

June 7, 2007

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

**RE: *California Independent System Operator Corporation*  
Docket No. ER07-613-000 - Compliance Filing**

Dear Secretary Bose:

Pursuant to the Federal Energy Regulatory Commission's ("FERC" or the "Commission") Rule 1907, 18 C.F.R. § 385.1907 (2006), and the Commission's May 8, 2007 Order ("May 8 Order") in the above-referenced proceeding,<sup>1</sup> the California Independent System Operator Corporation ("CAISO") hereby submits five copies of its Compliance Filing in accordance with the May 8 Order.

## **I. BACKGROUND**

On March 9, 2007, the CAISO submitted certain amendments (the "March 9 Filing") to the currently-effective ISO Tariff<sup>2</sup> designed to facilitate implementation of the Market Redesign and Technology Upgrade ("MRTU") program. In the March 9 filing, the CAISO requested that:

1. The Commission grant early effectiveness for certain conditionally accepted MRTU Tariff provisions concerning Transmission Rights and Transmission Curtailment ("TRTC") Instructions; these will provide the CAISO with the requisite authority to collect important information from its Market Participants to enable

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<sup>1</sup> *California Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,124 (2007) ("May 8 Order").

<sup>2</sup> Capitalized terms, unless otherwise defined, are used in accordance with the definition of the Master Definition Supplement, Appendix A to the ISO Tariff, or Appendix A to the MRTU Tariff. For the purposes of this transmittal letter, the term "ISO Tariff" refers to the CAISO's tariff currently in effect, and the term "MRTU Tariff" will refer to the tariff filed and conditionally accepted in Docket No. ER06-615-000, and further revised through compliance filings made on November 20, 2006 and December 20, 2006 in FERC Docket No. ER06-615-000 and on January 29, 2007 in compliance with the Commission's long-term financial rights Final Rule in Docket No. ER07-475.

- the CAISO to: (1) properly model Existing Transmission Contracts (“ETCs”), Converted Rights, and Transmission Ownership Rights (“TORs”) in the Congestion Revenue Rights (“CRR”) Allocation and CRR Auction processes; and (2) to be ready to honor the terms of ETCs, Converted Rights, and TOR at the onset of MRTU;
2. The Commission find just and reasonable additional, detailed tariff language to include additional informational requirements for the TRTC Instructions that will permit the CAISO to properly model and validate the use of ETCs, TORs, and Converted Rights and to clarify that Converted Rights holders must participate in the provision of TRTC Instructions;
  3. The Commission grant early effectiveness for conditionally accepted provisions of the MRTU Tariff concerning CRRs to enable the CAISO to conduct the CRR Allocation and Auction processes later this summer to ensure that eligible Market Participants will have CRRs in place at the commencement of MRTU;
  4. The Commission find just and reasonable the additional tariff language on the registration and qualification process and requirements for Candidate CRR Holders;
  5. The Commission find just and reasonable the revisions to the ISO Tariff regarding creditworthiness and other Financial Security provisions to facilitate the CRR Auction and CRR Allocation;
  6. The Commission find just and reasonable the *pro forma* agreement the CAISO must execute with entities that wish to qualify for and intend to hold CRRs (the “CRR Entity Agreement”);
  7. The Commission grant early effectiveness for conditionally accepted provisions of the MRTU Tariff concerning the provision of market information to Candidate CRR Holders and CRR Holders; and
  8. The Commission grant early effectiveness for conditionally accepted provisions of the MRTU Tariff setting forth the definitions of new defined terms used in the substantive provisions of the MRTU Tariff for which early effectiveness is requested by incorporation of such terms in the ISO Tariff.

In the May 8 Order, the Commission conditionally accepted the filing. The Commission granted the requested effective date of March 9, 2007 but provided a one-week extension through May 16, 2007 to allow parties time to seek the CAISO’s assistance to accurately reflect their rights in the CAISO modeling of CRRs, consistent with the TRTC requirements as approved by the May 8 Order.<sup>3</sup>

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<sup>3</sup> May 8 Order at P 32.

## II. COMPLIANCE FILING

In the May 8 Order, the Commission directed the CAISO to finalize any Business Practice Manuals (“BPMs”) necessary for the first annual CRR allocation within 30 days of that order and to submit those BPMs to the Commission on an informational basis.<sup>4</sup> The Commission recognized that this is not the timeline previously established for BPM review in its September 21, 2006 MRTU Order but stated that it is imperative that stakeholders and the Commission are apprised of all the provisions governing the CRR allocation and auction process in advance of the CAISO's July commencement date. This requirement pertained to, but is not limited to, the BPM for Candidate CRR Holder Registration, the BPM for CRRs and the BPM addressing the CAISO's credit policy. In compliance with the May 8 Order, the CAISO respectfully submits for informational purposes only its BPMs for Congestion Revenue Rights and the BPM for Candidate CRR Holder Registration.

### *BPM for Candidate CRR Holder Registration*

The CAISO BPM for Candidate CRR Holder Registration was first posted on April 2, 2007 and the document that the CAISO has offered to parties seeking to register and qualify as Candidate CRR Holders in order to participate in the upcoming CRR Allocation and Auctions later this summer. This document is based on the registration and qualification procedures described in section 4.10 of Appendix BB of the CAISO Tariff as filed and accepted in this proceeding. The document provides an overview of the application process, the information required for registration, the location of applicable forms and other information required for completion of the application process for Candidate CRR Holders.

The version filed today for informational purposes as contained in Attachment A does not differ substantively from the version posted on April 2. The only differences from the April 2 posting are editorial changes and conforming changes to tariff references. The CAISO determined that there was no need for any substantive changes to this BPM as a result of the May 8 Order and therefore there have been few changes necessary to this document since its last posting.

The CAISO has also posted on its website the version of this BPM filed for informational purposes in this filing today. While this BPM is final the CAISO is always open to receipt of stakeholder comments.

### *BPM for Congestion Revenue Rