate whether  
2 the requirement to fully fund long-term rights should be paired with full funding of short-  
3 term rights.<sup>31</sup> There are a number of advantages to fully funding all CRRs, as opposed to  
4 implementing a system under which Long Term CRRs would be fully funded but  
5 Seasonal and Monthly CRRs would not be fully funded. The latter approach would  
6 create two distinct types of financial transmission rights that would not be  
7 interchangeable, raising practical challenges and equity issues and leading to a possible  
8 reduction in CRR liquidity. Segmentation of CRRs into two distinct markets would  
9 likely have a negative impact on CRR market liquidity. CRRs that are fully funded and  
10 CRRs that are not fully funded could not be bought and sold<sup>32</sup> in the same CRR Auction,  
11 since only a single set of market prices results from each auction. Thus, the CAISO  
12 would need, in principle, to conduct two separate CRR Auctions in place of every single  
13 auction that is currently proposed and market participants would need to decide which  
14 auction market to enter each time they wanted to buy a CRR.

15 **Q. WHAT TYPES OF ECONOMIC INEFFICIENCIES DOES SUCH**  
16 **SEGMENTATION CREATE?**

17 A. Bifurcation of the CRR Auction would not only create practical complications for the  
18 CAISO and market participants; it could also impede parties' ability to use the CRR  
19 Auctions to reconfigure their CRRs. Because CRR Auctions model transmission network

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<sup>31</sup> *Order on Rehearing* at P 179.

<sup>32</sup> At the time of initial MRTU implementation, the CAISO auction software will not have the capability to accept offers to sell CRRs. In our testimony accompanying the February 2006 MRTU Tariff Filing, Scott Harvey and I explain how parties can effectuate a CRR sale under these circumstances by bidding to buy a CRR at a negative price. (Harvey/Pope Testimony p. 160)

1 interactions through a simultaneous feasibility test, they enable parties to reconfigure  
2 CRRs in ways that cannot be achieved through secondary market bilateral trading. For  
3 instance, a party with a CRR from source A to sink B could reconfigure its CRR to start  
4 at source X instead by purchasing a CRR from X to A in the CRR Auction. Such CRR  
5 reconfiguration would likely be much more difficult to effectuate through the bilateral  
6 market because of the difficulty of finding a seller for the X to A CRR and limitations on  
7 registering the bilateral trade.<sup>33</sup> Bifurcation of the CRRs might also make auction  
8 reconfiguration less available or more costly if the transaction volume were to fall in each  
9 of the two auctions – one for fully funded CRRs and one for CRRs that are not fully  
10 funded – relative to the volume in a single auction.<sup>34</sup> A second efficiency concern  
11 is that if the settlements differ for Long Term CRRs and shorter-term CRRs, there could  
12 be an uneconomic impact on LSEs' generation supply choices. An objective of the  
13 CAISO Long Term CRR proposal is to provide no advantage or disadvantage to LSEs  
14 that choose Long Term CRRs as opposed to shorter-term CRRs to manage congestion  
15 charges associated with serving their load. The goal has been to shield the generation  
16 market from potential efficiency impacts that could be caused by differences in the  
17 settlement terms or relative availability of Long Term CRRs or shorter term CRRs.  
18 Under the CAISO Long Term CRR proposal, Long Term CRRs and CRRs receive the  
19 same congestion rent settlements, and new Long Term CRRs and Seasonal CRRs are

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<sup>33</sup> The Secondary Market Registration System cannot be used to register secondary market trades in which a CRR has been geographically sub-divided into two or more CRRs.

<sup>34</sup> While many parties might want fully-funded Long Term CRRs in this situation, the relative volume of trading in the two auctions ultimately will depend on the relative prices of fully-funded CRRs and partially funded CRRs.



1 allocated with the same priority, supporting efficient LSE decisions with regard to  
2 generation procurement. The CAISO Long Term CRR market rules reflect a decision to  
3 leave the choice between short-term and longer-term CRRs to LSEs, so that they can  
4 respond efficiently to short- and long-run changes in the energy market. Within the  
5 context of the Long Term CRR market rules proposed by the CAISO, fully funding all  
6 CRRs also preserves equity between LSEs that choose to hedge their congestion charges  
7 with shorter-term CRRs versus those that opt to manage some portion of their congestion  
8 charges with Long Term CRRs. For instance, the Long Term CRR market rules impose a  
9 single limit on a LSE's combined holdings of Seasonal and Long Term CRRs to enable  
10 LSEs to choose their own preferred mix of Seasonal CRR and Long Term CRRs. It  
11 would be inconsistent with this overall approach to fully fund Long Term CRRs, but not  
12 short-term CRRs, since this would favor LSEs that have certain types of long-term  
13 energy procurement strategies.

14 **Q. ARE THERE IMPLEMENTATION ISSUES CREATED BY THE**  
15 **BIFURCATION?**

16 **A.** A number of practical and implementation-related issues would also arise if Long Term  
17 CRRs were fully funded but Seasonal and Monthly CRRs were not. Rules would need to  
18 be designed to divide the congestion rent shortfall between CRRs and Long Term CRRs,  
19 since it would not be equitable for holders of Seasonal and Monthly CRRs to bear the  
20 cost of fully funding Long Term CRRs by reducing payments to these CRR Holders for  
21 the full amount of the congestion rent shortfall. Full funding of Long Term CRRs could  
22 radically reduce the value of the Seasonal and Monthly CRRs if payments to the holders  
23 of these CRRs were reduced for the full amount of any congestion rent shortfall. In

1 addition, the value of the Seasonal and Monthly CRRs would be difficult to predict  
2 because it would depend on the quantity of fully funded Long Term CRRs, in proportion  
3 to the quantity of Seasonal and Monthly CRRs. A second practical concern is that if there  
4 were two types of CRRs – fully funded and not fully funded – the CAISO settlement  
5 system and Secondary Registration System used to register bilateral trades would need to  
6 be modified to keep track of the type of every CRR. Finally, as previously stated, the  
7 number of CRR Auctions required by the MRTU Tariff Filing would be multiplied by  
8 two: two annually for every season and time of use period, and two for each month.

9 **Q. YOU PREVIOUSLY STATED THAT “ALL LMP-BASED MARKETS MUST**  
10 **ACCOUNT IN ONE MANNER OR ANOTHER FOR THE POSSIBILITY OF**  
11 **CONGESTION RENT SHORTFALLS (OR SURPLUSES) ARISING FROM**  
12 **TRANSMISSION OUTAGES AND RETURNS TO SERVICE.” WHAT**  
13 **MECHANISM IS THE CAISO PROPOSING TO FUND SUCH CONGESTION**  
14 **RENT SHORTFALLS?**

15 **A.** Dr. Lorenzo Kristov discusses the full funding proposal in detail in his testimony; I will  
16 summarize it briefly here. The funding for the day-ahead congestion rents due to holders  
17 of Long Term CRRs, Seasonal CRRs and Monthly CRRs will be provided by the  
18 congestion charges collected in the settlement of the day-ahead market, seasonal and  
19 monthly auction revenues and, when necessary, an uplift charged to all Measured  
20 Demand, which includes all metered CAISO load and real-time interchange export  
21 schedules. The full funding uplift charge will be calculated at the end of the month from  
22 the CRR Balancing Account, which will have a balance equal to the net congestion rents  
23 due to CRR Holders for the month (the net is less any payments received from holders for

1 negatively valued CRRs), minus the net congestion charges collected in the day-ahead  
2 market, minus the net revenue from the monthly auction and minus one-third of the net  
3 revenue from the previous seasonal auction for CRRs valid in the month. In this filing the  
4 CAISO is proposing a change in the allocation of the CRR Auction revenue, which was  
5 previously assigned to the Participating Transmission Owners (“Participating TOs”) in  
6 the February 9, 2006 MRTU Tariff Filing.<sup>35</sup> The billing determinant for the CRR uplift  
7 charge will be the ratio of each Scheduling Coordinator’s Measured Demand to the total  
8 Measured Demand for all Scheduling Coordinators.<sup>36</sup> If there is a shortage, each CAISO  
9 load – including load internal to the CAISO, export and wheeling load, but excluding  
10 load served by ETC or CVR – will be billed each month based on the load’s MWh  
11 energy usage during the month. However, if the CRR Balancing Account is in surplus,  
12 the CRR uplift will entail a payment to load. During any month, congestion rent surpluses  
13 for some hours of the month will offset congestion rent shortfalls that may occur during  
14 other hours. Only the net shortfall or surplus, plus the monthly auction revenue and one-  
15 third of the Seasonal CRR Auction revenue will be billed to load at the end of the month.  
16 The CRR Balancing Account will be cleared at the end of every month and unlike the  
17 previously filed MRTU CRR Balancing Account clearing, there will be no additional  
18 true-up at the end of the calendar year.

19 **Q. WILL THERE BE EXTRAORDINARY CIRCUMSTANCES UNDER WHICH**  
20 **LONG TERM CRRS WOULD NOT BE FULLY FUNDED?**

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<sup>35</sup> See MRTU Tariff § 11.2.4.3.

<sup>36</sup> Measured Demand is the Demand in the CAISO’s Control Area plus real time Interchange export schedules.

1 A. The CAISO is proposing to suspend full funding of all CRRs in only a short list of  
2 situations: if and when a Participating TO withdraws from the CAISO, or in the event of  
3 a System Emergency or an Uncontrollable Force. A System Emergency occurs when  
4 there are conditions beyond the normal control of the CAISO that affect the ability of the  
5 CAISO Control Area to function normally. These are situations in which the CAISO  
6 must act immediately to prevent loss of load, equipment damage, a cascading outage, or  
7 to restore system operation to meet minimum operating reliability criteria.<sup>37</sup> An  
8 Uncontrollable Force is an extreme event such as a large storm or flood, or a regulatory  
9 or governmental action that is beyond the control of the CAISO.<sup>38</sup>

10 **Q. IS IT REASONABLE FOR THE CAISO TO SUSPEND FULL FUNDING IN THE**  
11 **SITUATIONS THAT YOU HAVE DESCRIBED?**

12 A. Yes. The situations in which the CAISO has proposed to suspend full funding are limited  
13 and clearly outside of the control of the CAISO. They are consistent with the  
14 Commission's expectation that there will be some extraordinary circumstances in which  
15 full funding of CRRs will not be assured.

16 **Q. WHAT OTHER EXCEPTIONS TO THE FULL FUNDING REQUIREMENT IS**  
17 **THE CAISO PROPOSING?**

18 A. As explained by Dr. Lorenzo Kristov in his testimony, the CAISO will be required to  
19 reconfigure Long Term CRRs in the event that a Participating TO were to withdraw

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<sup>37</sup> See Section 7.7.4.

<sup>38</sup> See Section 14.

1 facilities from the CAISO Controlled Grid. The CAISO will reconfigure and, if  
2 necessary, reduce the outstanding Long Term CRRs to reflect the change in the CAISO's  
3 transmission topology, including any Long Term CRRs that have sources or sinks in the  
4 service territory of the withdrawing transmission owner. The Long Term CRR market  
5 rules also propose, reasonably, to terminate any Long Term CRRs that have both a source  
6 and sink in the service territory of the withdrawing Participating TO, since the CAISO  
7 cannot reconfigure these Long Term CRRs, and they can no longer be used to manage  
8 CAISO congestion charges. This would be an exception to the MW firmness of the Long  
9 Term CRR instruments required under the principle of full funding.

10 **Q. PLEASE EXPLAIN THE REASON THAT THE CAISO IS PROPOSING TO**  
11 **PROVIDE FOR FULL FUNDING OF ALL CRRS BY ALLOCATING THE CRR**  
12 **BALANCING ACCOUNT MONTHLY TO ALL MONTHLY MEASURED**  
13 **DEMAND.**

14 **A.** In some instances it is not possible to charge for the cost of ISO services on the basis of  
15 marginal cost. In these instances, an approach that is consistent with efficient market  
16 design is to allocate the costs broadly, in a way that does not distort market prices on the  
17 margin. This logic dictates that the full funding uplift charge should be allocated in such  
18 a way that parties would not, on margin, make short- or long-run choices to avoid the  
19 charge when such choices would otherwise be inefficient. This is the same logic that  
20 underlies the allocation of the transmission access charge to load as well as certain types  
21 of administrative uplift, both in the CAISO and elsewhere. By spreading the CRR full  
22 funding uplift charge broadly across all measured load in a month, it is expected that it

1 will be small on a per MWh basis and will have little impact, on margin, on energy  
2 demand.

3 **Q. COULD THE CRR FULL FUNDING UPLIFT CHARGE BE ALLOCATED TO**  
4 **PARTICIPATING TRANSMISSION OWNERS ON THE BASIS OF COST**  
5 **CAUSATION?**

6 **A.** Methods have been developed to allocate congestion rent shortfalls attributable to  
7 transmission outages and deratings, to Participating TOs on the basis of cost causation,  
8 but the mechanics of this allocation are complex, and such an allocation is not proposed  
9 by the CAISO at this time. The NYISO has developed a methodology for allocating  
10 congestion rent shortfalls attributable to transmission outages to the responsible  
11 transmission owner on the basis of cost causation; these transmission outage related  
12 congestion rent shortfalls are the primary reason that the full funding uplift may be a  
13 charge rather than a credit to load. Under the NYISO approach, day-ahead congestion  
14 rent shortfalls attributable to transmission outages are allocated directly to transmission  
15 owners responsible for the transmission outages that have caused the congestion rent  
16 shortfalls. As recognized by the Commission's Final Rule, such a system may be used to  
17 provide a price signal to transmission owners to incent efficient transmission  
18 maintenance activities. The CAISO and its stakeholders may wish to consider  
19 developing such market rules in the future, and may see the advantages of doing so if  
20 there are large congestion rent shortfalls that could have been avoided through more  
21 efficient transmission maintenance practices. The modeling and manpower requirements  
22 of developing and implementing an allocation of the day-ahead congestion rent shortfall  
23 to transmission owners are considerable, however, and it is not reasonable to consider

1 such an approach at this critical time in the start-up of the MRTU. In addition, even if an  
2 approach like that adopted by the NYISO were developed, it would not eliminate the  
3 need to design a settlement mechanism for the CRR balancing account; the account still  
4 could run a surplus or a deficit for a variety of other reasons.

5 **Q. WHAT ARE THE DIFFICULTIES WITH ALLOCATING THE COST OF FULL**  
6 **FUNDING TO CRR HOLDERS, SINCE CRR HOLDERS ARE THE**  
7 **BENEFICIARIES OF FULL FUNDING?**

8 **A.** In the Final Rule, the Commission pointed out that it would be inconsistent to charge the  
9 congestion rent shortfall to those parties that hold CRRs that have been rendered  
10 infeasible by the outage of a transmission facility. “Such a rule would largely undercut  
11 the relative congestion price certainty provided by full funding and would hence probably  
12 not be a reasonable outcome.”<sup>39</sup> The same consideration would apply, although to a  
13 lesser extent, if the congestion rent shortfall were levied on a sub-group of CRR Holders  
14 either on a per MW basis, or in proportion to the congestion rents accruing to the CRRs.  
15 An additional consideration is that a charge per CRR MW would be ad hoc because a  
16 congestion charge between source A and sink B could be hedged by a 1 MW “long-haul”  
17 CRR from A to B, or by a larger number of linked CRRs that, on the whole, provide the  
18 same congestion hedge (A-C, C-D, D-E, E-B) but would total to a greater number of  
19 megawatts. From the standpoint of efficient market design, it would be inefficient to  
20 design a charge that would favor parties with long-haul CRRs. A full funding charge to

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<sup>39</sup> Final Rule, paragraph 176.

1 CRR Holders might be reasonable if it were spread over a large enough group of CRR  
2 Holders that it was very small.

3 **Q. WHY IS THE CAISO PROPOSING TO CHARGE THE CRR FULL FUNDING**  
4 **UPLIFT TO MEASURED DEMAND RATHER THAN TO CRR HOLDERS?**

5 **A.** Levying the full funding uplift on Measured Demand is similar to levying it on a broad  
6 group of CRR Holders, given the CAISO methodology for allocating CRRs to LSEs.<sup>40</sup> In  
7 addition, it is more in keeping with the intent of full funding to allocate the uplift to a  
8 group other than the CRR Holders themselves. Finally, allocation to Measured Demand is  
9 very similar to allocating the CRR full funding uplift to the Participating TOs, which was  
10 another approach considered by the CAISO, because the Participating TOs would be  
11 required to pass the charge on to load through the transmission access charge.

12 **Q. IS IT MORE LIKELY THAT THE CRR FULL FUNDING UPLIFT WILL BE A**  
13 **CHARGE OR A CREDIT?**

14 **A.** The answer to this question will not be known until the CAISO has been operating under  
15 MRTU for some period of time. There is a tendency to assume that the CRR full funding  
16 uplift will be a charge to load because it will be used to fund, if necessary, shortfalls that  
17 occur in the settlement of hourly congestion. However, it is also possible that the uplift  
18 could be a *payment to load* because the calculation of the monthly uplift includes credits  
19 for the net revenue from the Monthly CRR Auction, and a one-third share of the net

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<sup>40</sup> The only difference is that parties that buy CRRs in the auction will not be subject to the CRR full funding uplift. However, there should be a compensating increase in the price paid for CRRs in the auctions, which will be a credit to the monthly CRR Balancing Account and the CRR full funding uplift.



1 revenue from the Seasonal CRR Auction. One-third of the Seasonal Auction revenue is  
2 credited to the CRR Balancing Account for each month comprising a season. The  
3 Seasonal and Monthly Auction revenue could be substantial because the CRR market  
4 rules include provisions to reserve a portion of the transmission capacity of the CAISO  
5 interties in the CRR Allocation process, and to offer this transmission capacity for sale in  
6 the CRR Auctions. An additional reason why the CRR full funding uplift may be  
7 positive is that the CAISO will be reserving 25% of transmission capacity for its monthly  
8 allocation and auction process. Therefore, it will have the ability to take into account  
9 short-term changes in transmission capacity, while also preserving the simultaneous  
10 feasibility of the Seasonal CRRs and Long Term CRRs that have already been allocated.  
11 Thus, forced and unforced outages may be represented in the monthly transmission  
12 model. However, despite monthly calibration of the transmission model used for the  
13 simultaneous feasibility test for Monthly CRRs, planned and unplanned outages that  
14 occur within a month may still cause a congestion rent shortfall. There is no way to know  
15 at this time whether the uplift, which depends on both the net congestion rent shortfall  
16 and net auction revenues, will tend to be a charge or a payment. The intention is to  
17 provide for revenue adequacy through the simultaneous feasibility test run for each  
18 monthly allocation and auction.

19 **Q. WHY IS CRR AUCTION REVENUE INCLUDED AS A CREDIT IN THE**  
20 **CALCULATION OF THE CRR FULL FUNDING UPLIFT?**

21 **A.** Since Measured Demand will bear the cost of funding CRR congestion rent shortfalls, the  
22 CAISO judged it to be fair also to allocate Measured Demand the revenue received from

1 the CRR Auction. Thus, any increase in CRR Auction prices attributable to full funding  
2 flows to fund the payments that make possible the full funding.

3 **Q. WHAT IS THE REASON FOR INCLUDING EXPORTS IN THE BILLING**  
4 **DETERMINANT FOR THE CRR FULL FUNDING UPLIFT?**

5 **A.** One of the reasons for choosing Measured Demand as the billing determinant for  
6 allocating the full funding uplift is that consistent with the Commission's Final Rule it  
7 allows the CAISO to spread the uplift broadly across all users of the grid. The inclusion  
8 of exports spreads the cost of such uplift to a broader set of grid users. Also, the  
9 inclusion of exports in the billing determinant for the CRR full funding uplift, means that  
10 exports will also receive the benefit of the net credits for CRR monthly and seasonal  
11 auction revenue. Finally, this approach leads to a result that is similar to what would  
12 have occurred if the CRR balancing account had been allocated to the Participating TOs,  
13 rather than to Measured Demand.

14 **Q. WHY IS THE CAISO PROPOSING TO CLEAR THE CRR BALANCING**  
15 **ACCOUNT MONTHLY, RATHER THAN PERFORMING A YEAR-END**  
16 **SETTLEMENT?**

17 **A.** Monthly settlements enable parties to assess their financial position monthly, rather than  
18 waiting until the end of the year to do so. Such a system provides increased price  
19 certainty and simplifies the billing process. In the MRTU Tariff Filing, the previously  
20 proposed annual settlement of the Balancing Account did not flow through to the  
21 CAISO's market settlement system. Now that the charge is an uplift to Measured  
22 Demand, it is simpler to include it in the regular monthly CAISO settlement process.

1 **Q. DOES THE CAISO FULL FUNDING PROPOSAL HAVE ANY PRECEDENT IN**  
2 **OTHER ISOS?**

3 **A.** Yes. In the NYISO, the applicable tariff provides that TCCs will be fully funded; that is,  
4 the TCC holder always pays or is paid the full difference between the congestion  
5 components of the LMP prices at the point of receipt and delivery. Funding for payments  
6 to TCC holders comes from the congestion rent collections in the day-ahead market and  
7 also from the direct allocation of congestion shortfall charges to transmission owners that  
8 have transmission facilities out of service that are found to have caused a shortfall. If  
9 these two sources of funding are not sufficient to fund payments to TCC holders, the New  
10 York transmission owners make up the congestion rent short-fall and recover these  
11 payments in their transmission service charges, which recover the embedded costs of the  
12 transmission system. Since the congestion rent shortfall allocated to the transmission  
13 owners is net of TCC auction revenues, this full funding methodology is very similar to  
14 that proposed by the CAISO, because the charge is ultimately paid by load.

15 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL MEET THE**  
16 **COMMISSION'S EXPECTATION, WHICH IS PART OF GUIDELINE 2, THAT**  
17 **THE QUANTITY OF LONG TERM CRRS WILL BE STABLE OVER TIME?**

18 **A.** Yes. The CAISO Long Term CRR market rules contain no provisions for reducing any  
19 Long Term CRRs at any time after they have been allocated to a LSE. There are three  
20 reasons why no reduction in Long Term CRRs will be necessary. First, a simultaneous  
21 feasibility test will be performed in awarding the Long Term CRRs in Tier LT to insure  
22 that the awarded Long Term CRRs will be simultaneously feasible in each year of their  
23 term, along with any unexpired ETC and CVR, CRRs awarded to parties that have

1 funded merchant transmission upgrades and previously awarded Long Term CRRs. The  
2 Tier LT simultaneous feasibility test will insure that the Long Term CRRs will be  
3 simultaneously feasible prior to each allocation and auction process for Seasonal CRRs.  
4 Second, the Long Term CRRs are defined as ten year obligations. This means that Long  
5 Term CRRs cannot be rescinded at any time during their ten year term, even if they are  
6 accruing negative congestion rent payments. The simultaneous feasibility and revenue  
7 adequacy of the Long Term CRR Allocation therefore cannot be compromised because  
8 the holder of a negatively valued Long Term CRR chooses to relinquish its CRR. Unlike  
9 the PJM market rules for LT ARR, which allow LSEs to opt out of their LT ARRs  
10 annually, the CAISO market rules do not include such a choice. Finally, the CAISO  
11 market rules will include a provision to include Long Term CRRs in the transmission  
12 planning process and, if necessary, to require transmission expansion or other mitigating  
13 action if it is needed to maintain the feasibility of the Long Term CRRs, and such if an  
14 expansion is not otherwise included in the CAISO's transmission plans, *e.g.*, for  
15 reliability.

16 **Q. WILL THE CAISO PROPOSAL TO FULLY FUND ALL CRRS AND TO**  
17 **GUARANTEE THE MEGAWATT QUANTITY OF LONG TERM CRRS FOR**  
18 **THEIR FULL TERM SUPPORT LONG-TERM CONTRACTING?**

19 **A.** Yes. The design of the Long Term CRR instrument in the CAISO proposal supports load  
20 serving entities that need long-term instruments to manage the congestion charges used to  
21 serve their load under long-term energy contracts or through generation investments.  
22 Under the CAISO proposal, a party that enters a long-term contract to procure energy at a  
23 given source location, and obtains a Long Term CRR from the source to its LAP, is

1 protected against the congestion charges from the source to its LAP for the full megawatt  
2 quantity of the Long Term CRR, for the entire term of the Long Term CRR. By  
3 eliminating the risk of a reduction in the megawatt quantity of Long Term CRRs and  
4 providing for full funding, the CAISO proposal will accommodate the needs of load  
5 serving entities that enter into long-term commitments for energy supply. The CAISO  
6 proposal provides exactly what the Commission was seeking in its Final Rule, in terms of  
7 the firmness of long-term financial transmission rights.

8 **Q. DOES FULL FUNDING MEAN THAT LSES WILL BE FULLY PROTECTED**  
9 **FROM CONGESTION CHARGES?**

10 **A.** No. Full funding in the CAISO means that once a Long Term CRR (or CRR) is allocated  
11 to a load serving entity, the load serving entity will be paid in full for the congestion rent  
12 earned by the CRR in every hour, and the megawatt quantity of the CRR will not be  
13 reduced for any reason. The degree to which a load serving entity is protected from  
14 congestion charges depends not only on whether or not CRRs are fully funded, but also  
15 on the overall quantity of CRRs that it is allocated. The overall protection from  
16 congestion charges that load serving entities receive through an allocation of CRRs and  
17 Long Term CRRs is limited by the transfer capability of the grid. As previously  
18 explained, load serving entities in aggregate will not be able to obtain CRRs and Long  
19 Term CRRs that hedge all of their load against congestion charges because of  
20 transmission constraints that are binding in the simultaneous feasibility test for the CRR  
21 Allocation. In financial terms, this is the same as the observation that all load within a  
22 load pocket cannot be met with low cost generation imports because of transmission  
23 constraints. Load serving entities that enter into new contracts with generation that is

1 separated from their load by a transmission constraint that is binding in the market may  
2 not be able to receive the Long Term CRRs that they desire, because there is excess  
3 demand for Long Term CRRs from this source. On the other hand, load serving entities  
4 that enter into new long-term contracts with generation at locations where congestion is  
5 not yet present should be able to receive an allocation of the Long Term CRRs that they  
6 need to manage the congestion charges associated with serving their load from this new  
7 generation source.

8 **3. Guideline 3: CRRs for Merchant Transmission Upgrades**

9 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
10 **GUIDELINE 3?**

11 *Long-term firm transmission rights made feasible by transmission upgrades or*  
12 *expansions must be available upon request to any party that pays for such*  
13 *upgrades or expansions in accordance with the transmission organization's*  
14 *prevailing cost allocation methods for upgrades or expansions.*

15  
16 **A.** Yes. The February 2006 MRTU Tariff Filing allows entities to develop transmission  
17 upgrades or expansions at their own cost and to receive the incremental CRRs that such a  
18 project creates. The quantity of CRRs allocated to parties that develop merchant  
19 transmission projects will be commensurate with the transfer capacity that the project  
20 adds to the CAISO grid. It is expected that the term of the incremental CRRs allocated to  
21 the developers of merchant transmission projects will be the lesser of 30 years or the life

1 of the facility;<sup>41</sup> hence, these are long-term financial rights as required by the  
2 Commission's Guideline 3.

3 **4. Guideline 4: Long Term CRR Term Length**

4 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
5 **GUIDELINE 4?**

6 *Long-term firm transmission rights must be made available with term lengths*  
7 *(and/or rights to renewal) that are sufficient to meet the needs of load serving*  
8 *entities to hedge long-term power supply arrangements made or planned to*  
9 *satisfy a service obligation... Transmission organizations ...must be able to offer*  
10 *firm coverage for at least a 10 year period.*

11  
12 **A.** Yes. Long Term CRRs will have a term of 10 years, as required by Guideline 4. Long  
13 Term CRRs will provide LSEs with "firm" coverage during this term because the Long  
14 Term CRRs will be fully funded as I discussed earlier.

15 **Q. WHY IS A TEN YEAR TERM LENGTH FOR LT CRRS REASONABLE?**

16 **A.** It is the minimum term length permitted by the Final Rule and should be long enough to  
17 enable LSEs to manage the congestion charges of their long-term supply arrangements.

18 In addition, the Commission approved PJM's proposal to issue LT ARR with a term  
19 length of 10 years: "We find that the PJM LTTR proposal satisfactorily meets the  
20 requirements of guideline (4) by providing long-term rights of at least 10-years."<sup>42</sup>

21 Moreover, the CAISO Long Term CRR proposal allows LSEs to request to roll over their

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<sup>41</sup> Kristov Testimony at p.95.

<sup>42</sup> "Order Accepting Long Term Transmission Rights Proposal, Subject to Modifications," 117 FERC ¶ 61,200  
November 22, 2006, paragraph 52.

1 Long Term CRRs at the end of their ten-year term, thereby providing the opportunity for  
2 the LSE to obtain a congestion hedge for a long-term power supply arrangement that has  
3 a term of more than ten years. A final but important consideration is that Long Term  
4 CRRs will be obligations, unlike the LT ARR in PJM, and absent experience with LMP,  
5 load serving entities recognize that there is risk in holding Long Term CRRs. Therefore  
6 it is reasonable to establish the 10-year benchmark as the basis for the Long Term CRR  
7 allocation, and then provide for the renewal of Long Term CRRs after 10 years, rather  
8 than lock load serving entities into even longer-term CRRs at the start-up of MRTU.

9 **Q. HOW WILL LSES REQUEST TO ROLL OVER THEIR LONG-TERM CRRS AT**  
10 **THE END OF THEIR TEN YEAR TERM?**

11 **A.** When a Long Term CRR expires, the LSE or eligible OCALSE will have the right to  
12 request the CRR in tier 1, which is the priority nomination tier, for the next year. The  
13 LSE's or eligible OCALSE's CRR request will be subject to the tier 1 simultaneous  
14 feasibility test, on an equal priority with all other tier 1 requests. If the CRR is awarded  
15 in tier 1, the LSE or eligible OCALSE may then nominate it as a Long Term CRR, and it  
16 will be evaluated for simultaneous feasibility as part of Tier LT, along with all other LSE  
17 requests for Long Term CRRs in a given year. Because of the application of  
18 simultaneous feasibility tests in tier 1 and Tier LT, the roll-over of a Long Term CRR is  
19 not guaranteed.

20 **Q. HOW LIKELY IS IT THAT SUCH REQUESTS FOR RENEWAL WILL BE**  
21 **GRANTED?**



1 A. There is a strong likelihood that requests for Long Term CRRs will be granted, at least in  
2 part. The reason for this is that the only CRRs that may be nominated into tier 1 are those  
3 that were allocated in tiers 1, 2 or 3 in the previous year, or that are associated with an  
4 expiring Long Term CRR, expiring ETC, or expiring CVR. Since any CRR nominated  
5 into tier 1 or reserved in tier 1 must have previously been found to be simultaneously  
6 feasible in conjunction with the expiring ETC in one or more tiers of the previous annual  
7 allocation, there is a strong likelihood that this will continue to be the case for tier 1 of  
8 the following year. This outcome is not guaranteed, though, because it depends on the  
9 specific sub-set of the prior year CRRs that are nominated into the tier 1 of the following  
10 year.

11 **Q. WHY DOESN'T THE CAISO GUARANTEE LOAD SERVING ENTITIES THE**  
12 **RIGHT TO ROLL OVER THEIR LONG-TERM CRRS AT THE END OF THEIR**  
13 **TEN YEAR TERM?**

14 A. The expiration of the Long Term CRRs at the end of ten years provides an opportunity  
15 for parties to obtain Long Term CRRs that previously may have only been able to obtain  
16 Seasonal CRRs. The expiration of the Long Term CRRs, rather than guaranteed roll-  
17 over, provides for a level playing field for LSEs to compete to obtain new Long Term  
18 CRRs at the end of ten years. In addition, guaranteeing LSEs the right to roll Long Term  
19 CRRs over at the end of their ten year term would make them into options at this point in  
20 time. This would significantly increase the complexity of the simultaneous feasibility  
21 tests for Long Term CRRs because the CAISO would need to model each LSE's option  
22 to roll each of its Long Term CRRs over at the end of its term. The Long Term CRRs  
23 awarded to each load serving entity could be significantly reduced by this rule

1 modification, since the allocated Long-Term CRRs would have to be shown to be  
2 simultaneously feasible for any combination of Long Term CRRs that other load serving  
3 entities choose to roll over.

4 **Q. HOW CAN LSES MANAGE THE CONGESTION CHARGES FOR POWER**  
5 **SUPPLY ARRANGEMENTS THAT HAVE A TERM GREATER THAN A YEAR,**  
6 **BUT LESS THAN TEN YEARS?**

7 **A.** There are several alternatives for a LSE that would like to manage congestion exposure  
8 for a term of more than one year, but less than ten years. First, the LSE may obtain a  
9 Long Term CRR and then sell the Long Term CRR bilaterally or through the CRR  
10 seasonal and monthly auctions for the times during which it is not needed. Second, a  
11 LSE may decide to hedge its long-term power supply arrangements in whole or in part by  
12 requesting Seasonal CRRs through the annual allocation process rather than by obtaining  
13 Long Term CRRs. By hedging its power supply arrangements with annual requests for  
14 Seasonal CRRs, the LSE may shape its CRR portfolio to suit its congestion hedging  
15 needs in each year.

16 **Q. HOW MAY LSES SELL PORTIONS OF THEIR LONG-TERM CRRS**  
17 **BILATERALLY OR THROUGH THE SEASONAL OR MONTHLY AUCTIONS?**

18 **A.** A load serving entity may sell or transfer a Long Term CRR through a registered bilateral  
19 trade for the portion of the term of the Long Term CRR that corresponds to the most  
20 recent CRR annual allocation process. Registered bilateral trading is not permitted for  
21 portions of the term of a Long Term CRR that are beyond the time of the most recent  
22 CRR annual allocation process in order to enable the CAISO to appropriately reallocate

1 Long Term CRRs to load serving entities that gain load through direct access load  
2 migration. Load serving entities may also sell their Long Term CRRs in Seasonal and  
3 Monthly CRR Auctions.<sup>43</sup> Since these auctions are held annually, the auctions also  
4 enable a load serving entity to sell a Long Term CRR for only the portion of the term of  
5 the Long Term CRR corresponding to the most recent CRR Allocation process. Load  
6 serving entities may also make arrangements outside of the purview of the CAISO to sell  
7 or transfer their Long Term CRRs through bilateral transactions that are the financial  
8 equivalent of sales or transfers registered in the CAISO's Secondary Registration System.  
9 In such situations, the financial settlement by the CAISO for the applicable Long Term  
10 CRR would be with the load serving entity that was originally allocated the CRR; the  
11 CAISO would not be involved in any settlements with the third party to the private  
12 bilateral contract. These contractual arrangements, because they are outside of the  
13 purview of the CAISO, could be for any portion of the term of a Long Term CRR and  
14 could also contain other terms that fit the particular needs of the transacting parties. For  
15 example, a LSE might make a private bilateral arrangement to sell the portion of a Long  
16 Term CRR from a generating source to a Trading Hub, while keeping the portion of the  
17 Long Term CRR from the Trading Hub to its Default LAP. This would be effectuated by  
18 writing a contract to pay, for the agreed price, the congestion rents from the generating  
19 source to the trading hub to the buying party in every hour. The Long Term CRRs that a  
20 LSE sells or transfers, whether through a registered bilateral transaction, an unregistered  
21 bilateral transaction, or through the auction, would continue to be included in the

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<sup>43</sup> See footnote number 32.

1 calculation of the nomination limits for the load serving entity's Seasonal and Long Term  
2 CRRs.

3 **Q. IS THERE A PRECEDENT FOR RESTRICTING TRADING OF LONG-TERM**  
4 **FINANCIAL RIGHTS TO THE TERM COVERED BY THE LAST ANNUAL**  
5 **ALLOCATION AND AUCTION?**

6 **A.** Yes. The CAISO proposal essentially imposes the same restrictions on trading Long  
7 Term CRRs as those contained in PJM's market rules for LT ARR. Under the PJM  
8 market rules, LT ARRs will be allocated for 10 years. LSEs can choose annually whether  
9 or not to retain each of their LT ARRs as an annual ARR, and if they elect to receive the  
10 annual ARR, may choose to request a fixed reservation for it in the annual FTR auction,  
11 and receive the FTR without payment of the auction price. After this, the LSE may sell  
12 or transfer the FTR in the secondary market or in an FTR auction. Thus, analogously to  
13 the CAISO proposal for Long Term CRRs, trading of LT ARRs cannot occur in PJM  
14 except through unregistered secondary market trades, except for the period corresponding  
15 to the most recent year, at which point the LT ARR has been converted to an FTR.

16 **Q. IS THE CAISO'S LONG TERM CRR MARKET DESIGN COMPLETE**  
17 **WITHOUT A AUCTION FOR LONG-TERM CRRS?**

18 **A.** The CAISO proposal is complete without an auction for Long Term CRRs. The  
19 Commission did not require an auction in the Final Rule and specifically stated, in  
20 Guideline 7, that LSEs should not have to participate in an auction in order to obtain  
21 Long Term CRRs. Nonetheless, there would be some efficiency gain from the  
22 introduction of an auction for Long Term CRRs at some point in the CAISO. Because

1 CRR Auctions enable CRR reconfiguration, trades of Long Term CRRs could be  
2 effectuated through an auction that it would not be possible for parties to consummate  
3 bilaterally. The CAISO is aware of the possible benefits of CRR Auctions, but has  
4 concluded that the time is not right to introduce a Long Term CRR auction into its Long  
5 Term CRR market design. First, and most importantly, many stakeholders in California  
6 are not fully comfortable at this time with the concept of CRR Auctions, so ample time  
7 would be required to discuss a Long Term CRR Auction proposal with stakeholders.  
8 Some stakeholders suggested that the CAISO should consider an auction, but there is no  
9 consensus around this point of view. Taking into account the time needed to design, file,  
10 and implement the additional steps required for a Long Term CRR Auction the CAISO  
11 concluded that it could not be considered within the timetable for MRTU start-up.

12 **Q. DOES THE CAISO'S CURRENT PROPOSAL PREVENT THE CAISO FROM**  
13 **ADOPTING AN AUCTION FOR LONG-TERM CRRS AT A LATER TIME?**

14 **A.** No. In fact, a positive aspect of the Long Term CRR market design that the CAISO is  
15 proposing is that it contains a few key features that will facilitate the addition of an  
16 auction for longer-term CRRs, if and when the CAISO and its stakeholders determine  
17 that this should be added to the CAISO market rules. Because the proposed Long Term  
18 CRRs are obligations and will not be subjected to reductions over their term, it would be  
19 straightforward to reserve them in any simultaneous feasibility tests that would need to be  
20 conducted in conjunction with an auction of Long Term CRRs. The fixed 10-year term  
21 of the proposed Long Term CRRs – in contrast to a one-year right with a guaranteed  
22 renewal option for 10 years which the CAISO did discuss with stakeholders early in the  
23 process – clarifies that Long Term CRRs, once allocated, will continue to exist in future

1 years, which reduces practical modeling issues and equity concerns that might arise in  
2 consideration of an auction for longer-term CRRs.

3 **Q. WHY IS THE CAISO PROPOSING THAT ALL LONG-TERM CRRS**  
4 **ALLOCATED TO LSES WILL BE OBLIGATIONS?**

5 **A.** Since the intention is to provide for equity between LSEs that choose to manage their  
6 energy supply choices with short-term versus Long Term CRRs, it would be inconsistent  
7 to provide Long Term CRRs that have a higher market value than Seasonal CRRs, which  
8 would be the case if Long Term CRRs were options and Seasonal CRRs were  
9 obligations. Defining Long Term CRRs as options would also reduce the overall quantity  
10 of CRRs that could be allocated and auctioned to all parties. Long Term CRRs might be  
11 issued as options if there were a mechanism for charging parties for the higher value  
12 provided by the options instrument. This could occur with an ARR type process in  
13 which CRRs were auctioned, parties bid for either obligations or options and paid a  
14 market-determined increment for the options.

15 **Q. WHY WOULD THE ALLOCATION OF SEASONAL CRRS TO LSES BE**  
16 **REDUCED IF LONG TERM CRRS WERE ISSUED AS OPTIONS RATHER**  
17 **THAN OBLIGATIONS?**

18 **A.** The award of Long Term CRR obligations is expected to permit the award of a larger  
19 number of all types of CRRs, in both megawatt and dollar terms, than would be the case  
20 if load serving entities were awarded Long Term CRRs issued as options. The reason for  
21 this expectation is that Long Term CRRs issued as obligations can provide counterflow  
22 that relieves otherwise binding constraints in the simultaneous feasibility test, while Long

1 Term CRRs issued as options do not provide counterflow in the simultaneous feasibility  
2 test. Because the counterflow provided by Long Term CRRs issued as obligations can  
3 cause constraints not to bind in the simultaneous feasibility test that would be binding if  
4 Long Term CRRs were issued as options, there is a potential for more CRRs of all types,  
5 including Seasonal CRRs, to be awarded.

6 **Q. WON'T IT BE RISKY FOR LSES TO HOLD TEN YEAR LONG TERM CRR**  
7 **OBLIGATIONS?**

8 **A.** The risk of holding ten year Long Term CRR obligations is mitigated for LSEs that  
9 match the sources for their Long Term CRRs with the generation sources used to meet  
10 their loads. In these instances, the Long Term CRR obligations provide a load serving  
11 entity with a congestion rent payment from its generation source to its LAP load that will  
12 offset the congestion charge it incurs for scheduling generation from the same generation  
13 source to its LAP load in the day-ahead market. Thus, if the congestion payment due to  
14 the Long Term CRR were to become negative, it would still be offset by a negative  
15 congestion charge from the generation source to the LAP. Whether the congestion  
16 charge is positive or negative, a load serving entity that holds Long Term CRRs that have  
17 injection points corresponding to its generation sources will not bear a congestion charge  
18 for serving its load from these generation sources. The Long Term CRR design,  
19 consistent with the intent of the Final Rule, provides Long Term CRRs that will be useful  
20 to LSEs that need them to manage the congestion charges of their long-term power  
21 supply arrangements, but does not necessarily provide a Long Term CRR product that  
22 will be attractive for parties that want the Long Term CRRs only for speculative  
23 purposes. The CRR market rules provide load serving entities with the opportunity to

1 request annual renewal of their Seasonal CRRs, instead of electing Long Term CRRs,  
2 which is a reasonable alternative for a load serving entity that does not wish to assume  
3 the risk of Long Term CRR obligations. Load serving entities are faced with a  
4 reasonable tradeoff between the long-term financial risk of Long Term CRR obligations,  
5 and the risk that their Seasonal CRR might not be renewed in full every year. Load  
6 serving entities should carefully consider the risks of Long Term CRR requests that are  
7 not hedged by generation ownership or contracts, since Long Term CRRs cannot be  
8 rescinded.

9 **5. Guideline 5: LSE Priority and Transmission Capacity used for Long Term**  
10 **CRRs**

11 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
12 **GUIDELINE 5?**

13 *Load-serving entities must have priority over non-load serving entities in the*  
14 *allocation of long-term firm transmission rights that are supported by existing*  
15 *capacity. The transmission organization may propose reasonable limits on the*  
16 *amount of existing capacity used to support long-term firm transmission rights.*  
17

18 **A.** Under the CAISO Long Term CRR proposal, load-serving entities have priority over  
19 non-load serving entities in the allocation of long-term firm transmission rights that are  
20 supported by existing capacity. Long Term CRRs are allocated to LSEs annually using  
21 the allocation process described in Section V, and may consume up to 60% of the  
22 existing capacity of the transmission system.

23 **Q. DOES THE CAISO PROPOSAL FOR ALLOCATING LONG TERM CRRS**  
24 **PROVIDE THE SAME PREFERENCE FOR LSES WITH LONG-TERM POWER**



1           **SUPPLY ARRANGEMENTS AND LSES THAT PREFER SHORT-TERM**  
2           **POWER SUPPLY ARRANGEMENTS?**

3   **A.**    Yes, this is the intention, although some of the rules remain to be finalized in the BPM.  
4           The verification rules that are tied to power supply contracts or generation ownership are  
5           applied only in tiers 1 and 2 of the CRR Year One allocation process. These validation  
6           rules establish the eligibility of load serving entities to request CRRs in tiers 1 and 2,  
7           which is the precursor to requesting Long Term CRRs in Tier LT. The intention is that  
8           these validation rules would not favor load serving entities with long-term versus short-  
9           term supply contracts, although this remains to be formalized in the BPM. The other  
10          proposed market rules for allocating Long Term CRRs do not give priority at any point to  
11          LSEs based on the duration of their power supply arrangements. The February 2006  
12          MRTU Tariff filing provided that contracts of at least one month in duration would count  
13          for verification.

14   **Q.    DO THE PROPOSED RULES FOR ALLOCATING LONG TERM CRRS**  
15    **PROVIDE FOR EQUAL TREATMENT OF LOAD SERVING ENTITIES THAT**  
16    **CHOOSE TO USE LONG TERM CRRS VERSUS SEASONAL CRRS TO**  
17    **MANAGE THE CONGESTION CHARGES FOR THEIR POWER SUPPLY**  
18    **ARRANGEMENTS?**

19   **A.**    Yes, to the extent possible. In tiers 1 and 2 of the CRR Year One allocation, all load  
20          serving entities compete for CRRs under the same set of market rules, without regard to  
21          which load serving entities will later request some or all of the CRRs that they are  
22          awarded to be extended into Long Term CRRs. The same logic applies to tier 1 in the  
23          following years: all load serving entities will compete under the same set of rules to

1 obtain Seasonal CRRs in this tier, without regard to which of these CRRs will later be  
2 nominated as Long Term CRRs. Moreover, load serving entities will compete on the  
3 same footing in tiers 2 and 3 in each year to obtain CRRs from new sources, which then  
4 may be nominated into tier 1 on a priority basis in the following year. The only  
5 difference in treatment of load serving entities that wish to hedge their congestion  
6 charges with Long Term CRRs versus Seasonal CRRs is that once load serving entities  
7 obtain Long Term CRRs, they do not face the potential for a reduction in megawatts  
8 during the ten year term of the Long Term CRRs. In contrast, parties that hedge their  
9 congestion charges with Seasonal CRRs must nominate the Seasonal CRRs for renewal  
10 in each annual allocation process and, depending on the Seasonal CRR requests of all  
11 other parties, the nominations may be granted fully, or might be reduced in part. This  
12 difference in the treatment of Long Term CRRs and Seasonal CRRs is the inevitable  
13 result of the goals of: (1) providing for the megawatt firmness of Long Term CRRs as  
14 required by the Final Rule; (2) allowing parties with Seasonal CRRs to renew them or not  
15 each year, according to their needs; and (3) enabling parties to request renewal of  
16 Seasonal CRRs in tier 1 once these CRRs have already been awarded in tier 2 or 3 of the  
17 previous year. This final goal provides a mechanism for LSEs to obtain Long Term  
18 CRRs from new generation sources.

19 **Q. PLEASE EXPLAIN IN MORE DETAIL HOW LSES WILL OBTAIN LONG**  
20 **TERM CRRS FROM NEW GENERATION SOURCES.**

21 **A.** The way for a load serving entity to be allocated a Long Term CRR from a CRR source  
22 for which it had not previously received a CRR (or to receive more CRRs from an  
23 existing source) is to (1) first request and receive a CRR from the new source in one of

1 the free choice tiers – tier 3 of CRR Year One or tiers 2-3 of years beyond CRR Year  
2 One; then (2) request and receive a renewal of the CRR from that source in the next  
3 year’s tier 1 priority nomination process and (3) request and receive the CRR in Tier LT.  
4 Consistent with the CRR market rules conditionally approved by FERC in the September  
5 21 Order there is no requirement for source validation for the Long Term CRRs that  
6 LSEs request in Tier LT, other than the validation that is already included as part of tiers  
7 1 and 2 in CRR Year One of the allocation of Seasonal CRRs. Load serving entities will  
8 not be assigned new Long Term CRRs when they obtain or contract with new energy  
9 sources, nor will they lose Long Term CRRs as a result of the termination of generation  
10 ownership or a generation contract. The proposed rules for allocating Long Term CRRs  
11 to load serving entities allow load serving entities to obtain Long Term CRRs sourced at  
12 the location of new generation or at the injection location for a new generation contract  
13 provided that they pass each of the steps listed above. The rules provide protections to  
14 insure that all load serving entities requests for CRRs from new sources are considered on  
15 an equitable basis after giving priority to CRRs awarded in the validated tier (CRR Year  
16 One) or the PNP tier (years beyond CRR Year One); that requests for Long Term CRRs  
17 from new sources compete on an equal basis with requests for renewal of one-year CRRs  
18 in the PNP tier; and that the requests for Long Term CRRs from new sources do not lead  
19 to any reduction in previously allocated Long Term CRRs. In order for a load serving  
20 entity to obtain a Long Term CRR from a new source, it must first request and receive a  
21 CRR from the new source in one of the free choice tiers in the previous year – tier 3 of  
22 CRR Year One or tier 2-3 of years beyond CRR Year One. This means that the new  
23 Long Term CRR must be found to be simultaneously feasible after providing priority to

1 tier 1 and tier 2 CRRs (in CRR Year One) or PNP CRRs (years beyond CRR Year One),  
2 and existing Long Term CRRs, since these CRRs will already have been allocated prior  
3 to the free choice tiers. All requests for CRRs will be considered at the same time in the  
4 free choice tiers, including those from new sources, and pro-rated as necessary to  
5 determine a simultaneously feasible set of awards in each tier. The second step that a  
6 load serving entity must take to obtain a Long Term CRR from a new source is to request  
7 the CRR in the PNP tier in the following year. In the PNP tier, the load serving entity's  
8 request for the CRR will be evaluated for simultaneous feasibility along with all other  
9 load serving entities' requests for PNP tier CRRs, while holding fixed all previously  
10 allocated Long Term CRRs (as well as ETC and CVR). Year-by-year, all PNP requests  
11 for CRRs will be evaluated simultaneously, and reduced if necessary in determining a set  
12 of simultaneously feasible PNP tier CRR awards. The final step that a load serving entity  
13 must take to obtain a Long Term CRR from a new source is to request and receive the  
14 CRR in Tier LT while remaining under its Long Term CRR cap equal to 50% of its  
15 Adjusted Load Metric. In the simultaneous feasibility test for Tier LT, the model will  
16 include representation for all previously awarded Long Term CRRs (as well as ETC and  
17 CVR), but will exclude all PNP CRRs that are not nominated as Long Term CRRs. In  
18 this final step, the ISO will consider all requests for new Long Term CRRs at the same  
19 time, and reduce the requests as necessary in determining a simultaneously feasible set of  
20 Long Term CRR awards that preserve the full quantity of all previously-awarded Long  
21 Term CRRs. This final step insures that the award of Long Term CRRs from new  
22 sources does not lead to the degradation of previously awarded Long Term CRRs. The  
23 steps described above are essential to maintaining an equitable balance between and

1 among load serving entities that desire to obtain new Long Term CRRs and load serving  
2 entities that wish to manage their transmission congestion charges by relying on  
3 Seasonal CRRs obtained in the tier 1 PNP or free choice tiers.

4 **Q. WHY IS IT REASONABLE TO LIMIT THE ALLOCATION OF LONG TERM**  
5 **CRRS TO 50% OF EACH LSE’S ADJUSTED LOAD METRIC?**

6 **A.** In the Final Rule, the Commission states,

7 *Therefore, we conclude that the transmission organization and its stakeholders*  
8 *should be given flexibility to determine the level at which a load serving entity*  
9 *may nominate long-term firm transmission rights as long as that level does not*  
10 *fall below the “reasonable needs” of the load serving entity. This level can be*  
11 *expressed in a variety of ways, for example as a straightforward measure of load,*  
12 *such as minimum daily peak load or 50 percent of maximum daily peak load.<sup>44</sup>*

13  
14 In his testimony Dr. Lorenzo Kristov explains that for LSEs as a whole, 50% of  
15 the Load Metric is approximately equal to base load, *i.e.*, the minimum annual load of the  
16 LSEs as a whole, and that for most LSEs the Load Metric is the same as the Adjusted  
17 Load Metric. Thus, the CAISO’s proposal to allow LSEs to receive Long Term CRRs  
18 for up to 50% of their Adjusted Load Metric meets the reasonable needs of LSEs as a  
19 whole to receive Long Term CRRs for the quantity of load that they must serve every  
20 hour and therefore might find it advantageous to supply through a long-term power  
21 supply arrangement. It would be needlessly complex to design and implement a formula  
22 to calculate base load separately for each load serving entity. Stakeholder consensus  
23 would be unlikely on this issue, since different entities would likely benefit from different  
24 calculation methodologies. Moreover, it would be inconsistent with equity principles that

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<sup>44</sup> Final Rule, paragraph 323.

1 the CAISO has applied in the Long Term CRR design to develop a methodology that  
2 would make more Long Term CRRs available to load serving entities that have a greater  
3 quantity of long-term power supply arrangements than those that have other types of  
4 supply arrangements. For these reasons, the CAISO's proposal to cap each load serving  
5 entity's Long Term CRR allocation at 50% of its adjusted load metric is a reasonable  
6 approach. In addition, the level is expressed as a straightforward measure of load, as  
7 allowed by the Commission.

8 **Q. DOES THE CAISO PROPOSAL ALLOW LOAD SERVING ENTITIES TO**  
9 **REQUEST LONG TERM CRRS FOR LOAD GROWTH?**

10 **A.** Yes. The Adjusted Load Metric will increase with load growth. Therefore, load serving  
11 entities will be entitled to receive Long Term CRRs for 50% of any increase in load.

12 **6. Guideline 6: Re-Assignment of Long Term CRRs for Retail Load Migration**

13 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
14 **GUIDELINE 6?**

15 *A long-term transmission right held by a load serving entity to support a service*  
16 *obligation should be re-assignable to another entity that acquires that service*  
17 *obligation.*

18  
19 **A.** Yes. Under the February 2006 MRTU Tariff Filing a load serving entity that loses load  
20 due to direct access load migration must transfer a portion of each of its allocated  
21 Seasonal CRRs for the remainder of the year, or the financial equivalent, to the load  
22 serving entity that gained load. The CAISO is proposing to extend this rule to Long  
23 Term CRRs, except that the opportunity to transfer a financial equivalent of the Long  
24 Term CRRs instead of the Long Term CRR instruments themselves will only be allowed

1 for the portion of the Long Term CRR term that is covered by the most recent annual  
2 CRR Allocation process. Registered bilateral trading will be limited to the portion of  
3 Long Term CRRs corresponding to the most recent annual allocation process, in order to  
4 insure that load serving entities can comply with the rules for reallocating Long Term  
5 CRRs when they experience direct access retail load migration.

6 **7. Guideline 7: No Requirement to Participate in Auction**

7 **Q. DOES THE CAISO LONG TERM CRR PROPOSAL SATISFY COMMISSION**  
8 **GUIDELINE 7?**

9 *The initial allocation of the long-term firm transmission rights shall not require*  
10 *recipients to participate in an auction.*

11 **A.** Yes. Load serving entities will receive an initial allocation of Long Term CRRs through  
12 Tier LT of the annual process for allocating CRRs and Long Term CRRs. There is no  
13 auction for Long Term CRRs in the CAISO proposal.  
14

15 **Q. DO THE CAISO'S PROPOSED MARKET RULES FOR LONG TERM CRRS**  
16 **SATISFY THE COMMISSION'S DIRECTIVE IN THE FINAL ORDER THAT**  
17 **TRANSMISSION ORGANIZATIONS WITH ORGANIZED ELECTRICITY**  
18 **MARKETS MUST IMPLEMENT A TRANSMISSION SYSTEM PLANNING**  
19 **PROCESS TO ACCOMMODATE LONG-TERM FINANCIAL TRANSMISSION**  
20 **RIGHTS BY ENSURING THAT THEY REMAIN FEASIBLE OVER THEIR**  
21 **ENTIRE TERM?**

22 **A.** Yes. In amendments to tariff Section 24, the CAISO is proposing to ensure the feasibility  
23 of the Long Term CRRs allocated to load serving entities over their entire term by: (1)

1 monitoring the constraints that that are potentially constrained by Long Term CRRs  
2 during the simultaneous feasibility tests run for planning study assessments; and (2)  
3 monitoring the continuing feasibility of allocated Long Term CRRs in acting on planned  
4 or proposed transmission projects, generation or transmission retirements, generator  
5 interconnections or the interconnection of new load. The tariff states that the CAISO will  
6 identify the need for any transmission additions or upgrades required to ensure the  
7 continuing feasibility of allocated Long Term CRRs over the length of their terms. In  
8 assessing the need for transmission additions or upgrades to maintain the feasibility of  
9 allocated Long Term CRRs, the proposed market rules allow the CAISO to consider  
10 lower-cost alternatives, including, in cases where the infeasible megawatts are small in  
11 magnitude, ensuring against the risk of any potential revenue shortfall of the Long Term  
12 CRRs using the CRR Balancing Account and full funding uplift mechanism.

13 **8. CAISO Goal 1: Develop a Proposal Suited to CA Context**

14 **Q. PLEASE DESCRIBE HOW THE CAISO'S PROPOSED MARKET RULES FOR**  
15 **LONG TERM CRRS UTILIZE THE FLEXIBILITY OFFERED BY THE FINAL**  
16 **RULE TO DEVELOP A PROPOSAL THAT IS SUITED TO THE CALIFORNIA**  
17 **CONTEXT AND THE MRTU MARKETS.**

18 **A.** The CAISO's proposal for Long Term CRRs satisfies the seven guidelines that the  
19 Commission set forth in the Final Rule and, at the same time, requires minimal additions  
20 or changes to the CRR market rules contained in the CAISO's conditionally accepted  
21 MRTU Tariff Filing. The required changes are minimal because the flexibility offered  
22 under the Final Rule has enabled the CAISO to propose a Long Term CRR allocation



1 process that is integrated within its conditionally accepted annual allocation process for  
2 Seasonal CRRs. The Long Term CRR proposal relies on and makes use of many of the  
3 market rules for the annual CRR Allocation process.

4 Two major benefits stem from the CAISO's proposed integration of the Long  
5 Term CRR allocation process into its allocation process for Seasonal CRRs. First, the  
6 approach maintains the equity balance among different CAISO stakeholder groups that  
7 was achieved in the CRR market rules that are part of the MRTU Tariff Filing. It would  
8 have been very difficult to make this Long Term CRR filing within the Commission's  
9 timetable, while also allowing sufficient time for stakeholder discussion, if many of the  
10 substantial CRR equity issues addressed in the MRTU Tariff Filing had been reopened.  
11 Second, the additional rules introduced for the allocation of Long Term CRRs and the  
12 minor changes proposed to the rules for the allocation of Seasonal CRRs<sup>45</sup> maintain the  
13 market efficiency benefits that were carefully thought through in the design of the rules  
14 for the MRTU markets. As discussed below, the addition of Long Term CRRs is  
15 expected to bring further efficiency benefits by providing load serving entities with an  
16 additional way to manage the congestion charges associated with their long-term energy  
17 supply arrangements.

18 **Q. HOW ELSE DO THE CAISO'S PROPOSED MARKET RULES FOR LONG**  
19 **TERM CRRS UTILIZE THE FLEXIBILITY OFFERED BY THE FINAL RULE**

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<sup>45</sup> See testimony of Dr. Lorenzo Kristov, p 11.

1           **TO PROVIDE A PROPOSAL THAT IS SUITED TO THE CALIFORNIA**  
2           **CONTEXT?**

3    A.    The flexibility of the Final Rule enabled the CAISO to tailor the proposed Long Term  
4           CRR market rules to address issues that stakeholders raised in a number of stakeholder  
5           meetings and in written comments. The documents that the CAISO prepared for  
6           discussion with stakeholders show the evolution of the Long Term CRR proposal in the  
7           period since September 2006, largely in response to stakeholder comments. The  
8           CAISO's response to stakeholder views and suggestions is particularly relevant to several  
9           features of the CAISO proposal: the decision to propose a Long Term CRR market  
10          design that can be fully implemented at the time of MRTU start-up, rather than a market  
11          design that would need to be implemented in stages or in a scaled-down form; the  
12          proposal that load-serving entities should be entitled to nominate tier 1 CRRs  
13          corresponding to sources and sinks of their ETC rights in the year following the  
14          expiration of an ETC contract; the proposal to move the historic period for CRR source  
15          verification up to a more recent year; and the proposal to allocate the cost of CRR full  
16          funding to Measured Demand.

17   **Q.    PLEASE SUMMARIZE HOW THE PROPOSED PROCESS FOR ALLOCATING**  
18           **LONG TERM CRRS IS INTEGRATED WITHIN THE ANNUAL PROCESS FOR**  
19           **ALLOCATING SEASONAL CRRS.**

20    A.    As shown in Table A of Section V, Long Term CRRs are allocated in a new Tier LT,  
21           which has been added to the annual allocation process. The additional Tier LT market  
22           rules offer LSEs an opportunity to extend the term of a portion of their Seasonal CRRs  
23           for nine additional years. LSEs cannot obtain a quantity of Long Term CRRs that is in

1 addition to the quantity of Seasonal CRRs for which they were eligible under the MRTU  
2 Tariff Filing. Because a cap is imposed on a LSE's combined holdings of Seasonal  
3 CRRs and Long Term CRRs, the Long Term CRR market rules provide LSEs with a  
4 means to nominate their preferred mixture of: (1) Long Term CRR obligations, which are  
5 firm in terms of megawatts for ten years, and (2) Seasonal CRR obligations, which  
6 cannot be renewed annually with complete certainty, but can be changed from year-to-  
7 year and are less risky because they have a term of only one year. Tier LT thus provides  
8 LSEs with an additional choice for managing their congestion charges, within a  
9 combined cap on Seasonal CRR and Long Term CRR holdings, adding to the MRTU  
10 Tariff Filing provision that provided a priority process for load serving entities to renew  
11 their Seasonal CRRs annually.

12 Tier LT makes use of the load metrics, procedures for CRR source validation and  
13 CRR nomination rules that were developed for the MRTU Tariff Filing. The usage of  
14 these previously defined metrics and procedures greatly simplified the development of  
15 the Long Term CRR proposal, and will also simplify both the initial and on-going  
16 implementation of Tier LT. Important in this regard is the CAISO proposal to extend the  
17 CRR source verification rules that were developed for the MRTU Tariff Filing to Long  
18 Term CRRs. The proposed market rules allow a load serving entity to nominate a Long  
19 Term CRR in Tier LT only if it has first been awarded the CRR in tier 1 or tier 2 of the  
20 CRR Year One annual allocation, or in tier 1 of the years following CRR Year One.  
21 Thus, the previously designed and debated validation rules for the sources of CRRs  
22 nominated in tiers 1 and 2 of CRR Year One extend to Tier LT in CRR Year One.  
23 Similarly, the tier 1 priority nomination rules for the years following CRR Year One also

1 extend to Tier LT. The use of existing rules for source validation and nomination priority  
2 greatly simplified the process of designing the Long Term CRR proposal, because a  
3 substantial amount of stakeholder discussion of these issues had already occurred prior to  
4 the MRTU Tariff Filing. The lack of a requirement to verify the sources for CRR and  
5 Long Term CRR nominations after CRR Year One, which was a part of the MRTU Filing  
6 and has been extended to Long Term CRRs, is a tremendous simplification from the  
7 standpoint of implementation.

8 **Q. PLEASE DESCRIBE HOW THE PROPOSED LONG TERM CRR MARKET**  
9 **RULES MAINTAIN THE EQUITY BALANCE AMONG DIFFERENT CAISO**  
10 **STAKEHOLDER GROUPS THAT WAS ACHIEVED IN THE CRR MARKET**  
11 **RULES FOR SEASONAL AND MONTHLY CRRS.**

12 **A.** The Long Term CRR market rules will likely have a limited impact on the equity balance  
13 among different stakeholder groups because Tier LT is simply an extension of the CRR  
14 market rule that already provided a priority process for load serving entities to renew  
15 their Seasonal CRRs annually. There was extensive stakeholder discussion of the CRR  
16 allocation rules prior to the MRTU Tariff Filing and the CAISO made a great effort to  
17 fine tune the allocation rules to reflect and balance the issues that stakeholders raised. A  
18 list of some of the ways in which the LT CRR proposal maintains this equity balance  
19 follows.

- 20 • The Long Term CRR proposal maintains the balance in the CRR filing between  
21 parties that were in favor of a validated process for CRR nominations, and those that  
22 wanted limited validation. There is no change in the nomination priority given in  
23 CRR Year One to LSE CRR nominations with validated energy supply sources.  
24 There is also no change in the market rules that drop source validation after CRR  
25 Year One.

- 1           • A balance between the interests of parties potentially seeking Long Term CRRs from  
2 new sources, and parties seeking new Seasonal CRRs or seeking to renew Seasonal  
3 CRRs is maintained by extending the rules developed for priority renewal of Seasonal  
4 CRRs to the nomination of Long Term CRRs and integrating Tier LT within the tiers  
5 used for the allocation of Seasonal CRRs. Load serving entities with a validated  
6 energy supply source will receive no priority in the allocation of new CRRs or Long  
7 Term CRRs. There will also be no priority assigned to LSEs with longer versus  
8 shorter term supply commitments, consistent with the CRR allocation rules  
9 previously filed.
- 10           ▪ The proposed Long Term CRR allocation rules require LSEs to choose how to divide  
11 their overall eligibility for Seasonal CRRs and Long Term CRRs between requests for  
12 Seasonal CRRs and Long Term CRRs, rather than providing a new priority process  
13 for obtaining Long Term CRRs.
- 14           ▪ The CRR market rules regarding the equitable reallocation of CRRs when load shifts  
15 retail suppliers have been extended to Long Term CRRs.
- 16           ▪ The Long Term CRR filing does not change the equity balance provided by the CRR  
17 methodology for dividing among load serving entities, and between load serving  
18 entities and participants in the CRR auctions, the right to request CRRs sourced at the  
19 CAISO's interties with neighboring regions.
- 20           ▪ The Long Term CRR proposal does not change the rules for the Seasonal CRR  
21 auction or the Monthly CRR Allocation and Auction, except to require the reservation  
22 of Long Term CRRs in the simultaneous feasibility tests. The Long Term CRR  
23 market rules do not change the percentage of transmission capacity allocated as  
24 Monthly CRRs versus CRRs with longer term lengths.  
25

26 **Q. IN WHAT WAYS DO THE PROPOSED LONG TERM CRR MARKET RULES**  
27 **POTENTIALLY CHANGE THE EQUITY BALANCE AMONG STAKEHOLDER**  
28 **GROUPS?**

- 29 **A.** There is a change in the allocation of the congestion rent shortfall costs that may occur in  
30 the daily settlement of congestion charges and payments and in the allocation of CRR  
31 auction revenue, relative to the allocations that were contained in the CRR market rules  
32 filed with the MRTU Tariff Filing. These changes, which are described and discussed in  
33 Section V.1.b. are the result of the CAISO's compliance with Commission's Guideline 2,

1 requiring full funding of Long Term CRRs. The impact of these changes should be  
2 relatively small, since under both allocation schemes internal CAISO load is the primary  
3 group that would bear the residual cost of congestion rent shortfalls, and also the primary  
4 group benefiting from CRR auction revenue. Like internal CAISO load, export load will  
5 share in any net monthly surplus or shortfall in the CRR Balancing Account under the  
6 new proposal; will benefit from the full funding of CRRs and Long Term CRRs; and will  
7 receive a share of the CRR auction revenue.

8 **9. CAISO Goal 2: Promote Short Term Economic Efficiency**

9 **Q. DO THE PROPOSED LONG TERM CRR MARKET RULES PROMOTE**  
10 **EFFICIENT USE OF EXISTING TRANSMISSION AND GENERATION**  
11 **ASSETS?**

12 **A.** Yes. The proposed Long Term CRR market rules do not change the elements of the  
13 MRTU market design that provide economic incentives for efficient scheduling and use  
14 of energy and transmission assets (such as market prices that encourage parties to  
15 schedule generation only when it is economic to do so).

16 With respect to the design of the Long Term CRRs the most important short-run  
17 economic consideration is that, like CRRs, Long Term CRRs are purely financial  
18 instruments and do not conflict with short-run incentives for generators to respond to  
19 dispatch instructions and LMP prices.<sup>46</sup>

---

<sup>46</sup> Harvey/Pope Testimony, pp. 46-48.

1           Additionally, because Long Term CRRs will be fully funded obligations, like  
2           Seasonal CRRs and Monthly CRRs, temporal segments of the Long Term CRRs may be  
3           sold as Seasonal CRRs and Monthly CRRs in the Seasonal and Monthly CRR auctions,  
4           and in secondary market bilateral transactions. Although the Commission's Final Rule  
5           did not require full funding of all CRRs, the CAISO has adopted this approach because it  
6           will enhance the liquidity of the CRR auctions and secondary market trading of CRRs,  
7           and simplify the overall implementation of financial rights. The limit on registration of  
8           secondary market trades for temporal segments of Long Term CRRs that are beyond the  
9           time period of the last annual allocation can be addressed outside of the purview of the  
10          CAISO through the trading of unregistered derivative contracts, and is not expected to  
11          have a significant impact on market efficiency.

12          **10. CAISO Goal 3: Promote Long Term Economic Efficiency**

13          **Q. DO THE PROPOSED LONG TERM CRR MARKET RULES PROMOTE**  
14          **EFFICIENT INVESTMENT IN TRANSMISSION AND GENERATION?**

15          **A.** Yes. The addition of the Long Term CRR market rules to the MRTU is expected to  
16          promote long-run efficiency because it improves load serving entities' ability to manage  
17          the congestion charges associated with long-term energy supply commitments. The  
18          availability of Long Term CRRs will be evaluated by load serving entities, along with the  
19          cost of a range of transmission and generation alternatives, in determining how to most  
20          cost-effectively serve their load in the long-run. Load serving entities that enter into new  
21          contracts with generation that is separated from their load by a transmission constraint  
22          that is chronically binding may not be able to receive the Long Term CRRs that they

1           desire, because there may be excess demand for LT CRRs impacting this constraint,  
2           reflecting the limited value of generation on the wrong side of this constraint. On the  
3           other hand, load serving entities that enter into new long-term contracts with generation  
4           at locations where congestion is not yet present should be able to receive an allocation of  
5           the Long Term CRRs that they need to hedge themselves against potential future changes  
6           in the congestion charges associated with serving their load from this new generation  
7           source.

8           The possibility of obtaining of fully funded Long Term CRRs, that are fixed in  
9           megawatt quantity, will reduce the risk that load serving entities and other parties may  
10          face in developing new generation sources to serve their load. The Long Term CRR  
11          market rules enable load serving entities and others parties participating in generation  
12          development to eliminate the price risk of future changes in congestion charges, which  
13          may be an important factor in obtaining financing for new generation. As discussed at  
14          several previous points in this testimony, the Long Term CRR market rules provide an  
15          equitable opportunity for load serving entities to obtain Long Term CRRs from new  
16          generation sources, relative to load serving entities that need new Seasonal CRRs, or that  
17          wish to renew Seasonal CRRs.

18          The Long Term CRR market rules are also important, from the standpoint of  
19          long-term economic efficiency, because of what they do not do. First, and most  
20          importantly, they avoid the potentially adverse efficiency impacts of validating Long  
21          Term CRR nominations based on load serving entities' future energy supply decisions.  
22          Market rules that would provide priority for load serving entities to receive a Long Term  
23          CRR allocation based on the location of future long-term energy supply sources might



1 provide an incentive for load serving entities to build or contract with generation in low  
2 cost locations, although the generation might have very little value because of  
3 transmission limitations. The proposed approach would embed Tier LT within the  
4 annual allocation process, which will enable LSEs to obtain Long Term CRRs from new  
5 sources but without giving such nominations an advantage in competition for scarce  
6 CRRs across existing transmission constraints. Neither the entitlement to request Long  
7 Term CRRs nor priority in the allocation of Long-term CRRs is tied to a load serving  
8 entity's future generation ownership or generation contracts to avoid the uneconomic  
9 incentives that were explained in the MRTU filing.<sup>47</sup>

10 Finally, the Long Term CRR market rules also avoid the potentially negative  
11 impact on economic efficiency that could result from creating a situation in which LSEs  
12 felt compelled to request Long Term CRRs in order to manage their congestion costs,  
13 because they thought that there was a risk of not being able to subsequently obtain CRRs  
14 with a shorter term. Because it is risky for LSEs to hold Long Term CRRs without also  
15 having an off-setting position in the energy market, this might provide an incentive for  
16 inefficient long-term energy supply decisions. The proposed Long Term CRR market  
17 rules avoid this potentially negative impact on economic efficiency because they provide  
18 an opportunity for LSEs to obtain Long Term CRRs, but if they choose not to do so, they  
19 would not be disadvantaged in obtaining Seasonal CRRs for their load and renewing  
20 them annually. Since Seasonal CRRs and Long Term CRRs are subject to a combined

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<sup>47</sup> Harvey Pope Testimony at pp. 109-110.

1 nomination limit, LSEs that choose not to use Long Term CRRs and will have a fair  
2 opportunity to obtain Seasonal CRRs instead.

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 **A.** Yes, it does.

5

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator )  
Corporation )

Docket No. RM06-8-\_\_

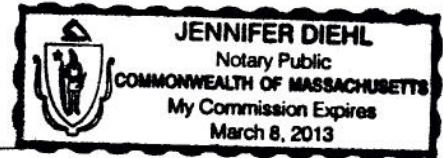
I, Susan L. Pope, declare under penalty of perjury, that the foregoing questions and answers labeled as my testimony were prepared by me, with the assistance of others working under my direction and supervision; and that the facts contained in my answers are true and correct to the best of my knowledge, information and belief.

Executed on: Jan. 25, 2007  
Date)

Susan L. Pope  
Susan L. Pope

Subscribed and sworn to me this 25  
day of January, 2007

My Commission expires \_\_\_\_\_



Jennifer Diehl  
Notary Public

Attachment E - Exhibit No. ISO-3  
Direct Testimony of Dr. Roger Treinen

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**Long-Term Firm Transmission Rights )  
in Organized Electricity Markets )**

**Docket No. RM06-8-\_\_\_\_**

**PREPARED DIRECT TESTIMONY**

**OF**

**DR. ROGER TREINEN**

1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**

4 **A.** My name is Roger Treinen. My business address is 151 Blue Ravine Road,  
5 Folsom, California 95630.

6 **Q. By whom and in what capacity are you employed?**

7 **A.** I am a Consultant for the Department of Market Services at the California  
8 Independent System Operator, Inc. (“CAISO”).

9 **Q. Please describe your professional and educational background.**

10 **A.** I received a B.S. degree, an M.S. degree and a Ph.D. all in Electrical Engineering  
11 from Iowa State University in 1989, 1991 and 1993, respectively. From 1994 to  
12 1999 I worked at Pacific Gas and Electric Company (“PG&E”), in San Francisco,  
13 California. At PG&E, I worked on developing various power system analysis  
14 methodologies such as those used to analyze voltage collapse and developed the  
15 accompanying software. I also worked on PG&E’s restructuring effort, which  
16 included (i) the development of the internal business procedure and software  
17 system for settlement purposes (*e.g.*, submission of metered data) with the  
18 California Power Exchange (PX) and the CAISO, and (ii) the development, of and  
19 use by, market participants of distribution loss factors. Since 1999, I have worked  
20 as a consultant at the CAISO in various capacities. Since 2004, I have been  
21 intimately involved in the Market Redesign and Technology Upgrade (“MRTU”)  
22 Project. Specifically, I have worked on (i) the development of Congestion  
23 Revenue Rights (“CRRs”) system functionality, (ii) CRR related studies,

1 including the CRR Dry-Run, (iii) CRR related education of market participants,  
2 and (iv) CRR related stakeholder processes and the development of the CRR  
3 sections of the MRTU Tariff filed on February 9, 2006 in Docket No. ER06-615.

4 **Q. Please describe your role in the development of the Long-Term Congestion  
5 Revenue Rights (“Long Term CRRs”) proposal.**

6 **A.** My role in the development of the Long Term CRR proposal is that of a technical  
7 advisor due to my close involvement in the development of the CRR system and  
8 my involvement in the CRR studies. I am the chief advisor to the team on issues  
9 regarding the CRR process and software, such as the details of the Simultaneous  
10 Feasibility Test.

11 **Q. What is the purpose of your testimony in this proceeding?**

12 **A.** My testimony is intended to provide a description of the analysis, including the  
13 data used, assumptions, study and study results to determine average relationship  
14 between peak load and base load. Dr. Kristov in Exhibit No. ISO-1, explains how  
15 the CAISO used this analysis to support its decision to limit Long Term CRR  
16 nominations to 50 percent of an LSE’s “Adjusted Load Metric.”

17 **II. ANALYSIS OF MINIMUM LOAD TO MAXIMUM LOAD RATIO**

18 **Q. Please provide an overview of your study and the results of your study.**

19 **A.** I compiled load data on a number of LSEs to arrive at the average ratio of  
20 minimum load to maximum load for a sample of LSEs and determine what the  
21 average ratio is for that group of LSEs. My study shows that one-half of a load

1 serving entity's ("LSE") peak hourly load for a particular season and TOU is a  
2 reasonable approximation for its base load, *i.e.*, its minimum hourly load for that  
3 season and time of use period ("TOU").

4 **Q. Why did you choose to use minimum and maximum load?**

5 **A.** I equate minimum load to base load because base load is load that is always  
6 present and we interpret such load to be base load. Maximum load is the peak  
7 load, which is a reasonable approximation of the Load Metric used in the  
8 CAISO's allocation of Long Term CRRs. The Load Metric is an LSE's level of  
9 load in megawatts (MW) for a defined time period that is exceeded in only 0.5  
10 percent of the hours of that time period based on historical or forecast Load data.  
11 This is not precisely the same as maximum load, but they are sufficiently close to  
12 each other in value that it would not affect the results of my study.

13 **Q. From what year did you derive load data to conduct your analysis?**

14 **A.** I used the same load data that LSEs submitted to the CAISO for use in CRR  
15 Study 2, which covered the period of 2003. The data from CRR Study 2 was  
16 generally in the same form as the data the CAISO is using to conduct the CRR  
17 Dry-Run. More specifically, that data was submitted for each LSE internal to the  
18 CAISO Control Area by each Default LAP. For example, the load data was  
19 provided per load in the San Diego Gas & Electric ("SDG&E") Default LAP,  
20 Southern California Edison ("SC&E") Default LAP and the Pacific Gas &  
21 Electric ("PG&E") Default LAP. This data was also provided for by hour over a  
22 period of a year.



1 **Q. Which LSEs were included in your sample?**

2 **A.** The LSEs I included in my analysis are listed in Table 1 below. This group of  
 3 LSEs represents the majority of load that was used in CRR Study 2, and it was the  
 4 group for which the CAISO had the most complete data set with which to conduct  
 5 this analysis. This group does not, however, capture every MW of load in the  
 6 CAISO Control Area, because (i) certain LSEs did not participate in CRR Study 2  
 7 (e.g., City and County of San Francisco (“CCSF”) and the Bay Area Rapid  
 8 Transit), (ii) load of certain LSEs was non-conforming (i.e., State Water Project  
 9 which consists largely of large water pumps), and (iii) the load data for certain  
 10 LSE was incomplete (e.g., the Western Area Power Administration), and (iv)  
 11 certain load is served under Transmission Ownership Rights (e.g., Metropolitan  
 12 Water District (MWD)). I am confident, however, that the sample I used  
 13 represents a large proportion of load in the CAISO Control Area.

14 Table 1

15

LSE Name
City of Anaheim
Arizona Public Service Energy Services
City of Azusa
City of Banning
City of Cerritos
City of Colton
City of Corona
Constellation NewEnergy
Lassen Municipal Utility District
Northern California Power Agency
City of Pasadena
Pacific Gas & Electric Retail
City of Riverside
Southern California Edison

Southern California Water Company
San Diego Gas & Electric Retail
Sempra Energy Solutions
Strategic Energy
City of Santa Clara
City of Vernon

1 **Q. Please describe your analysis.**

2 **A.** For each of the LSEs listed in Table 1, I determined the maximum load and  
 3 minimum load over each season, TOU (*i.e.* on or off-peak) and Default LAP. The  
 4 seasons are defined as:

- 5 • Season 1: January to March
- 6 • Season 2: April to June
- 7 • Season 3: July to September
- 8 • Season 4: October to December

9  
 10 The TOU periods are on-peak and off-peak and are as defined in the CAISO's  
 11 draft Business Practice Manual for CRRs. These TOU periods generally follow  
 12 the 16 hour on-peak period of 6 a.m. to 10 p.m. for Monday through Saturday  
 13 with all other hours of the week considered off-peak. For each LSE, season, TOU  
 14 period and Default LAP, I calculated the ratio of minimum load divided by  
 15 maximum load. I then averaged these ratios over all LSEs within the same season,  
 16 TOU period and Default LAP. This process yielded 24 values (4 seasons by 2  
 17 TOU periods by 3 Default LAPs). These 24 values are shown in Table 2 below.

1

2

3

Table 2

Season Name	TOU Period	Default LAP Location	Avg Of Min/Max
S1	OFF	PGE	53.44%
S1	OFF	SCE	56.86%
S1	OFF	SDGE	54.49%
S1	ON	PGE	56.49%
S1	ON	SCE	51.65%
S1	ON	SDGE	50.62%
S2	OFF	PGE	55.88%
S2	OFF	SCE	55.96%
S2	OFF	SDGE	57.59%
S2	ON	PGE	48.02%
S2	ON	SCE	46.59%
S2	ON	SDGE	50.59%
S3	OFF	PGE	47.68%
S3	OFF	SCE	50.49%
S3	OFF	SDGE	54.71%
S3	ON	PGE	47.59%
S3	ON	SCE	44.98%
S3	ON	SDGE	48.15%
S4	OFF	PGE	49.29%
S4	OFF	SCE	46.00%
S4	OFF	SDGE	50.22%
S4	ON	PGE	47.51%
S4	ON	SCE	40.09%
S4	ON	SDGE	46.79%
<b>AVERAGE of the 24 Values</b>			<b>50.49%</b>

4

5

6

7

The above analysis is based on the maximum load over the specified period and Default LAP. The upper bound for the Long Term CRR allocation as proposed by the CAISO in this proceeding is based on the Load Metric.

8

**Q. What is the resulting average ratio?**

9

**A.** As noted above in Table 2, the resulting average is ratio of minimum to maximum

10

load is 50.49%.

1 **Q. What do you conclude from this average ratio?**

2 **A.** Because as I explained above the maximum load is a reasonable approximation of  
3 the Load Metric, it follows that the average minimum load to maximum load ratio  
4 is also a reasonable approximation of base load. Therefore, based on the 50.59%  
5 average ratio of minimum to maximum load, I concluded that 50 percent of an  
6 LSE's Load Metric was a reasonable approximation of its base load. Given that  
7 the 50.59% value is an average, some LSE's may have individual base load  
8 values that are slightly higher or slightly lower than 50%.

9 **Q. Does this conclude your testimony?**

10 **A.** Yes it does.

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**California Independent System Operator )  
Corporation )**

**Docket No. RM06-8-\_\_\_**

I, Roger Treinen, declare under penalty of perjury, that the foregoing questions and answers labeled as my testimony were prepared by me, with the assistance of others working under my direction and supervision; and that the facts contained in my answers are true and correct to the best of my knowledge, information and belief.

Executed on: 1/23/2007  
Date

  
\_\_\_\_\_  
Roger Treinen

Attachment F -  
CAISO Whitepaper on Long Term Transmission Rights

# FINAL CAISO Proposal

## Long-Term Congestion Revenue Rights

January 18, 2007

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## Introduction

This paper presents a complete proposal by the California Independent System Operator (“CAISO”) for Long-Term Congestion Revenue Rights (LT-CRRs), which will be presented to the Board of Governors for approval on January 24 and file with FERC on January 29 in compliance with the Final Rule on Long-Term Firm Transmission Rights (Order No. 681).

The final proposal described here was reviewed with stakeholders initially during a public conference call on December 19. Additional and more in-depth review and discussion of this full proposal continued at an all-day stakeholder meeting on January 9. Stakeholder comments and questions that were submitted by January 5 were discussed at the January 9 meeting. An additional conference call was conducted to respond to any remaining questions on the following Tuesday, January 16<sup>th</sup>.

The foundation for this proposal was established through stakeholder meetings and conference calls between August and December 2006, including a Market Issues Forum on October 18<sup>th</sup> that featured a panel discussion highlighting various stakeholder perspectives. In preparing this Final Proposal, the CAISO staff and stakeholders have reviewed the FERC Final Rule, discussed goals and principles for long-term transmission rights and considered a number of options for the design and release of long-term rights.

Except for certain enhancements identified in this paper which cannot be implemented before the CRR Year 2 allocation and auction processes, this LT-CRR proposal is offered as a complete “end-state” design. The CAISO proposal described herein also provides the basis for draft tariff language that was circulated to stakeholders on January 8<sup>th</sup> and discussed in the January 16<sup>th</sup> conference call. Thus, this proposal is intended to provide the conceptual basis for implementing (with FERC approval) Long Term Firm Transmission Rights (“LT-FTRs”) within the CAISO’s market redesign, as required by FERC’s Final Rule on LT-FTRs, Order No. 681.

The CAISO’s initial assessment of the timeline for implementing this proposed LT-CRR process concludes that this proposed LT-CRR product and release process could be in place at the start of MRTU, now scheduled for January 31, 2008.



## 1 Objectives and Guiding Principles

This section reiterates the CAISO's objectives and proposed guiding principles for formulating the LT-CRR proposal as well as Professor Frank Wolak's suggested goals that were presented to stakeholders on November 29<sup>1</sup>:

1. Comply with the seven guidelines required by FERC in the LT-FTR Final Rule. The specific guidelines are:
  - (1) The LT-FTR should specify a source, sink and MW quantity.
  - (2) The LT-FTR must provide a hedge against day-ahead LMP congestion charges for the period covered and quantity specified. Once allocated, the financial coverage provided by a financial long-term right should not be modified during its term except in the case of extraordinary circumstances or through voluntary agreement of both the holder of the right and the transmission organization.
  - (3) LT-FTRs made feasible by transmission upgrades or expansion must be available upon request to any party that pays for such upgrades or expansion.
  - (4) LT-FTRs must be made available with term lengths that are sufficient to meet the needs of LSEs to hedge long-term power supply arrangements.
  - (5) LSEs must have priority over non-LSEs in the allocation of LT-FTRs that are supported by existing capacity.
  - (6) A LT-FTR held by a LSE should be re-assignable to another entity.
  - (7) The initial allocation of LT-FTRs shall not require recipients to participate in an auction.
2. Utilize the flexibility offered by the Final Rule to develop a proposal that is most suited to the California context and the MRTU markets.
3. Promote efficient use of existing transmission and generation assets.
4. Promote efficient investment in transmission and generation.
5. Ensure rapid implementation at the start of MRTU.
6. Promote equitable allocation of LT-FTRs to entities that pay for the transmission network.
7. Ensure that ownership of LT-FTRs does not degrade energy and ancillary services market efficiency and system reliability.
8. Support secondary market activity for both short-term and long-term CRRs.

---

<sup>1</sup> This presentation is located at: <http://www.caiso.com/18bf/18bf97c06a6e0.pdf>

## 2 Overview of Proposed LT-CRR Release Process

The proposed LT-CRR release process builds upon the FERC-approved annual CRR allocation process by allowing LSEs to nominate as LT-CRR a subset of the CRRs they have received in Tiers 1 and 2 of the CRR Year 1 annual allocation process, or in Tier 1 of the CRR Year 2 or subsequent annual allocation process (i.e., the Priority Nomination Process or “PNP”). Since the allocation of LT-CRRs will be based on the annual CRR allocation to Load Serving Entities (“LSEs”), the LT-CRRs will be obligations, differentiated by season and time of use (“TOU” is on-peak or off-peak.).

Because of this proposed structure of LT-CRRs, it will be helpful to establish some terminology conventions up-front. This paper uses the generic term “CRR” to refer comprehensively to all CRRs the CAISO releases, including those defined for a particular season and time-of-use combination and valid over a 10-year horizon (“LT-CRRs”), those defined for a particular season and time-of-use combination within a single year (“seasonal CRRs”), and those defined for a particular month and time-of-use combination within a single year (“monthly CRRs”). Note that this paper does not discuss monthly CRRs. This LT-CRR proposal does not affect any features or characteristics of the filed monthly CRR instrument or monthly release processes.

To accomplish the release of LT-CRRs, the CAISO proposes to conduct an additional process including an associated Simultaneous Feasibility Test (“SFT”) for nominating, testing and awarding LT-CRRs. This process basically constitutes another tier, which will be designated “Tier LT.” Like other tiers, the “Tier LT” process would involve an exchange of information between the CAISO and eligible LSEs, as well as the performance of SFTs to assess the feasibility of those seasonal CRRs that are nominated as LT-CRRs.

An important advantage of embedding the LT-CRR allocation process within the annual CRR allocation process – in contrast to the creation of a “Tier 0” exclusively for LT-CRRs that would be conducted before the annual allocation process – is that parties who want to rely entirely on one-year and monthly rights would be competing on equal footing with parties who want Long Term rights.

With a “Tier 0” approach as described in the CAISO’s November 28 White Paper, LSEs who request LT-CRRs would have the opportunity to obtain those rights without having to compete for scarce transmission capacity with LSEs seeking only one-year CRRs. In contrast, the present proposal avoids disadvantaging entities that want only one-year CRRs because LT-CRRs are awarded from the subset of CRRs that are feasible in Tier 1 (Tiers 1 and 2 in the first year). It avoids a situation in which parties might feel forced to take LT-CRRs in preference to one-year CRRs in order to have an equitable opportunity to obtain a CRR of any kind.

A second advantage to embedding the LT-CRR release process within the annual CRR allocation process is that it simplifies the process for determining LSE eligibility for LT-CRRs. The proposal requires no source verification other than that already filed and approved for the annual allocation of CRRs, and builds off of the eligibility rules that were extensively discussed during the design of the tiers and PNP for the annual allocation.

The following sub-sections outline the characteristics of the LT-CRR product and explain in greater detail how the release process would work.

### 2.1 The Proposed LT-CRR Product: Structure and Key Characteristics

1. Consistent with CRRs in general, the LT-CRRs would be obligations. LSEs that are awarded these financial rights would maintain financial responsibilities throughout the term of these instruments, unless the CRR or LT-CRR were sold and registered to

another party through the CAISO's Secondary Registration System. (Certain limitations on the sale or transfer of allocated LT-CRR are discussed later in this paper.)

2. Consistent with CRRs in general and with Guideline 1 of the "Final Rule,"<sup>2</sup> each LT-CRR will have a specific source, sink and MW quantity.
3. Consistent with Guideline 4 of the Final Rule, the term for LT-CRRs would be ten years. Like seasonal CRRs, LT-CRRs would be differentiated by season and time-of-use (on-peak or off-peak). Thus, each LT-CRR will actually apply to a single season and TOU combination for a 10-year period, and eight separate LT-CRRs would be necessary to cover every hour of the year over a 10-year period.
4. Each LT-CRR that is awarded would be determined to be feasible and hence "MW firm" for a ten-year period over a transmission grid that is derated to 75% of its total capacity using the same network model used for seasonal CRRs awarded in the same year. That is, anticipated transmission upgrades would not be included in the network model for CRRs until they are actually in operation. As noted above, however, in CRR Year 2 and beyond this network model may have different previously allocated LT-CRRs modeled as fixed CRRs in different years of the 10-year horizon. This is the first of two aspects of the "firmness" of LT-CRRs required by Guideline 2 of the Final Rule.
5. Each LT-CRR would be fully funded, as explained below (in Section 6) within the Full Funding section, so that hourly revenue shortfalls due to grid conditions would be tracked in the CRR balancing account for eventual true-up at the end of each month. This is the second aspect of "firmness" as required by Guideline 2 of the Final Rule.
6. LT-CRRs may be subdivided and sold in annual or monthly auctions for the term covered by the auction. Thus, year 2010 of a summer on-peak LT-CRR could be sold in the regular auction for 2010 summer on-peak CRRs. Similarly, the August 2010 on-peak hours of a summer LT-CRR could be sold in the regular auction for the August 2010 on-peak period.

In addition, bilateral transfers of LT-CRRs via the CAISO's Secondary Registration System (SRS) will be limited to the same time constraint. That is, LT-CRRs cannot be transferred via the SRS for years beyond the year covered by the most recent annual CRR allocation and auction process. For example, suppose the CAISO conducts the annual allocation and auction process for 2012 in September of 2011. Then prior to the completion of this process, the LSE holding a LT-CRR cannot transfer through the SRS any portion of the LT-CRR beyond the year 2011. Once the annual allocation process for 2012 seasonal CRRs is complete, the LSE may offer 2012 segments of its LT-CRRs into the 2012 CRR auction and may transfer such segments via the SRS.

This limitation ensures that the subsequent-year portions of LT-CRRs continue to be held by the LSEs to which they were allocated, so that such portions will be available to be transferred in association with load migration consistent with Guideline 6 of the Final Rule.

The above limitation does not, of course, prevent an LSE who was allocated LT-CRRs from effecting the financial equivalent of a sale of its LT-CRRs, but it must do so outside of the CAISO's SRS. This limitation thus ensures that the original LSE remains the holder of record for CAISO settlement purposes until the LT-CRRs are transferred to

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<sup>2</sup> The "Final Rule" is FERC Order No. 681, which is located on the CAISO website at: <http://www.caiso.com/1845/1845dd5e50d30.pdf>

reflect migration of load to another LSE. For the time period for which bilateral transfers via the SRS and auction sales are permitted as specified above, the transfer of CRRs to reflect load migration could be accomplished by the financial equivalent option for one-year CRRs per Section 36.9.5.1.1 of the filed and conditionally approved MRTU tariff.

In addition, the CAISO reiterates the caveat noted in the November 28<sup>th</sup> White Paper<sup>3</sup> that the CRR system will not be immediately capable upon MRTU start-up to sell any CRRs back into a CAISO-managed auction. The CAISO intends to build capabilities for this feature sometime after MRTU start-up.

## 2.2 Proposed LT-CRR Release Process: Key Characteristics

1. The release of LT-CRRs would be incorporated within the process for allocating seasonal CRRs to eligible LSEs.
2. The LT-CRR release process would not change the requirement for source verification within the Year 1 annual allocation, nor does it add any additional need for source verification in Year 1 or later years.
3. LSEs would not be required to participate in an auction in order to acquire LT-CRRs.
4. Like the seasonal and monthly CRR product, LT-CRRs would be allocated to eligible LSEs who pay for use of the existing transmission grid.
5. Market participants who pay for transmission upgrades (also referred to as “merchant transmission projects”) will be allocated LT-CRRs that reflect the transfer capacity for CRRs added to the grid by the project. (This feature is already contained in the MRTU tariff filed in February 2006, and is reiterated here only for completeness.)
6. To hedge the congestion charges of their base load, LSEs could obtain LT-CRRs for up to 50% of their Adjusted Load Metric<sup>4</sup>. As explained further below, LSEs would therefore have a reasonable opportunity to obtain LT-CRRs in order to support their long-term energy supply arrangements.
7. The proposed release process does not predicate the award of LT-CRRs on the ownership of generation or the establishment of long-term energy contracts, except to the extent that source validation will be performed in CRR Year 1. This approach avoids the creation of potentially uneconomic incentives for future generation investment and contracting only to earn congestion revenues.
8. The proposed approach maintains the simultaneous feasibility of LT-CRRs and does not impact the simultaneous feasibility of the seasonal CRRs.

## 3 Review of the Filed Annual Process for Allocating Seasonal CRRs

The proposal described in this paper builds upon the CRR market rules conditionally approved by FERC in the September 21 MRTU Order. Specifically, the present proposal integrates the release of LT-CRR into the CAISO’s annual process for allocating seasonal CRRs. The CAISO

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<sup>3</sup> See footnote #2 in the document that is located at: <http://www.caiso.com/18bc/18bca6b7610c0.pdf>

<sup>4</sup> See Section 3.1, which explains “Adjusted Load Metric.”

believes that this approach accomplishes the objectives and requirements of FERC's LT-FTR Final Rule and meets the needs of market participants in a manner that also balances the other objectives identified above.

The present section of this paper provides a summary review of the approved CRR design and annual CRR release process, to establish the basis on which the LT-CRR proposal is added in the next section.<sup>5</sup>

### **3.1 Year 1 Annual Allocation of One-Year CRRs to Load Serving Entities (LSEs)**

Before MRTU start-up, seasonal CRR obligations that will be effective for CRR Year 1 (from MRTU start-up to 12/31/08) will be allocated based on LSE nominations. These LSE allocations will be subject to a test of simultaneous feasibility on a model using 75 percent of transmission capacity and accounting for any awards of CRRs to merchant transmission projects and capacity subject to existing contractual or ownership rights (ETCs, CVRs or TORs). These seasonal CRRs will be further differentiated by a time-of-use period (TOU, on-peak or off-peak).

The "Load Metric" for each LSE, for each season/TOU combination is the 99.5 percentile point of their previous year's load duration curve for that season and TOU period.<sup>6</sup>

The "Adjusted Load Metric" for an individual LSE is its Load Metric minus the megawatts of that LSE's load that is covered by ETCs, CVRs or TORs.

For the three tiers of the annual allocation, LSEs may nominate no more MW of CRR than 75% of their individual "Adjusted Load Metric."

The value 75% of the "Adjusted Load Metric," is the LSE's "Seasonal Eligible Quantity" (SEQ) for each season/TOU.

#### **➤ Tier 1: Nominations from verified sources**

For Tier 1 LSEs may nominate up to 50% of their SEQ, which represents 37.5% (= 50% times 75%) of each LSE's "Adjusted Load Metric" for a particular LAP, season and TOU.

The sources for these Tier 1 nominations must be verifiably tied to supply sources that were owned or under contract to the LSE during the period from September 1, 2004 through August 31, 2005.<sup>7</sup> Such sources may include Generating Units,

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<sup>5</sup> NOTE: The material in this section is intended to reflect Section 36 of the filed MRTU tariff. In the event of any inadvertent discrepancy between this document and the filed tariff, readers should rely on the tariff as the definitive source.

<sup>6</sup> For LSEs that utilize the Default LAP for load settlement and serve load in more than one Default LAP, this calculation is performed and CRRs are allocated separately for each Default LAP in which the LSE serves load.

<sup>7</sup> In response to several stakeholder comments, the CAISO will update this historical reference period. The CAISO proposes the updated period for LSEs to demonstrate supply sources to be calendar year 2006. Stakeholders can anticipate further discussion on which sources will qualify during this 2006 time period. For the Dry Run, sources were verified upon demonstration of generation ownership or any contract that was valid during the 09/2004 through 08/2005 time period, with MWs prorated for contracts not in effect for the full length of this period. Some entities have constructively commented that the CAISO utilize information from the 2006 Resource Adequacy showings or the

Trading Hubs and Scheduling Points. LSEs may nominate up to 75% of the PMax of a verified generating unit or of the average hourly quantity of energy contractually delivered to a trading hub during this historical period.

LSEs may also nominate import CRR sources based on 75% of the Pmax for generators outside the CAISO control area that were verifiably owned or under contract during this 9/04 through 8/05 period, and for which the LSE demonstrates transmission arrangements to transport energy from the external generator to the CAISO Scheduling Point.

After the CAISO performs the Simultaneous Feasibility Test (SFT) and performs any needed prorationing of these nominations, LSEs will be notified of their awarded CRRs, which are then reserved within the SFTs for Tiers 2 and 3.

➤ **Tier 2: Nominations from verified sources**

This nomination round is similar to Tier 1, except that an LSE now may nominate up to 75% of its SEQ (equivalent to 56.25% (or 75% times 75%) of its “Adjusted Load Metric”) minus the quantity of seasonal CRRs awarded in Tier 1 for that season and time-of-use period.

➤ **Tier 3: Nominations from any source**

Each LSE may nominate up to 100% of its SEQ less the seasonal CRRs already awarded in Tiers 1 and 2.

CRR source nominations for this Tier are not verified; thus, LSEs may nominate from any generator P Node, Trading Hub or Scheduling Point.

Also, LSEs whose load is settled at a default LAP may nominate CRRs that sink at a sub-LAP of that Default LAP. This differs from Tiers 1 and 2, in which all CRR nominations by LSEs whose load is settled at a Default LAP must sink at the Default LAP.

### **3.2 Year 1 and Subsequent Annual Auction of One-Year CRRs**

An auction for seasonal CRRs is conducted annually following the allocation of seasonal CRRs to LSEs. Entities may submit bids by season and time-of-use, and may utilize a broader set of CRR sources and sinks than was allowable in the allocation process.

The annual auction of seasonal CRRs, like the annual allocation, will be based on a grid model for each season and TOU period that uses 75 percent of transmission capacity and accounts for any awards of CRRs to merchant transmission projects and capacity subject to any applicable existing contractual, converted or ownership rights.

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CPUC’s Long-Term Procurement proceeding to verify sources. These suggestions will be considered with stakeholders in the near future.

### 3.3 Year 2 and Subsequent Annual Allocation of One-Year CRRs to LSEs

After CRR Year 1, the CAISO will standardize CRR years to coincide with calendar years. Thus CRR Year 2 will begin on 1/1/09. After CRR Year 1, verification of sources for CRR nominations will not be performed. All annual allocations of seasonal CRRs will be based on a grid model that includes 75% of transmission capacity and that accounts for any awards of CRRs to merchant transmission projects and capacity subject to existing contractual or ownership rights.

➤ **Tier 1: Priority Nomination Process (PNP)**

In this tier, LSEs may nominate for renewal any of the seasonal CRRs they were awarded in the previous year's annual allocation process for the same season, TOU and sink location. Only renewal nominations will be accepted in the PNP, so as to provide the greatest likelihood that parties will be able to renew those CRRs they wish to retain.

Nominations of these high-priority seasonal CRRs are likely to be renewed because they were feasible in the previous year and they would be the first nominations run through the SFT for the annual allocation of seasonal CRRs.

Per the filed tariff, in Year 2's PNP each LSE may nominate up to 33% of its SEQ for each season and time period, equivalent to 25% of an LSE's "Adjusted Load Metric." FERC's September 21 MRTU Order asked the CAISO to reconsider the level of this upper bound,<sup>8</sup> however, and in conjunction with this LT-CRR proposal the CAISO now proposes to increase this upper bound to 66.7% of the SEQ (or 50% of the "Adjusted Load Metric.")

(Similarly, the CAISO now proposes to change the upper bound in Tier 2 to 66.7% of the SEQ for each LSE.)

With these inter-related changes, the rules for the Year 2 annual CRR allocation process would be identical to the rules for subsequent years.

➤ **Tier 2: nomination from any source**

Under the currently filed MRTU Tariff, an LSE may nominate up to 50% of its SEQ minus the seasonal CRRs awarded in Tier 1.

As part of this LT-CRR proposal, the CAISO proposes to increase this upper bound to 66.7% of the SEQ for each LSE, minus the seasonal CRRs awarded in Tier 1.

An LSE also may nominate additional seasonal CRRs for up to 50% of the net load it has gained through load migration.

➤ **Tier 3: nomination from any source**

The Tier 3 in Year 2 is conducted by the same rules as Year 1.

Each LSE may nominate up to 100% of its SEQ (75% of its "Adjusted Load Metric") after taking into account the seasonal CRRs already allocated in Tiers 1 and 2.

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<sup>8</sup> At P 805.

LSEs may nominate from any permitted source; those LSEs whose load is settled at a default LAP may nominate CRRs that sink at a sub-LAP of the default LAP.

### 3.4 Year 3 and Subsequent Annual Allocation of One-Year CRRs to LSEs

In accordance with the filed MRTU tariff, in the Year 3 and subsequent annual allocation processes the rules for each Tier are identical to Year 2 except that up to 66.7% of each LSE's SEQ can be nominated as priority CRRs within Tier 1. As noted above, if the CAISO adopts the 66.7% limit in CRR Year 2 then there would be no difference between the CRR Year 2 rules and the subsequent year rules.

Following the annual allocation of seasonal CRRs, the remaining 25 percent of transmission capacity is allocated and auctioned monthly. The monthly processes will not be described here because they are not pertinent to the proposed process for releasing LT-CRRs.

## 4 The Proposed LT-CRR Release Process for CRR Year 1

1. For Year 1, the Tier LT process would be initiated immediately upon the completion of Tier 2,<sup>9</sup> before LSEs submit nominations in the Tier 3 process. Note that the CAISO is not proposing any modifications to the FERC-approved CRR Year 1 Tier 1 and Tier 2 processes, including the requirements and procedures for source verification.
2. After LSEs are notified of the Tier 2 allocation results, LSEs could then submit requests to designate as 10-year LT-CRRs a certain percentage of the seasonal CRRs they have been awarded in Tiers 1 and 2. These designations would of course be specified for each season and TOU, consistent with the seasonal CRRs released in Tiers 1 and 2. There would be no further requirement for the LSE to demonstrate a supply arrangement or plant ownership to be eligible to request LT-CRRs in this manner.

In CRR Year 1 Trading Hubs would not be allowable sources for LT-CRR nominations, as explained in Section 8.1 of this White Paper.

3. Apart from the exclusion of Trading Hub CRRs noted above, the CAISO proposes that most of an LSE's Year 1 seasonal CRRs awarded in Tier 1 and Tier 2 would be eligible for LT-CRR nomination; specifically, the CAISO proposes a target cap of 50% of an LSE's "Adjusted Load Metric."<sup>10</sup> (Recall that an LSE could have obtained seasonal CRRs for up to 56.25% of its "Adjusted Load Metric in Tiers 1-2.)

The rationale for a target cap of 50% is that based on historical hourly load data it appears that, on average, one-half of an LSE's peak hourly load for a particular season and TOU is a reasonable approximation for its base load, i.e., its minimum hourly load for that season and TOU. Linking LT-CRR eligibility to LSE base load is a principle that several stakeholders have advocated in the LT-CRR process and appears to be consistent with FERC's guidance in Order No. 681.

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<sup>9</sup> For CRR Year 1, the annual allocation of seasonal CRRs will be initiated several months before MRTU start-up.

<sup>10</sup> To reiterate, an LSE's "Adjusted Load Metric" is its Load Metric for that season and TOU minus the LSE's coverage of ETCs, CVRs or TORs.



4. Note that for Year 1 the seasonal CRRs awarded in Tiers 1 and 2 are directly linked to verified sources, and therefore are likely to be associated with owned generation and long-term contracts that LSEs had in place during the historical reference period.
5. After receiving nominations for LT-CRRs within this new “Tier LT,” the CAISO then would test the feasibility of these nominated sources and sinks for the following 10-year period.<sup>11</sup> These additional SFTs are needed because the subset of the Tier 1 and Tier 2 CRR awards designated as LT-CRR may not be fully feasible in the absence of the other Tier 1 and Tier 2 CRR awards that were not designated as LT-CRR.

In order to ensure the “MW firmness” of the LT-CRR over future years, the CAISO must consider the fact that some of these other seasonal CRRs may not be nominated for renewal and, as a result, any counterflows they may have provided to support the LT-CRR would be absent in the later years. Thus the Tier LT SFT would test the simultaneous feasibility of just those awarded Tier 1-2 CRRs that are nominated as LT-CRRs, in the absence of the other awarded Tier 1-2 CRRs, and if necessary, the LT-CRR nominations may be prorated to achieve feasibility. For this initial allocation of LT-CRRs, the assessment would require the performance of 8 SFTs for the four seasons and two TOU periods.

6. The additional SFTs for Tier LT would be performed on a grid modeled for 60% of transmission capacity, which would be somewhat smaller than the 75% used for the SFTs to allocate seasonal CRRs in Tiers 1, 2 and 3.

A primary reason for modeling 60% of grid capacity for the Tier LT SFTs is to ensure that binding constraints occurring in Tier LT do not adversely impact future years’ allocation of one-year seasonal rights. Because the LT-CRRs awarded through Tier LT must be modeled as fixed CRRs in the network for the annual CRR processes in subsequent years, if Tier LT results in binding constraints at the 75% of grid capacity level it may excessively limit the availability of certain rights in subsequent year’s allocation process, particular the Tier 1 Priority Nomination Process (“PNP”) that will be used by LSEs who want to rely on year-to-year renewal of seasonal CRRs to meet their congestion hedging needs. Moreover, such impacts would endure for the entire 10-year horizon of the LT-CRRs, to be relieved only when and to the extent that new transmission capacity is added by upgrades. Derating grid capacity for Tier LT to 60% instead of utilizing the full 75% available for seasonal CRRs ensures that there will be an additional amount of capacity across the entire grid for each year’s annual CRR process, beyond the amount utilized by the fixed CRRs previously released.

The CAISO has incorporated this provision in its proposal after careful consideration of a point raised by several parties in the stakeholder discussion, namely, that if the LT-CRR awards in Year 1 are substantially different from parties’ expectations and do not meet their needs, these results should not preclude later opportunities to meet their needs via subsequent steps in the CRR process. The 60% limitation will provide some assurance that, at a minimum, the annual PNP for year-to-year renewal of seasonal CRRs will not be adversely affected by the LT-CRR awards. At the same time, the CAISO recognizes that several parties urged the CAISO to go further and implement an LT-CRR auction

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<sup>11</sup> Of course, the SFT runs in Tiers 1 and 2 have already established feasibility for the first year of these LT-CRR nominations. Thus the 8 SFT runs for “Tier LT” in Year 1 would take out other seasonal CRRs from the model to test the feasibility of the LT-CRR nominations over the following nine years of the 10-year period. There are four seasons and two time-of-use periods, thus there are  $4 \times 2 = 8$  SFTs.

process following the Tier LT allocation, in which the full 75% of the grid would be made available for all qualified bidders to obtain LT-CRRs. The CAISO cannot develop such a feature for the January 29 compliance filing, nor could it implement such at MRTU start-up. The CAISO will, however, entertain this idea with stakeholders in considering Year 2 enhancements to the CRR processes, and will in the same process evaluate the 60% limit to assess whether it should be revised for Year 2.

7. The CAISO intends to provide the results of the Tier LT SFT to those LSEs who made LT-CRR nominations, so they would know their LT-CRR awards before submitting their Tier 3 seasonal CRR nominations. A possible result of the LT-CRR feasibility tests is that some LT-CRR nominations could get pro-rated, but any proration would only affect the long-term aspect of the CRR, i.e., the last nine years of the nominated 10-year LT-CRR; the Tier 1-2 seasonal CRR awards for CRR Year 1 would not be affected.
8. Once the nominated LT-CRRs are awarded in Tier LT, they would be reserved as fixed CRRs in the SFTs for all allocation and auction processes for CRR Year 2 and future years throughout the term of the LT-CRR.
9. The MW amount of LT-CRRs awarded to each LSE would count towards its SEQ for the associated season/TOU in each year for the life of the LT-CRR, and in particular would count against its eligibility to nominate seasonal CRR for renewal in the PNP. The latter provision ensures that LSEs who prefer to utilize annual renewal of CRRs rather than acquire LT-CRRs are not unduly disadvantaged relative to those LSEs who prefer LT-CRRs.

## 5 The Proposed LT-CRR Release Process After CRR Year 1

1. For Year 2 and subsequent annual allocations, "Tier LT" would immediately follow Tier 1, the Priority Nomination Process (PNP). LSEs would be able to request designation of new LT-CRRs for any CRRs they receive in the PNP, as long as they remain within their total LT-CRR eligibility, i.e., a target cap of 50% of their Adjusted Load Metric.<sup>12</sup> In this way, new LT-CRRs could be designated for load growth.
2. Only the seasonal CRRs that are awarded as renewal CRRs within the Tier 1 (PNP) process could be nominated as new LT-CRRs. Note, however, that an LSE may nominate for renewal in the PNP any seasonal CRRs they were allocated in any tier of the previous year's annual CRR allocation process. Thus, an LSE in the Year 2 PNP could be awarded a renewal CRR that had previously been awarded either within Tiers 1 and 2 of Year 1, which require source verification, or within Tier 3 that does not require source verification.
3. Given the rules stated above, the way for an LSE to be allocated a LT-CRR from a CRR source for which it had not previously received a seasonal CRR (or to receive more seasonal CRRs from an existing source) is to (1) first request and receive a seasonal CRR from the new source in one of the free choice tiers – Tier 3 of Year 1 or Tiers 2-3 of Year 2 and beyond; then (2) request and receive a renewal of the seasonal CRR from that source in the next year's PNP and (3) request and receive the LT-CRR in Tier LT,

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<sup>12</sup> The SEQ is 75% of the Adjusted Load Metric. Thus, the PNP limit of 66.7% of SEQ is equal to 50% of the "Adjusted Load Metric." If an LSE nominated 66.7% of its SEQ for LT-CRRs, there would be no sink upper bound left for that LSE within the PNP Tier.

which requires that after the request the quantity of LT-CRRs held by the LSE remain under 50% of its Adjusted Load Metric. As described elsewhere, all market participants also may obtain 30 year LT-CRRs from new sources by sponsoring upgrades of the transmission system, and obtaining incremental LT-CRRs.

Consistent with the CRR market rules conditionally approved by FERC in the September 21 MRTU Order there is no requirement for source validation for the LT-CRRs that LSEs request in Tier LT, other than the validation that is already included as part of Tiers 1 and 2 in Year One of the allocation of one-year CRRs. LSEs will not be assigned new LT-CRRs when they obtain or contract with new energy sources, nor will they lose LT-CRRs as a result of the termination of generation ownership or a generation contract. Neither the entitlement to request LT-CRRs or priority in the allocation of LT-CRRs is tied to LSE generation ownership nor generation contracts to avoid the incentive issues that were explained in the MRTU filing. A tie between CRR entitlement and an LSE's generation ownership or generation contracts would introduce inefficiency into the market for long-term generation investment.

The proposed rules for allocating LT-CRRs to LSEs allow LSEs to obtain LT-CRRs sourced at the location of new generation or at the injection location for a new generation contract, provided that they pass each of the steps listed above. At the same time, the rules provide protections to insure that: (i) all LSE requests for CRRs from new sources are considered on an equitable basis after giving priority to CRRs awarded in the validated Tier (Year 1) or the PNP tier (Year 2 and beyond); (ii) requests for LT-CRRs from new sources compete on an equal basis with requests for renewal of one-year CRRs in the PNP tier; and (iii) the requests for LT-CRRs from new sources do not lead to pro-rationing of previously allocated LT-CRRs.

- In order for an LSE to obtain a LT-CRR from a source from which it has not previously been allocated CRRs, it must first request and receive a seasonal CRR from the new source in one of the free choice tiers in the previous year – Tier 3 of Year 1 or Tier 2-3 of Year 2 and beyond. This means that the new LT-CRR must be found to be simultaneously feasible after providing priority to Tier 1 and Tier 2 CRRs (in Year 1) or PNP CRRs (In Year 2 and beyond), and existing LT-CRRs, since these seasonal CRRs will already have been allocated prior to the free choice tiers. All requests for seasonal CRRs will be considered at the same time in the free choice tiers, including those from new sources, and pro-rated as necessary to determine a simultaneously feasible set of awards in each tier.
- The second step that an LSE must take to obtain a LT-CRR from a new source is to request the seasonal CRR in the PNP tier in the following year. In the PNP tier, the LSE's request for the seasonal CRR will be evaluated for simultaneous feasibility along with all other LSE requests for PNP tier CRRs, while holding fixed all previously allocated LT-CRRs (as well as ETC and CVR). Year-by-year, all PNP requests for CRRs will be evaluated simultaneously, and pro-rated if necessary in determining a set of simultaneously feasible PNP tier CRR awards.
- The final step that an LSE must take to obtain a LT-CRR from a new source is to request and receive the LT-CRR in Tier LT, while remaining under its LT-CRR cap equal to 50% of its Adjusted Load Metric. In the simultaneous feasibility test for Tier LT, the model will include representation for all previously awarded LT-CRRs (as well as TOR, ETC and CVR), but will

exclude all PNP CRRs that are not nominated as LT-CRRs. In this final step, the ISO will consider all requests for new LT-CRRs at the same time, and pro-rate the requests as necessary in determining a set of simultaneously feasible set of LT-CRR awards that preserves the full quantity of all previously-awarded LT-CRRs. This final step insures that the award of LT-CRRs from new sources does not lead to the degradation of previously awarded LT-CRRs.

The steps described above are essential to maintaining an equitable balance between and among LSEs that desire to obtain new LT-CRRs and LSEs that wish to hedge their transmission congestion charges by relying on one-year CRRs obtained in the PNP or free choice tiers. These rules are particularly important in light of the decision not to require validation that requests for LT-CRRs from new sources are associated with LSE-owned generation or a long-term LSE contract for energy delivery at the source, although some version of the rules would be required even if validation were included as part of the LT-CRR proposal.

4. For Year 2 and subsequent annual allocations, the "Tier LT" process would become a regular part of the CRR production flow. LSEs could nominate new LT-CRRs by designating some of the seasonal CRRs that are awarded in the Tier 1 PNP. Once these new LT-CRR nominations are submitted to the CAISO, the CAISO would run the "Tier LT" SFTs for each season/TOU for the remaining nine years of the 10-year time horizon. These "Tier LT" SFTs would incorporate as fixed CRRs any LT-CRRs that were previously awarded for each season/TOU, but would not include the current year PNP awards that were not nominated as LT-CRR. Depending on the "Tier LT" SFT results, pro-rationing is possible for these newly nominated LT-CRRs, but such pro-rationing would not affect the LT-CRRs already released, nor would it affect any of the one-year renewal CRRs awarded in the current PNP. Thus the "MW firmness" of the previously released LT-CRRs is protected in this process.
5. At the end of the 10-year term of a LT-CRR, LSEs could nominate for renewal in the PNP the identical source, sink and MW terms of the expiring LT-CRR, so that the expiring LT-CRR would compete for PNP nomination on the same basis as other seasonal CRRs they were allocated in any tier of the previous year's annual CRR allocation process.<sup>13</sup> Again, nominations for renewal within the PNP tier are not guaranteed but do have a high probability of being awarded. The SFT that is conducted for this PNP tier assesses only the following one-year period, but the CRRs that are awarded within the PNP tier could then be nominated as LT-CRRs through the Tier LT process. In this way, LSEs could be awarded identical LT-CRRs that cover one 10-year period, then the following 10-year period, and then future 10-year periods, and the only break in the continuity of MW firmness of these LT-CRRs would be an assessment of feasibility, once a decade, of the next 10-year term. Although this process would not

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<sup>13</sup> Similarly, the CAISO proposes that expiring Existing Transmission Contracts (ETCs) also would be eligible for nomination as seasonal CRR renewals in the Priority Nomination Process. The amount of grid capacity that had been reserved by the CAISO in the transmission grid to account for the "perfect hedge" settlement provisions would, upon the expiration of ETCs, revert to the transmission capacity available for CRR awards. The LSE holder of the expiring ETC would be eligible to nominate expiring ETC rights in the PNP subject to the same quantity limitations to their Adjusted Load Metric that apply to all other LSEs as described in Section 36 of the filed MRTU tariff. To the extent expiring ETC rights are awarded as seasonal CRRs in the PNP, the LSE can then nominate these as LT-CRRs in Tier LT, again subject to the same quantity limitations as other LSEs.

guarantee LT-CRR renewal, LSEs would be highly likely to be able to maintain the quality of LT-CRR coverage beyond a 10-year time period.

As an example, suppose LSE A is awarded a LT-CRR in Year 1, and seeks LT-CRR coverage for the following twenty years. During Year 10, the LSE could nominate its LT-CRR as a seasonal CRR (with a one-year term) within the PNP Tier of the annual allocation. Assuming this nomination is awarded, the LSE would then nominate this seasonal CRR as a LT-CRR. Subject to a 10-year SFT for that season and time-of-use, the LSE would be awarded a new LT-CRR to be effective from Year 11 through Year 20.

6. Note that for CRR Year 2 and beyond, the "Tier LT" SFT cannot be performed with only 8 distinct season/TOU SFTs, but will require some multiple of 8 SFTs to reflect the fact that different quantities and configurations of LT-CRR may have been allocated for the various future years. For example, in CRR Year 2 the LT-CRRs released in Year 1 will be in effect for years 2-10, but not year 11. Thus the "Tier LT" SFT process will effectively run one set of 8 SFTs for years 2-10 and another set for year 11. The quantity of LT-CRRs that can be released for any given season/TOU will have to be found to be feasible for all 10 years of the time horizon.

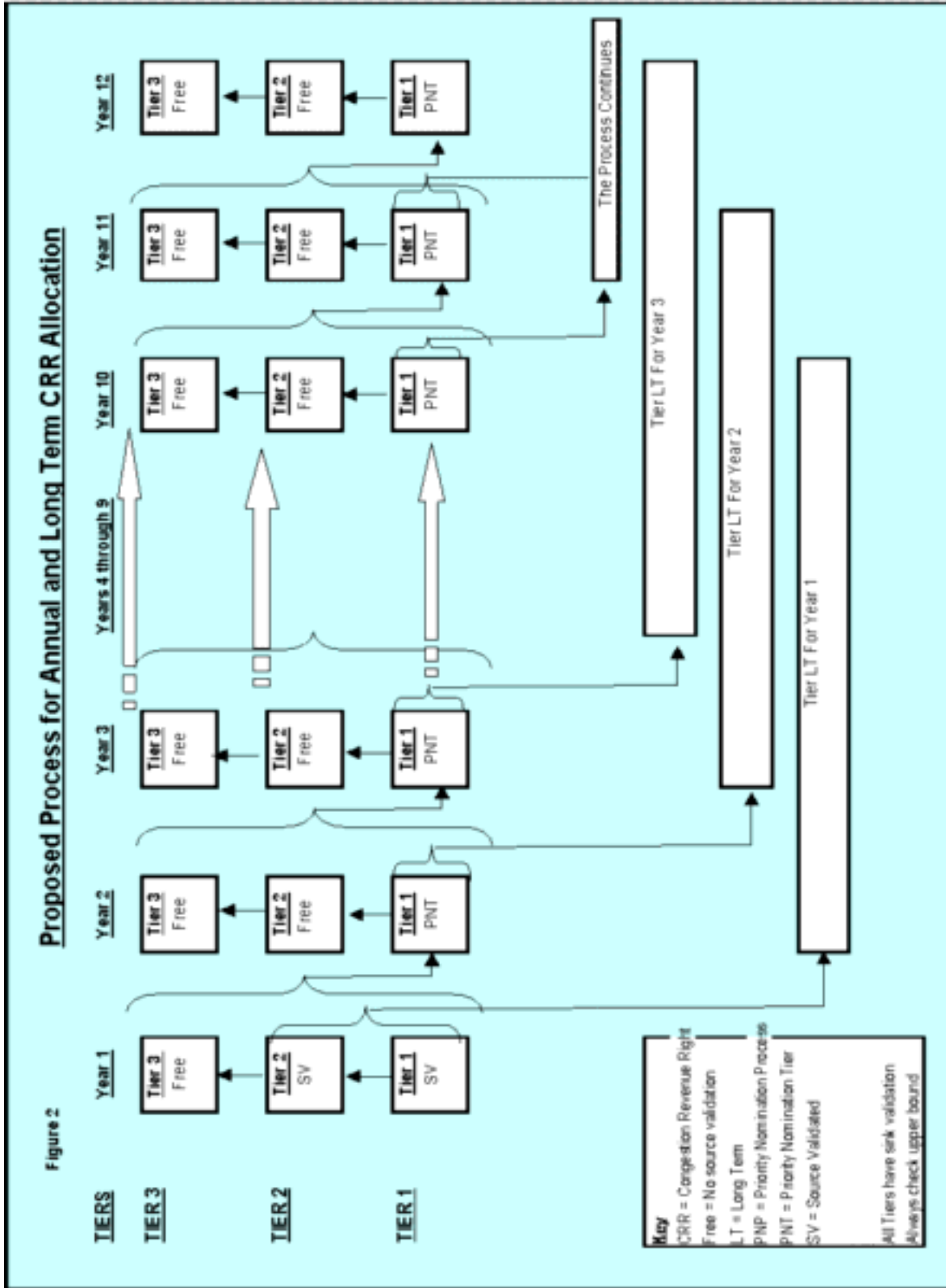
*Additional Note: The implementation of these multiple sets of 8 SFTs may be efficiently implemented with the use of a "Multi-period" process. In this process, multiple periods (each period presents a particular season and TOU combination) can be defined with each defined period having its own set of fixed CRRs, Full Network Model (FNM) and related data (i.e., Interface and Nomogram limits, contingency definitions and Aggregated Pricing Node (APnode) definitions).*

*The fixed CRRs, FNM and related data may be the same for some or all of the periods. An optimization problem is formulated with one objective function and a multitude of associated constraints sets. Each constraint set is associated with a defined period. The submitted LT-CRR elections present the control variables in this optimization problem. The LT CRR elections may need to be prorated due to a violation of one or more constraints. The final cleared LT CRRs will be a result of the most limiting constraint over all of the constraint sets.*

## **6 Proposal for Meeting the Full Funding Requirement**

1. All CRRs would be fully funded, regardless of whether they are LT-CRRs, seasonal or monthly CRRs.
2. The CAISO would continue to use its CRR Balancing Account and extend its use for settlement of LT CRRs. One change, however, is that the CRR Balancing Account will be cleared monthly, so there would be no end-of-year clearing apart from the clearing of the last month.
3. Auction revenues from the annual and monthly CRR auctions will go into the CRR Balancing Account for the appropriate month. Auction revenues for each season are allocated uniformly across the three monthly accounts comprising the season.
4. The auction funds plus the IFM congestion revenues collected by the CAISO in hours when there are surplus revenues would be used at the end of each month to compensate CRR holders as far as possible for any hourly shortfalls that may have occurred during the month. Any shortfall or surplus at the end of a month will be allocated to measured demand, which includes both internal load and exports. This is generally consistent with the allocation of other uplift charges or credits.

7 Figure: Proposed Process for Annual and Long Term CRR Allocation



## 8 Additional LT-CRR Issues

### 8.1 Exclusion of Trading Hubs as Eligible Sources for LT-CRR

The CRR Dry Run currently in progress has indicated some potentially problematic results (described below) related to the use of “EZGen” Trading Hubs as CRR sources in the tiered allocation of CRRs. While the CAISO and the participants are still assessing whether some modifications to the allocation rules are warranted to mitigate these types of results, the CAISO believes that it would be prudent and appropriate to exclude Trading Hubs as allowable CRR sources in the nomination of LT-CRRs, at least for CRR Year 1.

Under the existing rules and procedures for allocation of one-year CRRs, the fact that the LSEs are nominating as seasonal CRR sources both EZGen Trading Hubs and the individual generator PNodes that comprise those Trading Hubs can lead to two potentially problematic results when transmission constraints associated with specific generator PNodes become binding in the SFT.

- First, CRR nominations from the specific generator PNodes associated with binding constraints will always be prorated prior to CRR nominations from EZGen Hubs. This is because the proration algorithm reduces the most effective nominations in order to reduce the fewest MW of nominations overall, and CRR nominations from the PNode associated with the constraint are typically more effective than CRR nominations from a Trading Hub.
- Second, once such a constraint becomes binding, which may occur at the outset of Tier 2 or even in Tier 1, no additional Trading Hub CRRs can be allocated unless that nominated CRR has a zero shift (or distribution) factor over the binding constraint. In the case at hand, where the binding constraint is associated with a generator PNode that is also contained in the Trading Hub definition, this would mean that no further CRR nominations using the Trading Hub as the source would be feasible. Indeed, the recent CRR Dry Run has shown that for some season/TOU combinations the prorating of Trading Hub CRR nominations has been substantial in Tier 2.

As noted, the CAISO is still assessing both the question of whether these outcomes are indeed problematic and ought to be mitigated, as well as alternative mitigation approaches should they be deemed desirable. In the upcoming stakeholder discussions of CRR Dry Run results these matters will be discussed fully.

In the context of LT-CRRs, these technical issues raise concerns about the possible long-term impact of Trading Hub LT-CRRs within the simultaneous feasibility tests run for future CRR allocations. The possible impacts on the efficiency and equity of future allocations of annual and LT-CRRs remain to be evaluated, and are a reason for the CAISO’s cautious approach to awarding long-term instruments sourced at Trading Hubs at this time.

One specific concern is that if LSEs in aggregate nominate both significant quantities of Trading Hub LT-CRRs as well as CRRs for major portions of the capacity of specific generating units included in the Trading Hubs, this will increase the likelihood of constraints associated with specific generator PNodes binding in Tier 1 which would then, for the same network assumptions, prevent virtually any allocation of Trading Hub CRRs or CRRs sourced at those generator PNodes in subsequent annual CRR allocation processes for the entire 10-year term of the LT-CRRs. Additional analysis is required to evaluate the extent to which this is a concern that could be caused or exacerbated by allowing Trading Hub LT-CRRs.

The CAISO emphasizes the importance of the long-term MW firmness of LT-CRRs released through this proposed process, as required by guideline 2 of the Final Rule. This means that the LT-CRRs, once issued, should not be subsequently modified (except by mutual consent of the CAISO and the holder of the rights) even in light of unintended consequences that may affect other participants. Therefore, since LT-CRRs will be locked in and firm for ten years, and since the question of whether and how to mitigate the outcomes described above is still open, the CAISO proposes to require that Trading Hub CRRs be subject to renewal annually through the PNP rather than locked in for ten years before the MRTU markets even start operation.

As the CAISO and market participants gain experience with the CRR allocation process, this policy restriction on nominating LT-CRRs sources at Trading Hubs may be reconsidered.

For the one-year and monthly CRRs, the CAISO will review this issue carefully and make further recommendations within the context of the stakeholder process and the CAISO's report on the CRR Dry Run, which will be filed at FERC in March. The CAISO will schedule activities in the coming weeks for stakeholders to participate in this evaluation and provide input to the CAISO's recommendations for the CRR Dry Run report.

## **8.2 Load Migration During the LT-CRR Term**

Section 36.8.5.1.1 of the filed MRTU tariff, as revised November 20, 2006, requires an LSE that loses load through direct access load migration during the annual CRR allocation cycle to transfer a portion of its allocated seasonal CRRs for the remainder of the annual cycle, or the financial equivalent, to the LSE that gained the load. The CAISO proposes to apply the same requirement to allocated LT-CRRs, with certain modifications.

First, the option to transfer the financial equivalent of LT-CRRs rather than the CRRs themselves will be limited in a manner congruent with the limitations on the ability of LSEs to sell LT-CRRs bilaterally via the CAISO's SRS. In other words, for the years of a LT-CRR beyond the year for which bilateral SRS transfers are allowed, the LSE who loses load must transfer the actual CRRs and cannot transfer a financial equivalent.

For example, suppose the year is 2011 and the CAISO has not yet conducted the annual allocation process for 2012. Also, suppose LSE-1 holds LT-CRRs that are valid through the end of 2018. Then if a share of LSE-1's load migrates to LSE-2 at this time, LSE-1 must transfer a share of its LT-CRR for the years 2012 through 2018 to LSE-2. There will be no option for LSE-1 to make a cash payment to LSE-2 as an alternative to the LT-CRR transfer.

If, however, the migration of load occurs after the CAISO has performed the annual allocation process for 2012 and one-year CRRs for 2012 are now released, then the rules allowing the financial equivalent for the year 2012 would apply. Thus LSE-1 would be required to transfer a portion of its LT-CRRs for the years 2013 through 2018, and would have the option of either transferring CRRs or paying a financial equivalent for the year 2012.

The second modification has to do with enforcement of the required transfer. In several comments to the filed CRR proposal, parties argued that relying on the LSEs to perform the required calculations and transfers would likely result in disputes, and that therefore the CAISO should take on the responsibility of performing the transfers according to clearly specified and transparent procedures. At this time the CAISO is evaluating this suggestion thoroughly, and will confirm shortly whether it intends to make this change to its existing CRR provisions. In addition the CAISO will discuss the details and mechanics of such a proposal with stakeholders in the context of developing the FERC 205 filing on CRRs to be submitted in late March.



### 8.3 Sale of Allocated LT-CRRs by LSEs

LSEs would be free to sell CRRs and, with certain limitations, LT-CRRs they have been allocated. The filed MRTU tariff requires that any transfer of CRRs must be registered through the CAISO's SRS. Moreover, the SRS is the only means by which the settlement of revenues and charges associated with CRR holdings can be transferred from one holder to another.

As discussed in the previous section of this White Paper, only a portion of the 10-year term for LT-CRRs may be transferred via the SRS or sold through CAISO-sponsored annual or monthly auctions. Pursuant to the limited transfers that can be made through the SRS, while parties may make contractual arrangements outside the CAISO that are the financial equivalent of such a sale or transfer, the financial settlement by CAISO for the applicable LT-CRR would remain with the LSE that was originally allocated those LT-CRRs, except for the portions that may be transferred via the SRS or sold in the auction processes as described earlier.

In the context of this LT-CRR proposal, however, two significant limits upon individual LSEs should be recognized:

- a) The overall cap on LT-CRRs (50% of each LSE's Adjusted Load Metric), as described within #3 of Section 4.
- b) The fact that LT-CRR holdings count towards each LSE's SEQ for the associated season/TOU throughout the life of the LT-CRRs, which is noted as #9 within Section 4 of this White Paper. This provision will impact both the amount of one-year CRRs and new LT-CRRs that an LSE might nominate in the annual allocation.

Both of these limits would remain in place whether or not the LSE sells all or portions of its allocated LT-CRRs or CRRs to another party, either through a CAISO-sponsored auction or through the secondary market.

### 8.4 LT-CRR Allocation to Out-of-Control Area Load

For LSEs that serve load external to the CAISO control area (OCALSEs), the rules for obtaining LT-CRR through the allocation process build upon and are consistent with the procedures for allocating 1-year CRRs to OCALSEs, as specified in the filed MRTU tariff, Section 36.9. In summary, if an OCALSE is allocated 1-year CRRs in the annual allocation process per Section 36.9, that OCALSE can then nominate as LT-CRRs a portion of the awarded 1-year CRRs, and these nominations will be included on a comparable basis with LT-CRR nominations of internal LSEs in conducting the Tier LT SFTs to determine the final awards of LT-CRRs.

It is important to note that the present proposal does not modify MRTU tariff Section 36.9 with respect to how an OCALSE qualifies for CRR allocation in the annual process. In particular, the requirement for a showing of legitimate need (Section 36.9.1) is not affected. To be eligible for allocation of 1-year CRRs the OCALSE must demonstrate legitimate need based on ownership of or bilateral energy contract with generation inside CAISO control area, and such generation will define the eligible sources the OCALSE may nominate for CRR allocation. In particular, intertie Scheduling Points cannot be nominated by OCALSEs as sources for CRR allocation. This limitation preserves the priority for native CAISO control area load in obtaining import CRRs. OCALSEs who rely on sources outside the CAISO control area and other parties who wheel power through the CAISO and desire CRRs must acquire them through the CRR auction processes or the secondary CRR market.

This proposal also does not modify the filed MRTU tariff provisions on calculation of the CRR eligible quantity (Section 36.9.3). For an OCALSE the Seasonal Eligible Quantity described

above would be based on historical hourly export data for each export Scheduling Point the OCALSE desires to nominate as a CRR sink.

Once the OCALSE obtains the 1-year CRR in the allocation process, it can nominate such rights for LT-CRR up to a maximum of 50 percent of its Adjusted Load Metric. In Year 1 the OCALSE would participate in the verified tiers to obtain 1-year CRR. In Year 2 and beyond the OCALSE would be allowed to nominate for renewal in the PNP any previously allocated 1-year CRR, and then could nominate these for LT-CRR. In order to participate in the PNP, the OCALSE would have to demonstrate continued need for the CRR based on continuation of generator ownership or bilateral contract (per Section 36.9.5 of the filed MRTU tariff).

Thus, following in an analogous manner the quantity limitations specified above for internal LSEs, the OCALSE could potentially acquire through this allocation process a quantity of LT-CRRs equal to 50 percent of its Adjusted Load Metric for each export Scheduling Point.

Section 36.9.2 on prepayment of Wheeling Access Charges would apply to OCALSE LT-CRR nominations in a manner consistent with the requirement for 1-year CRRs, with one change. Because the WAC prepayment would cover a 10-year period, the CAISO proposes to offer the OCALSE the option to sign a pro forma contract to make annual WAC payments rather than pay all 10 years of WAC at the time the LT-CRRs are nominated. Each year's payment would have to be made at the time the CAISO conducts the annual CRR allocation process for the next year. If the OCALSE fails to make its contracted annual payment it would forfeit the associated LT-CRRs.

## **8.5 Impacts of PTO Withdrawal from CAISO**

Because a PTO can withdraw from the CAISO and remove its transmission facilities from the CAISO controlled grid with two years notice, LT-CRRs having a 10-year term would clearly be affected if such a withdrawal were to occur. The CAISO believes that withdrawal of a PTO would constitute an extraordinary event against which the CAISO cannot be expected to guarantee either firmness of MW or full funding for LT-CRRs that were released based on the pre-PTO-withdrawal CAISO grid. The present LT-CRR proposal therefore includes provisions for how to treat outstanding LT-CRR in the event of PTO withdrawal.

The proposal involves a two step process: re-configuration of outstanding LT-CRR based on the "new" CAISO grid, and performance of simultaneous feasibility tests for each relevant CRR time period (season and TOU) with possible pro-rationing to minimize any potential uplift cost for fully funding the resulting reconfigured set of LT-CRR.

### **8.5.1 Re-configuration of LT-CRRs**

Suppose PTO-A withdraws from the CAISO grid, so that PTO-A's transmission facilities that were included in the "old grid" are no longer included in the "new grid." The CAISO would first redefine its FNM so that connections between PTO-A's facilities and the new grid become new inter-tie scheduling points. Note also that old-grid inter-tie scheduling points that connected to PTO-A's facilities would no longer exist in the FNM. Therefore any LT-CRR whose source or sink was within PTO-A's system or at an old-grid scheduling point, while its other end (sink or source) was still within the new grid, would have to be reconfigured to utilize a new-grid inter-tie scheduling point in place of its former source or sink in PTO-A's system.

LT-CRRs whose source and sink were both within the new grid or utilized inter-tie scheduling points that connected to the new grid would not need to be reconfigured. LT-CRRs whose source and sink were both within PTO-A's grid would cease to exist.

## 8.5.2 Simultaneous Feasibility Tests

After re-configuration of the outstanding LT-CRRs the CAISO would run a set of SFTs on the re-configured set of rights and if necessary reduce some of their MW values to yield a feasible set of LT-CRRs. The temporal granularity of these SFTs would be analogous to the “Tier LT” SFTs the CAISO runs each time new LT-CRRs are requested in the annual allocation process. That is, there would need to be separate SFTs for each season/TOU over the time horizon of the outstanding LT-CRRs, and possibly a separate set of SFTs for each year of that time horizon due to the mix of term lengths among the outstanding LT-CRRs. As in the annual Tier LT process, it will be possible to utilize a multi-period constraint across years to ensure that each LT-CRR resulting from this process has a constant MW value over its remaining term, while performing any necessary pro-rationing in the most efficient manner.

As a result of this two-step process, the “new” outstanding LT-CRRs would be defined on the “new grid” and would meet a consistent standard of simultaneous feasibility.

## 9 Transmission Planning

To meet the requirements of FERC Order 681, the CAISO proposes three new processes related to LT-CRRs to be incorporated within its comprehensive planning for transmission upgrades to the CAISO system. Together, these initiatives should produce a result that:

1. Ensures the total MW amount of LT-CRRs that are released will remain feasible, and will not be degraded throughout their full terms;
2. Calculates the amount of CRRs that should be awarded to the sponsor of “merchant transmission” projects, and
3. Identifies and assigns responsibility for expanding transmission facilities that are necessary to ensure the availability and feasibility of LT-CRRs needed to support long-term power supply contracts.

The following sections explain these processes conceptually and suggest how each should meet the requirements of the CAISO’s LT-CRR compliance filing.

### 9.1 Ensuring Feasibility for the Full LT-CRR Term

The CAISO believes Paragraphs 453 – 455 of Order 681 make clear that the CAISO transmission planning process must ensure that LT-CRRs are feasible for their entire term.

To accomplish this result, the CAISO recommends active monitoring of binding constraints that represent existing LT-CRRs during planning study assessments.

The following activities monitored through grid planning may impact the feasibility of outstanding LT CRRs: 1) planned or proposed transmission projects; 2) generation or transmission retirements; 3) generator interconnections; or 4) interconnection of new load. In response to such driving factors, the CAISO proposes to conduct, through its transmission planning process, an assessment of whether or not these activities render outstanding LT CRRs infeasible over time. The CAISO would then evaluate whether it is necessary to include upgrades in the CAISO transmission plan to ensure feasibility. But that may not always be the appropriate solution. As explained further above, however, full funding requires that should there be any revenue inadequacy for funding LT-CRRs, such deficits will be funded by metered demand.

As an example of how the process would work, in the event of a proposed transmission project, the data from the LT-CRR annual simultaneous feasibility test (SFT) that includes all the binding constraints would be incorporated within the CAISO's Transmission Economic Assessment Methodology (TEAM) as well as other analyses of possible transmission upgrades. Then, as transmission alternatives are considered, the CAISO and PTOs would analyze the potential changes in flows on these binding constraints.

The CAISO anticipates that most proposed transmission upgrades would reduce congestion; that is, the flows on binding constraints would be reduced or the flow capability through constrained facilities would be increased. For these projects that alleviate or avoid exacerbating these binding constraints, the feasibility of identified LT-CRRs would be ensured.

For those unusual and occasional transmission projects that could result in substantial adverse impacts on the binding constraints and cause infeasibility in certain LT-CRRs, the transmission analysis would identify this outcome within its assessment of the project and would modify the planned project to mitigate the potentially adverse impact.

It should be emphasized that limiting LT-CRRs to 50% or less of the capacity of the system makes it highly unlikely that transmission upgrades could threaten to degrade any LT-CRRs. The CAISO anticipates that if a greater percentage of the transmission system capability for congestion hedging is covered by LT-CRRs, the CAISO's planning process would face greater challenge to assess and maintain the feasibility of these LT-CRR instruments.

Thus, the CAISO emphasizes that incorporation of a review of LT-CRR feasibility within TEAM would be in addition to other transmission planning activities aimed at relieving highly congested areas, such as studies on transmission projects that relieve binding constraints that are causing high LMPs and impacting shadow prices. The combination of these activities within the CAISO's planning efforts also should help ensure that transmission investment is made in a way that does not diminish the value of the MW amounts of LT-CRRs throughout their guaranteed renewal or term of existence.

## **9.2 Methodology for Determining Amount of CRRs for Merchant Transmission**

The MRTU Tariff allows entities to develop transmission projects at their own cost and to receive the incremental CRRs that the project creates. Thus, the quantity of CRRs allocated to "merchant transmission" developers would be commensurate with the transfer capacity that the project adds to the CAISO grid.

FERC's September 21, 2006 Order on the MRTU Tariff required details regarding CRRs for merchant transmission sponsors to be submitted in a compliance filing to FERC. The CAISO's October 23, 2006 "Request for Clarification and Rehearing" asked that FERC permit the filing of tariff language related to these additional "merchant transmission" details on a time frame consistent with the requirements of the LT-FTR Final Rule.

FERC Order 681 requires that the methodology for determining the quantity and geographic sources and sinks for these incremental CRRs be specified before the CAISO begins releasing LT-CRRs. Assuming the CAISO initiates the release of LT-CRRs no sooner than a few months before MRTU start-up, a detailed explanation of this methodology would not be necessary for the January compliance filing on LT-FTRs, but should be filed at FERC by the spring of 2007.

The CAISO has formed an internal team to develop this methodology. Stakeholders can expect that a White Paper will be posted soon and that public input and discussion will be requested within a separate stakeholder process.

### 9.3 Facilitating Transmission Expansion

Currently any entity – such as transmission developers (PTOs or merchant transmission) or transmission customers (LSEs) -- can identify a possible transmission upgrade and seek its incorporation into the CAISO planning process. Under the CAISO's oversight through the FERC-approved interconnection procedures, the PTOs perform System Impact and Facilities studies to determine whether and how the project can be safely and reliably integrated with the ISO Controlled Grid. Depending on the project, construction could be financed through the TAC or by the developer. If the developer finances the project, the CAISO would quantify the amount of incremental CRRs that the merchant project would create and allocate LT-CRRs as described in the previous section.<sup>14</sup>

Order 681 requires the planning process to incorporate requests for LT-CRRs as well as actual transmission projects. Paragraph 456 states that “...when a transmission customer enters into a long-term power supply arrangement and is willing to pay for any transmission expansion or upgrades which may be necessary in order to make long-term firm transmission rights feasible over the entire term of the contract, that expansion or upgrade must be incorporated into the transmission organization's planning process. This will require that the expansion plans that transmission owners submit to the transmission organization incorporate any expansions necessitated by such long-term supply arrangements. We believe that it is important for the regional planning process to take account of any upgrades or expansions of the transmission system that may be required to ensure FTRs needed to support long-term power supply arrangements are available.”

Thus the CAISO proposes new procedures within its planning efforts to address transmission customers (LSEs) requests for CRRs to support long-term power supply contracts when they are willing to pay for the upgrades needed to make those CRRs feasible.

First, the CAISO and PTOs will incorporate into future year congestion studies any long-term power supply information that is voluntarily provided by LSEs. The results of these posted studies could facilitate an LSE's decision to pursue customer funded transmission upgrades to create incremental CRRs for their own use.

Additionally, the CAISO and PTOs, under the oversight of the CAISO, will identify the transmission upgrades that are necessary to ensure the feasibility of the quantity and location of LT-CRRs requested by the transmission customer. The CAISO will require PTOs to incorporate these necessary transmission upgrades into the individual transmission expansion plans submitted to the CAISO, so that the overall CAISO transmission plan will incorporate both the PTO plans and these customer funded upgrades.

#### 9.3.1 Informational Studies on Future Congestion and Transmission Upgrades

In order to provide information to transmission customers about future transmission congestion that may need to be hedged by customer funded transmission projects, the CAISO and PTOs will incorporate information voluntarily submitted by LSEs – such as long-term power supply arrangements -- into future year transmission assessments and congestion studies. These

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<sup>14</sup> Transmission projects needed to interconnect new generation projects are identified through the CAISO's Large Generator Interconnection Procedures, and the Interconnection Customer can choose to receive CRRs for these upgrades in lieu of a five-year payback. However, a reliable interconnection and resource adequacy deliverability are the primary design objectives for these upgrades rather than the quantity and location of incremental CRRs.

studies will identify potentially congested paths and transmission upgrades that would mitigate congestion that impacts long term power supply arrangements.

The results of these studies will be publicly available to help any LSE decide to pursue customer funded transmission upgrades for incremental CRRs for their own use. Transmission customers may want to review results of the proposed future year congestion studies to determine whether currently available CRRs will meet their needs for the expected congestion on the planned transmission system.

These comprehensive congestion studies are expected to be performed biennially, with updates if needed during the off-year. The studies will entail generation production simulations on the full WECC network model maintained by the WECC. At the beginning of each study the CAISO and PTOs will update the model to include all transmission projects expected to be in operation during the particular future study years chosen. Long-term power supply information voluntarily provided by LSEs will be used to verify generation development, retirement, and bidding assumptions used in the models and studies.

An economic assessment based on the TEAM methodology would also be performed on the identified upgrades that would mitigate significant congestion for long-term power supply arrangements – so that these upgrades, if determined to be economically justified additions to the CAISO grid, would be proposed in the CAISO Transmission Plan even without a project sponsor or an LSE request.

For LSEs, these studies should provide the best available information about congestion risks on the planned transmission grid and how additional transmission capacity could mitigate those risks of congestion.

### **9.3.2 Identifying Upgrades Needed for Requested LT-CRRs**

When transmission customers make known their needs for transmission upgrades to accommodate LT-CRRs to support long-term contracts at the beginning of the annual transmission expansion planning cycle, CAISO and the PTOs will identify transmission upgrades to satisfy those needs as part of the annual transmission expansion plan.

The new process for transmission upgrade requests to accommodate long-term contracts resembles the generator interconnection process that is currently managed by the CAISO. For example:

- Transmission customers would submit requests for the amount of LT-CRRs needed to support their long-term power supply contract. They could also include one specific transmission upgrade alternative for the ISO and PTOs to consider in its their analysis (e.g. a new transmission line)
- Such requests would be put into a queue for detailed studies to identify the upgrades needed to create the requested quantity of LT-CRRs. Similar to the generator interconnection process, these system impact and feasibility studies assess the impact upon the planned transmission grid and identify the necessary upgrades to create the requested LT-CRRs. The transmission customer submitting the request would pay for the cost of these studies.

In order to coordinate the development of these transmission projects with the CAISO's overall transmission planning process, the CAISO expects that a transmission project queue would be coordinated with the existing generator interconnection queue as well as PTO-sponsored transmission projects.

In accordance to the policies reflected in the generator interconnection procedures, cost responsibility for reliability upgrades -- such as those upgrades needed to correct short-circuit duty problems created by the transmission facilities needed for the requested CRR needs -- would be based on queue position. However, unlike the generator interconnection process, the transmission model used to estimate the quantity of incremental CRRs that would be created would be based on the expected operating dates of the projects rather than their queue positions. Furthermore, the actual quantity of LT-CRRs that would be created would be determined at the time the identified transmission upgrades are permanently energized. (The CAISO does not intend to release incremental CRRs until the incremental capacity of the grid is in service.)

The following explanation outlines how the CAISO's transmission planning process would accommodate transmission customers who are willing to pay for any transmission expansion or upgrades which may be necessary in order to make their requested LT-CRRs feasible over the entire term of their long-term power supply arrangement:

1. Review Existing and Planned Transmission Capability

Initially, the CAISO would encourage any transmission customer to consider whether existing transmission capability makes available enough LT-CRRS or seasonal CRRs (that could be renewable through the Priority Nomination Tier) to meet its needs. The CAISO also would encourage review of the posted results of the future year congestion studies that are outlined in the previous section to determine whether additional facilities are needed to the meet the LSE's needs for CRRs.

Assuming the transmission customer has explored the release of currently available LT-CRRs and seasonal CRRs and considered future congestion studies on the planned CAISO grid, the LSE then could submit a facilities request to the CAISO to identify the needed transmission facilities to allow the customer to obtain his desired amount of LT-CRRs at some time in the future.

2. LT-CRR Facilities Request Process

The facilities request process would identify the needed transmission facilities to allow the transmission customer to obtain the desired amount of LT-CRRs, using a transmission model corresponding to the year for which the customer would first like to obtain the CRRs. The transmission customer would also specify the customer's desired year for these CRRs to be available. Upon its request, the customer (LSE) would be given a queue position based on the date of the customer's request. The CAISO, the affected PTO(s) and the customer would participate in a scoping meeting, and then the CAISO and PTO would proceed with a "LT-CRR Facilities Study," with the cost charged to the customer.

3. LT-CRR Facilities Study

The CAISO would perform a In the first phase of the "LT-CRR Facilities Study" by the CAISO would running a number of SFTs on the planned transmission system with the requested LT-CRRs, all previously awarded Incremental CRRs, all currently active LT-CRRs (except any that would become inactive before requested LT-CRRs commence

and other transmission encumbrances. This study would substitute the planned transmission system for the network model used in the SFT. In other words, all CAISO approved transmission projects would be modeled based on their expected operating year. Basically, the similar methodology that will be used to determine incremental CRRs for any merchant project would be utilized in this process for identifying whether the planned facilities would provide sufficient additional capacity to satisfy the LT-CRR request. If the planned system does not provide sufficient capacity, the CAISO will inform the affected PTO(s) of the amount of the deficiency and the identify the limiting system conditions.

In the next phase of the "LT-CRR Facilities Study", the CAISO and PTO(s), in cooperation with the requester and under the CAISO's oversight, will study the limiting system conditions and identify alternative transmission upgrades, including a recommended alternative, to satisfy the LT-CRR request. The CAISO will review the PTO(s) analysis and then repeat the SFT to verify that the recommended alternative would provide sufficient capacity to satisfy the LT-CRR request. The process concludes when the CAISO approves a transmission upgrade plan to provide the requested LT-CRRs and the requester and affected PTO(s) execute a Special Facilities Agreement.

## **10 Summary of Stakeholder Activities**

Stakeholder input has played a critical part in the shaping of this final proposal. The list below identifies the dates on which discussions occurred with CAISO stakeholders regarding Long Term CRR's. The written comments submitted by stakeholders are posted on the CAISO website at: <http://www.caiso.com/1845/1845dca750770.html>

- July 20 - Commission Issued Order
- August 10 - Conference Call conducted on Scoping Process
- August 25 - Comments by Stakeholders submitted
- September 26 – White Paper on Options posted by the ISO
- October 3 - Stakeholder Meeting conducted to consider options
- October 16 - Comments by Stakeholders submitted
- October 18 – Market Issues Forum and Panel Discussion with Board
- November 7 - White Paper posted outlining simplified approach
- November 9 - Stakeholder Meeting conducted (reviewing simplified approach)
- November 20 – Stakeholder Comments submitted on simplified approach
- November 28 - White Paper posted (with additional alternatives)
- November 29 – Stakeholder Meeting conducted (reviewing additional alternatives)
- December 8 – Comments by Stakeholders submitted
- December 15 – Draft White Paper Posted on Recommended Proposal
- December 19 - Stakeholder Conference Call conducted on Draft Recommended Proposal



## **California ISO**

- January 5 – Posting of Revised White Paper on Recommended Proposal
- January 5 – Comments by Stakeholders submitted
- January 8 – Posting of draft Tariff language
- January 9 - Stakeholder Meeting conducted on Recommended Proposal (including review of stakeholder comments)
- January 11 - Deadline for further Stakeholder Comments
- January 16 - Conference Call conducted (reviewing Final Proposal and posted Tariff language)
- January 18 – MSC Conference call conducted (MSC opinion on Final Proposal)

Attachment G -CAISO Board Documents

# Memorandum

**To:** ISO Board of Governors

**From:** Charles A. King, Vice President, Market Development and Program Management  
Anjali Sheffrin, Chief Economist / Director, Market and Product Development  
Lorenzo Kristov, Principal Market Architect

**Date:** January 18, 2007

**Re:** *Decision on Long-Term Congestion Revenue Rights Compliance Filing*

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

On July 20, 2006, the Federal Energy Regulatory Commission issued Order No. 681 on "Long-Term Firm Transmission Rights in Organized Electricity Markets" ("LT-FTR Final Rule") requiring the ISO to submit a compliance filing by January 29, 2007 with a proposal and associated tariff language for implementing long-term transmission rights. Since then the ISO has conducted an intensive stakeholder process exploring alternatives for meeting the unique business needs of the ISO's market participants while complying with the seven guidelines of the LT-FTR Final Rule. Management believes the result of this effort, a design for Long-Term Congestion Revenue Rights ("LT-CRRs"), has balanced the diverse needs of our stakeholders in hedging congestion costs on a long term basis, and best meets the seven FERC guidelines for the design of this instrument, in a manner that is fully compatible with the MRTU market redesign.

The features of this proposal, explained in the attached White Paper, create a LT-CRR instrument that provides for a ten-year term and builds upon the FERC approved process for one-year Congestion Revenue Rights ("CRRs") that are already a key component of MRTU. Moreover, the allocation process for LT-CRRs would be integrated in the release process for one-year CRRs so that 1) LT-CRRs will be available upon MRTU startup; 2) the transmission capacity for LT-CRRs and one-year CRRs will be allocated in a balanced way; and 3) load serving entities will be able to obtain the mix of LT-CRRs and short-term CRRs that is most suitable for their customers.

Management recommends that the Board of Governors approve this LT-CRR policy proposal as an important feature of the market redesign in California. This additional component within MRTU allows load serving entities to hedge the congestion costs associated with their energy market positions on a long term basis, and thus promotes investment and enhances market efficiency. Management recommends the following motion:

***That the ISO Board of Governors approve the Long Term Congestion Revenue Rights proposal, as outlined in the memorandum dated January 18, 2007, and related attachments;  
and***

***That the ISO Board of Governors authorize Management to make all the necessary and appropriate filings with the Federal Energy Regulatory Commission to implement this proposal.***

## BACKGROUND

Today's CAISO markets offer 1-year "Firm Transmission Rights" ("FTRs") which were designed to be compatible with the current CAISO market design, particularly the zonal congestion management approach and the absence of an energy market ahead of real time. The new CRRs to be available in conjunction with MRTU will replace today's FTRs with a design that is appropriate for the Locational Marginal Pricing ("LMP") approach that is the core of the MRTU market design.

As specified in the FERC-approved MRTU tariff, a CRR between a source and sink will hedge the hourly congestion charges for a specific month, season and time-of-use period up to one year in advance. Under the approved tariff, load serving entities will be allocated such CRRs in advance of making them available to other parties, and will be able to renew a portion of their allocated CRRs every year, for an indefinite number of years, to provide some degree of long-term certainty. Load-serving entities seeking greater long-term certainty than the approved renewal process provides have sought to obtain multi-year rights to hedge the congestion costs associated with their long term power supply arrangements, which ultimately led to Energy Policy Act 2005 provisions followed by the LT-FTR Final Rule.

As noted below, the ISO's LT-CRR proposal more than satisfies the seven guidelines specified by FERC in the LT-FTR Rule:

*(1) "The LT-FTR should specify a source, sink and MW quantity."*

This guideline is fully embodied in the approved CRR design already. To meet the needs of market participants, the LT-CRR proposal builds off of the existing CRR design, so that each LT-CRR would include a season and time-of-use (peak or off-peak) in addition to a specific source, sink and MW quantity.

*(2) "The LT-FTR must provide a hedge against day-ahead LMP congestion charges for the period covered and quantity specified. Once allocated, the financial coverage provided by a financial long-term right should not be modified during its term except in the case of extraordinary circumstances or through voluntary agreement of both the holder of the right and the transmission organization."*

The proposal guarantees the feasibility of LT-CRRs over their ten-year term. Moreover, the proposal extends a guarantee of "full funding" (i.e., no risk of revenue insufficiency to pay CRRs their full value) throughout the terms of all CRRs, not just the LT-CRRs as required by the LT-FTR Final Rule.

*(3) "LT-FTRs made feasible by transmission upgrades or expansion must be available upon request to any party that pays for such upgrades or expansion."*

As already provided in the filed MRTU tariff, the LT-CRR proposal continues to make LT-CRRs available by allocation to sponsors of transmission upgrades.

*(4) "LT-FTRs must be made available with term lengths that are sufficient to meet the needs of LSEs to hedge long-term power supply arrangements."*

LSEs may be allocated ten-year LT-CRRs for approximately 50% of their peak load.

*(5) "LSEs must have priority over non-LSEs in the allocation of LT-FTRs that are supported by existing capacity."*

The proposal is consistent with the FERC-approved one-year CRR structure that provides LSEs' priority by allocating LT-CRRs only to LSEs. Non-LSEs may acquire LT-CRRs through the secondary market.

*(6) "A LT-FTR held by a LSE should be re-assignable to follow load."*

Building upon the CRR rules that are conditionally approved by FERC, LT-CRRs or a financial equivalent would be transferred as load migrates between LSEs.

(7) *"The initial allocation of LT-FTRs shall not require recipients to participate in an auction."*  
LSEs would be able to obtain LT-CRRs through a direct allocation process without having to participate in an auction.

## **ADDITIONAL PRINCIPLES FOR LONG-TERM CRRs**

In addition to the guidelines specified under the LT-FTR Final Rule, the ISO's proposal meets a number of important objectives in the following way:

- Utilizes the flexibility offered by the LT-FTR Final Rule to develop a proposal that is most suited to the California context and the MRTU markets.
- Promotes the efficient use of existing transmission and generation assets.
- Promotes the efficient investment in transmission and generation.
- Ensures the rapid implementation at the start of MRTU.
- Promotes the equitable allocation of LT-FTRs to entities that pay for the transmission network.
- Ensures that ownership of LT-FTRs does not degrade energy and ancillary services market efficiency and system reliability.
- Supports secondary market activity for both short-term and long-term CRRs.

## **STAKEHOLDER PROCESS AND POSITIONS OF THE PARTIES**

Many stakeholders have committed significant resources of time and expertise in this process to develop LT-CRRs. Since August the ISO has managed:

- A Market Issues Forum and panel discussion with Board participation (October 18)
- Three conference calls with stakeholders (August 10, December 19 and January 16)
- Four working days of stakeholder meetings (October 3, November 9, November 29 and January 9)
- Five White Papers posted for stakeholder review (August 18, November 7, November 28, December 15, January 5)
- Six rounds of written stakeholder comments (August 18, October 16, November 20, December 8, January 5, January 11)
- Fifteen hour-long meetings/calls with individual entities (August through January)
- Three MSC public discussions (September 18, November 13, January 18)

The involvement of many stakeholders has significantly shaped this LT-CRR proposal in positive ways, including the identification of issues most important to each entity and their acceptance of certain features as reasonable accommodations. While the ISO believes this LT-CRR proposal has the general support of most stakeholders, some issues of disagreement remain. For example, some parties advocate reserving capacity for an additional process to auction LT-CRRs. While the ISO is not able to add this step for the first year of MRTU because of the extension of time necessary to complete and obtain FERC approval for a design of the LT-CRR auction, this functionality can be examined for future releases. The ISO has incorporated many of the stakeholder suggestions into this recommended proposal.

The California Department of Water Resources (CDWR), the California Municipal Utilities Association (CMUA), the Northern California Power Agency (NCPA), the Sacramento Municipal Utility District (SMUD) and other municipalities have urged that 1) a significant percentage of transmission capacity be available for LT-CRRs; 2) expiring ETCs be allowed to be nominated as priority CRRs; and 3) that LSEs outside of the ISO control area be permitted to acquire LT-CRRs through an annual pre-payment of Wheeling Access Charges rather than a ten-year lump sum payment. The ISO has specified policy statements to accommodate all three of these suggestions.

San Diego Gas & Electric (SDG&E) and other parties have strongly advocated for updating the historical period by which sources are verified in the first year of the CRR allocation. The ISO has recently agreed to update this reference period to the calendar year 2006, which is much closer to the actual running of the production processes to release CRRs. Calendar 2006 also reflects the first year there has been a clear State of California requirement (imposed by AB 380) on all load serving entities to procure adequate power to meet their needs and support system reliability, and the experience of the recent summer demonstrated the ability of the existing grid to transport the power to load.

Southern California Edison (SCE) has consistently promoted the continued use of a requirement for verifying sources of CRRs. By utilizing the CRR process for allocating LT-CRRs, this proposal effectively requires a demonstration of verified sources in the first year of the LT-CRR allocation.

Pacific Gas & Electric (PG&E) has strongly urged a high percentage of grid capacity be allocated for LT-CRRs, and the ISO has moved significantly in that direction in this process. A key part of this final proposal permits LSEs to nominate nearly 50% of their peak hourly load as LT-CRRs which should generally incorporate the baseload generation for most LSEs. PG&E and other investor-owned utilities also raised concerns about allocating shortfalls in CRR funding to Participating Transmission Owners. The ISO recently revised its proposal so that potential shortfalls are allocated to measured demand instead of the PTOs.

The California Public Utilities Commission, the Alliance for Retail Energy Markets (AreM) and the Metropolitan Water District (MWD) also have expressed general support toward this LT-CRR proposal while urging development of more detailed processes for tracking CRR transfers between LSEs due to load migration and the methodology for allocating CRRs to merchant transmission developers. The ISO anticipates developing these processes in the Business Process Manual for CRRs in the near future.

A more complete summary of stakeholder written comments is contained in the attached matrix.

## **MARKET SURVEILLANCE COMMITTEE OPINION**

The MSC has discussed this proposal at three public meetings and participated in two stakeholder meetings as well as the Market Issues Forum. Their input and advice has contributed significantly to the understanding of interested parties on the uses and outcomes of proposed features.

The MSC is providing the Board with its written opinion on this LT-CRR proposal separately.

## **SUMMARY**

The merits of this recommendation include:

- 1) Leveraging the existing MRTU CRR rule set and process already approved by FERC in the September 21, 2006 MRTU order;
- 2) Avoiding unnecessary complexity by fully integrating the ten-year CRR product with the one-year CRR design;
- 3) Offering the ten-year CRR product on a compatible and comparable basis with the one-year CRR product, which enhances the flexibility and liquidity of both products.
- 4) Minimizing the software development and testing required to introduce the ten-year CRR product such that the new product can be implemented in MRTU Release 1 consistent with the recently approved MRTU budget and scheduled deployment of trade day 2/1/2008.

## **MANAGEMENT RECOMMENDATION**

Management recommends that the Board approve this proposal. Management also recommends that the Board approve of the efforts required to file tariff language that incorporates this proposal on January 29, 2007, as required by FERC's LT-FTR Final Rule and to implement this LT-CRR product and release process with the startup of MRTU.

**MOTION**

*Moved,*

*That the ISO Board of Governors approve the Long Term Congestion Revenue Rights proposal, as outlined in the memorandum dated January 18, 2007, and related attachments;  
and*

*That the ISO Board of Governors authorize Management to make all the necessary and appropriate filings with the Federal Energy Regulatory Commission to implement this proposal.*



California ISO  
Your Link to Power

California Independent  
System Operator Corporation

# Long-Term Congestion Revenue Rights

**Lorenzo Kristov**  
**Principal Market Architect**

**Presented to ISO Board of Governors**  
**General Session, January 24-25, 2007**





## Board Decision Required

- **Approve Management’s proposal to incorporate Long Term Congestion Revenue Rights (“LT-CRR”) into MRTU, to be implemented with MRTU start-up.**
- **File this proposal, with Tariff provisions, with FERC on January 29, 2007, in compliance with FERC’s July 2006 Final Rule on Long Term Firm Transmission Rights.**

## **FERC Order 681 (Issued 7/20/06)**

- Pursuant to provisions of 2005 Energy Policy Act
- Applicable to “transmission organizations” with organized electricity markets.
- Requires LT-FTRs be made available with terms sufficient to meet the reasonable needs of load serving entities (“LSEs”) to support long-term power supply arrangements.
- Specifies 7 required design guidelines, but allows flexibility under each guideline.
- Requires LT rights under MRTU but not under current ISO markets.

## What The Proposal Accomplishes

- **Meets all 7 FERC guidelines**
- **Can be implemented for MRTU start-up within current approved budget and timetable**
- **Provides level playing field for 1-year and LT-CRR, so LSEs can obtain their preferred mix**
- **Integrates smoothly with FERC-approved proposal for 1-year CRRs**
  - Leverages systems and production processes already planned, with minimal additions
  - Avoids adding complex new rules and procedures

## Key Characteristics of LT-CRRs

- **10-year term differentiated by season and time-of-use (on-peak or off-peak).**
- **Awarded LT-CRRs are guaranteed “MW firm” over 10-year term**
  - Initial test verifies feasibility at time of release
  - Grid planning provisions maintain feasibility in later years as grid conditions change.
- **Awarded LT-CRRs, as well as 1-year and monthly CRRs are all “fully funded”**
  - Any end-of-month shortfall (or surplus) will be charged (or paid) to metered demand to ensure all CRRs receive their full value.
- **The current year of a LT-CRR may be unbundled and sold, but later years must be held by LSE to which it was allocated**
  - Ensures LT-CRR can be transferred when load switches LSE.



## Process for Releasing LT-CRRs

- **Embedded within annual CRR allocation process to allow fair competition for allocation of 1-year CRRs versus LT-CRRs.**
- **Allows LSEs to add new supply sources to their LT-CRR holdings in a manner that prevents adverse impacts on all LSEs' existing holdings.**
- **Allows each LSE to obtain LT-CRRs to cover its base load (roughly 50% of peak hourly load) for each season and time-of-use period.**
- **Permits expiring LT-CRRs to be renewed at the end of their term, subject to feasibility over the next ten years.**



## Recent Revisions to Address Stakeholder Concerns

- **Full funding cost allocation.**
- **Historical reference period for source verification – adopt a more recent, more relevant historical period.**
- **Expiring ETCs – can qualify, upon expiration, for the priority renewal process, subject to standard LSE eligibility limits.**
- **LSEs serving external loads – may be allocated LT-CRRs per agreement to pre-pay access charges in annual payments.**
- **Load migration – CAISO will develop procedure for tracking load migration and proper transfer of CRR holdings between LSEs.**

## Completion of LT-CRR Process

- **Draft Final CAISO proposal released Jan. 5<sup>th</sup>**
- **Stakeholder all-day meeting Jan. 9<sup>th</sup>**
- **Written stakeholder comments received Jan. 5-18**
- **Calls with individual stakeholders Jan. 10-18**
- **Final version released Jan. 17<sup>th</sup>**
- **Draft Tariff Language published January 8<sup>th</sup>**
  - Conference call discussion January 16<sup>th</sup>
  - Written comments due January 18<sup>th</sup>
- **Filing due to FERC Jan. 29<sup>th</sup>**

**Board of Governors**      1/24/2007      **Decision on Long-Term Congestion Revenue Rights Compliance**

**Moved, That the ISO Board of Governors approve the Long Term Congestion Revenue Rights proposal, as outlined in the memorandum dated January 18, 2007, and related attachments; and**

**That the ISO Board of Governors authorize Management to make all the necessary and appropriate filings with the Federal Energy Regulatory Commission to implement this proposal.**

Moved: Cazalet Second: Lowe

<b>Board Action: Passed</b> Vote Count: <b>4-0-0</b>	
Cazalet	Y
Lowe	Y
Willrich	Y
Wiseman	Y

Motion Number: 2007-01-G2



## **APPENDIX A**

## **Opinion on Long-Term Congestion Revenue Rights Proposal**

by

**Frank A. Wolak, Chairman**

**James Bushnell, Member**

**Benjamin F. Hobbs, Member**

**Market Surveillance Committee of the California ISO**

**January 18, 2007**

### **Summary**

**The ISO's Long-Term Congestion Revenue Rights (LT-CRRs) proposal is a reasonable allocation process that poses minimal risks to energy and ancillary services market efficiency. We strongly support the characterization of all CRRs issued by the ISO as firm, fully funded obligations. We believe there are adequate safeguards against revenue shortfalls to fund the CRRs. We note, however, that tying of allocation of LT-CRRs to the already vetted short-term CRR allocation process will greatly raise the financial stakes of the initial short-term allocation. Because California ISO market participants have no actual experience with a locational marginal pricing (LMP) market design, there is uncertainty about what short-term CRR allocations will come out of the initial process. A guarantee of full-funding of annual and long-term CRRs also increases the risk that the ISO will need to assess an uplift charge in the event that its merchandising surplus—the difference between the amount loads pay and amount generation unit owners receive for energy—is insufficient to fund CRR payments in the face of sustained or significant line outages. Because of the higher stakes associated with the LT-CRRs, which will have ten times the potential financial benefits or liabilities of the short-term CRRs, we recommend that the ISO more significantly limit the amount of rights that can be converted to LT-CRRs in the first year. This will provide the ISO with the flexibility in subsequent years to use the allocation of the remaining rights to address any perceived inequities that arise from the initial allocation.**

### **1. Introduction**

We have been asked to comment on the ISO's Long-Term Congestion Revenue Rights (LT-CRRs) proposal. At the outset, it is important to emphasize that several constraints were imposed on design of this LT-CRR proposal. First, the ISO already has a short-term CRR allocation mechanism that is part of the Market Redesign and Technology Upgrade (MRTU) filing conditionally approved by the Federal Energy Regulatory Commission (FERC). Second, on July 20, 2006, FERC issued an order requesting that the ISO make a compliance filing with a LT-CRR proposal by January 29, 2007. Finally, in its July 20, 2006 Order, FERC issued seven guidelines for the design of the LT-CRR product. All three of these constraints impacted the ISO's final LT-CRR proposal.

In preparing this opinion, MSC members have discussed these issues with ISO staff at MSC meetings, during phone calls, and in meetings with the design team at the ISO. MSC members have also attended several of the MRTU stakeholder meetings on this topic held over the past four months and given presentations on LT-CRR design at several of these meetings,

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including the October 18, 2006 Market Issues Forum which was attended by members of ISO Board. We would like to express our gratitude to stakeholders and ISO staff for their very helpful input.

### **2. Goals of LT-CRR Process**

We have identified three sets of goals for the LT-CRR allocation process: (1) satisfy the Federal Energy Regulatory Commission (FERC) guidelines and meet January 29, 2007 compliance filing deadline, (2) address stakeholder business needs with respect to the release of LT-CRRs and the potential inequities in the LT-CRR allocation process, and (3) address ISO concerns about the revenue adequacy of the CRRs that it issues as well as limit the adverse energy market efficiency consequences of the LT-CRR allocation process.

The ISO's existing short-term CRR product is consistent with five of the FERC guidelines for long-term CRRs. These are: (1) CRRs should specify a source, sink and megawatt (MW) quantity, (2) CRRs made available by transmission expansions should go to the parties that pay for the upgrade, (3) load-serving entities (LSEs) should have priority in the allocation process, (4) CRRs should be re-assignable to follow load when it migrates between LSEs, and (5) an auction is not required to allocate the CRRs. The guidelines that the current short-term proposal does not address or appears inconsistent with are: (1) the CRR must provide a long-term hedge that cannot be modified and (2) the duration of the CRR must be sufficient to hedge long-term supply arrangements. The conditionally approved MRTU tariff also does not guarantee full-funding of the short-term CRRs allocated by the ISO. FERC Order 681 states that a firm locational price hedge of at least 10 years in duration meets the second requirement. Although not explicitly stated as requirement, the FERC order also emphasized that sufficient LT-CRRs should be released so that LSEs can hedge their baseload energy needs.

There appears to be considerable stakeholder skepticism that secondary market transactions in both short-term and long-term CRRs would allow them to obtain the locational price hedges they desire. For this reason, many stakeholders argued for a CRR allocation that comes as close as possible to providing the hedging instruments they need to serve their retail load. Stakeholders also expressed a desire for an equitable allocation of CRRs. However, there were many different definitions of equity offered by stakeholders. Some argued for allocations based on which entities historically paid for the bulk transmission network. Others argued for allocations based on which entities would pay for the transmission network in the present and future. Another related equity issue is the treatment of pre-existing and future energy contracting relationships in the allocation process. However, as we note below, there are market efficiency consequences to basing CRR allocations on future energy contracting relationships. These considerations also led several stakeholders to advocate a go-slow approach to the LT-CRR allocation process by releasing a small percentage of the total available CRRs as LT-CRRs.

There are several aspects of the full funding and MW firmness requirements of the LT-CRRs that concern the ISO. The first is the desire to ensure that the CRRs it issues are ex post simultaneously feasible in the sense that the merchandising surplus--the difference between the amount buyers pay and sellers receive for electricity--is sufficient to pay its CRR obligations. The ISO also wants to issue as many CRRs as possible, which puts further pressure on this ex post simultaneous feasibility requirement. An additional concern with simultaneous feasibility specific to long-term CRRs is whether entities issued long-term CRRs have the option to turn

them back to the ISO in future years. Giving this ability to market participants can considerably complicate the process of guaranteeing full funding and MW firmness of the LT-CRRs.

The MSC has emphasized on numerous occasions, certain CRR allocations can cause market participant behavior that results in market outcomes with higher levels of congestion and lower levels of grid reliability. An important concern is to ensure that LT-CRRs do not produce this result. Using existing or proposed energy contracts to give priority in the CRR allocation process may cause this to arise. Despite stakeholder skepticism of transactions in the secondary market, it is important that the ISO does not create any artificial barriers to these transactions. These barriers might prevent two LSEs from entering into a mutually beneficial transaction with no adverse market efficiency or system reliability consequences.

An important consideration for stakeholders and the ISO is the existence of the annual and short-term CRR allocation process in the MRTU filing. This allocation process was the result of considerable stakeholder effort and compromise. To the extent possible, the LT-CRR process should therefore build on this process. The short time horizon to file a LT-CRR proposal further increases the need to do this.

### **3. How ISO's Proposal Balances Competing Goals**

Many of the goals described above directly or indirectly conflict with one another. Nevertheless, we believe the ISO's proposal attempts to balance stakeholder desires when these are in conflict without compromising its market efficiency goals or its desire to build on the existing annual and short-term CRR allocation process.

#### **3.1. The proposal does not harm market efficiency and system reliability**

Allocating LT-CRRs ensures that they go to the entities most likely to use them as a passive hedge against congestion charges, rather than as a mechanism to leverage any local market power they might possess, which harms market efficiency. This logic was an important consideration in the decision to allocate annual CRRs. Given the duration of LT-CRRs, any market efficiency problems that result from the CRR allocation will exist for a long time.

Because the LT-CRRs can only be designated from CRRs allocated in Tier 1 and Tier 2 of the annual CRR allocation process, there is no need to verify the existence of a longer-term supply relationships. The only source verifications will be those for the first year of the annual CRR allocation process. This is the only source of priority in the LT-CRR allocation process to market participants with existing or planned long-term energy supply arrangements between the source and sink of the LT-CRR. This issue was very controversial among the stakeholders. It is important to emphasize that the requirement to show pre-existing contracts for the source validation process pertains only to the first year of the annual CRR allocation process, although the impact of this initial allocation can last for 10 years if an annual CRR awarded in Tier 1 or 2 is designated as a LT-CRR. Although the MSC prefers a mechanism that does not allocate LT-CRRs based on pre-existing long-term supply arrangements, MSC members above all oppose allocations based on planned long-term supply arrangements, which is something this proposal avoids.

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The major concern with giving priority to proposed long-term supply arrangements is that retailers could sign these arrangements far from load centers and then use the allocation process to obtain very lucrative CRR payments. This CRR allocation mechanism will undo the very beneficial locational price signals that inform suppliers not to locate new generation units at low-priced locations that still meet the ISO's deliverability requirements. In addition, the ISO will be faced with the very difficult task of verifying which planned long-term supply arrangements are legitimate and deserving of a LT-CRR and which are not. Allocations based on historical supply arrangements also face these difficulties, but they do not undermine the beneficial locational price signals for new generation investments.

Although we prefer the use of a historic benchmark period to one that is tied to future commercial decisions, several stakeholders have raised concerns about the specific historic period used for the "dry-run" allocation of short-term CRRs. A reasonable case can be made that this period was not representative of either historic or future commercial arrangements. We understand that the ISO is considering changing this reference period to another more representative historic period, and we support such a change.

### **3.2. The proposal limits revenue adequacy risk despite the availability of firm LT-CRRs**

The decision to require LT-CRRs to be multi-year obligations, not a sequence of one-year CRRs with the option to renew for a number of years should make it much easier for the ISO to guarantee MW firmness and full funding. Once allocated, these long-term obligations can only be removed by selling them to another market participant. There are a number of reasons to prefer ten-year obligations to a sequence of 1 year renewals. The first is that the option to renew can create revenue adequacy problems for the ISO if market participants are able to refuse to renew CRRs with negative expected congestion payments. Without these payments from the market participant, the ISO may be unable to fund its other LT-CRR obligations. Consequently, the ISO may be forced to reduce the number CRRs it allows other market participants to renew in response to the renewal decisions of other market participants. This would conflict with the goal of making the LT-CRRs "firm."

The allocation of the LT-CRRs will always be subject to a simultaneous feasibility test (SFT) for the duration of the contracts being allocated. Thus before any 10 year rights are awarded in year 1, for example, their feasibility for years 2-10 will be verified. The SFTs used in Tier LT will use the current configuration of the grid, just like the SFTs for Tiers 1 and 2 that determine the annual CRR awards for that year, except that Tier LT extends the feasibility test throughout the ten-year term. According to the ISO's proposal, the transmission planning process will guarantee that future upgrades maintain the firmness of these LT-CRRs throughout their entire 10-year life. These rights are also eligible for renewal after 10 years, but that subsequent renewal would also be subject to a feasibility test. This should provide a reasonable safeguard against the additional risks of revenue imbalance that arise by making the rights both firm and fully funded. That said, there is no way to completely guarantee revenue balance against all contingencies. Thus the firmness of LT-CRRs will be subject to certain extraordinary events, such as the departure of a participating transmission owner (PTO) from the ISO.

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It is important to note that the priority nomination process (PNP) in the annual CRR allocation provides a mechanism through which firms have the option to renew CRRs issued for the previous year. However, these renewals will not be guaranteed, but will rather be subject to a feasibility test. Thus firms for whom optionality of renewal is more important than the “firmness” of the rights will have the ability to pursue that route.

A second reason to prefer the multi-year obligations is that this will increase liquidity in the secondary market for CRRs, or equivalent instruments. Unless LSEs sell the financial obligations associated with their long-term CRRs that have negative expected values in the secondary bilateral market, they will have to make payments to the ISO as part of their LT-CRR obligations, because LT-CRRs issued by the ISO are not transferable. This downside risk of holding LT-CRRs also increases the likelihood that LSEs that are initially allocated LT-CRRs will be active participants in the secondary bilateral CRR market. A final advantage of allocating a 10-year instrument (or other multi-year obligations) instead of a sequence of one-year CRRs with the option to renew each year is that the 10-year instrument will increase the likelihood that market participants will designate sources and sinks for their LT-CRRs along the major transmission interfaces with predictable directions of congestion, rather than sources and sinks that may yield large congestion payments during some years and large congestion obligations in other years. This is consistent with FERC’s goal for market participants to use LT-CRRs for baseload energy supply contracts, because baseload contracts are more likely to use of the major transmission interfaces both into and within California.

Some stakeholders have expressed a desire for LT-CRRs with terms longer than 10 years. Others have expressed a desire for shorter duration LT-CRRs. We believe that both of these preferences can be accommodated within the existing annual PNP and LT-CRR allocation process combined with secondary bilateral trading of portions of both short-term and long-term CRRs. In addition, the incumbent owner has priority for retaining any expiring 10-year or annual CRR subject to a SFT over the relevant time horizon, which implies that this owner could retain the CRR indefinitely.

The ISO’s decision to make the megawatt (MW) quantity firm and to fund fully both long-term and annual CRRs issued by the ISO is likely to improve secondary market performance of annual CRRs. Making the expected congestion payments associated with a 1 MW CRR from a given source and sink equal, regardless of the duration of the CRR, will reduce the transactions cost of selling CRRs, or equivalent derivative instruments, in the secondary market. If some CRRs are fully funded and others are only partially funded, there is likely to be less competition among suppliers to provide both kinds of CRRs in the secondary market.

It is important to recognize that there is a conflict between revenue adequacy and the desire for the ISO to release as many CRRs as possible. The more CRRs released, the greater the risk of revenue inadequacy. The experience of the eastern ISOs, who have often had to reduce payments because allocated rights were often infeasible due to line outages, is informative and cautionary. This is the motivation for the ISO reserving 25% of capacity of the transmission network for the monthly CRR allocation processes. If the ISO wants to reduce the risk of revenue inadequacy, it can hold out an insurance margin by putting say 20% instead of 25 % of the capacity of transmission network into the monthly allocation process. This leaves a 5%

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actuarial headroom that absorbs the impacts of unplanned transmission derates and allows the ISO to maintain full funding without uplift charges. This is consistent with our preference to resolve any conflict between these two goals in favor of minimizing the risk of revenue inadequacy, and thus minimizing the impact of uplift charges in order to ensure full funding for all rights, even if this commitment comes at the expense of a smaller release of rights in order to guarantee adequacy of revenues. The ISO should also ensure there are reasonable *force-majeure* clauses to allow revenue shortfalls when there are major transmission network contingencies.

### **3.3. The proposal attempts to balance competing interests for access to LT-CRRs**

It is important to recognize that, fundamentally, the allocation of CRRs is an allocation of a stream of revenues. Thus, while CRRs can be valuable hedging instruments, they can also simply be valuable because they generate income, whether that income balances against a comparable locational energy price risk or not. Because much of the allocation process is, in effect, the division of revenues among stakeholders, disagreements on the allocation mechanism are to be expected. To a first-order approximation, the allocation process is a zero-sum game.

The ISO has tried to navigate this field of competing financial interests by composing a proposal that provides reasonable access to CRRs for all LSEs. This led to the decision to not give existing long-term energy supply contracts priority in the LT-CRR allocation process except through the use of pre-existing contracts to verify sources in the annual CRR allocation process. We believe this appropriately balances the interests of small and large LSEs because smaller LSEs are unlikely to have pre-existing supply arrangements beyond two years. Without this mechanism for source verification, smaller LSEs would be given a lower priority for LT-CRRs than larger LSEs that have pre-existing long-term supply arrangements.

The desire to promote the maximal availability of CRRs has motivated two recent additions to the proposal: (1) the limitation of reassignment of registered LT-CRRs and (2) the exclusion of Trading Hub CRRs from the LT-CRR allocation process. First, the LT-CRRs themselves will not be transferable from the perspective of the ISO. It is important to recognize that firms can still transact the equivalent of a CRR, or any derivative version of them. Specifically, a firm that is allocated a LT-CRR will still be able to construct a secondary transaction that is the functional equivalent of “selling” that LT-CRR. This restriction on the transfer of LT-CRRs from the perspective of the ISO allows LT-CRRs to migrate with load when it leaves one LSE for another. If customers of one LSE migrate to another LSE, a proportionate share of the LT-CRRs held at the CAISO will migrate with those customers to the new LSEs. By restricting the transfer of LT-CRRs, the ISO guarantees that LSEs will not sell the LT-CRRs out from under their customers before they switch to the other LSE. Because a LT-CRR registered with the ISO cannot be reassigned unless load migrates, customers can be confident that a new LSE will have access to some LT-CRRs.

The limitation on re-assignment of CRRs can also, ironically, stimulate trading in equivalent CRRs and derivative instruments. Because there can be no trading of LT-CRRs from the perspective of the ISO, there will be a demand for financially equivalent instruments. The supply of these hedging instruments, backed by individual market participants rather than by the ISO, would unquestionably be a positive development.

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The exclusion of Trading-Hub CRRs is a more problematic fix to a problem that has been identified in the CRR “dry-run” allocation tests. Trading Hub CRRs are essentially bundles of CRRs comprising small shares of all of the sources located in a given zone to the sink of the CRR. Because a request for a Trading-Hub CRR is equivalent to a request for CRRs from every source in a zone to that sink, their feasibility is limited by the most constrained source-to-sink pair contained within the Trading-Hub bundle. Thus Trading Hub CRRs are subject to the lowest-common denominator of transmission constraints in a region. There is concern that many otherwise feasible point-to-point CRRs may go unallocated if a significant percentage of CRR requests take the form of Trading-Hub CRRs.

The exact nature and magnitude of these potential problems are currently not fully understood. As a precautionary measure, the ISO has proposed excluding Trading Hub CRRs from the LT-CRR allocation process. Firms can still be eligible to nominate and receive Trading-Hub CRRs, but only through the short-term CRR allocation and renewal process. This will prevent any problems that arise from the Trading Hub CRRs in the allocation in the initial year from propagating through the allocations for years 2-10.

We support the decision to exclude Trading Hubs from the LT-CRR allocations. Some parties have noted that the consequences of this exclusion will fall disproportionately on smaller LSEs who may have most or all of their supply contracts from the reference year sourced at Trading-Hubs. Because requests for CRRs that are eligible for conversion into LT-CRRs are limited to verified source-to-sink pairs, firms whose only verified sources are Trading Hubs will have no ability to convert to LT-CRRs. If this concern is viewed as particularly serious, one possible solution is to make LSEs eligible to convert their Trading Hub CRRs into the equivalent bundle of CRRs from the source to sink pairs that comprise the Trading Hub. These “unbundled” Trading Hub CRRs, could then be eligible for conversion into LT-CRRs. If a single source to sink pair presented a bottleneck to the designation of the bundle as a LT-CRR, then this process would eliminate the bottleneck pair, and allow for the allocation of all of the remaining, feasible pairs in the bundle as individual LT-CRRs. We recommend that this proposal be considered in the CRR Dry Run analysis and in further study of the impact of Trading Hub nominations on the CRR allocation process.

### **4. Conclusions**

For the reasons outlined above, we support the ISO’s framework for the allocation of LT-CRRs. One last point to emphasize is that the ISO’s proposal has evolved in way that takes maximum advantage of the stakeholder processes that preceded it. The current proposal represents relatively small changes from the process for allocating short-term CRRs. This process was vetted by a long stakeholder process and has been approved by FERC. In this sense, the current proposal constitutes the ISO’s best chance to accomplish the challenge of reconciling competing design goals in a very short time frame.

That said, we also note that there is much uncertainty about what kinds of allocations this process will actually yield, as well as the subsequent nodal energy prices that will determine the value of the CRRs that are allocated. The linking of ownership of ten-year CRRs to this



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allocation process greatly raises the financial stakes to all involved. Concerns about uncertainty have led some parties, such as Pacific Gas & Electric and San Diego Gas & Electric to request some ability to revisit the allocation process later if its results are considered to be aberrant or grossly inequitable. We are also concerned about the uncertainty of the process. Because of this, and because of the financial risk associated with fully funding CRRs, we support a reduction in the amount of CRRs that can be converted to LT-CRRs during the first year of allocations. This reduces the stakes somewhat, and allows for a change in course for the allocation of remainder of the long-term rights during subsequent years. In this way changes to the allocation process can be used to redress any perceived and unexpected inequities that arise from the initial allocation.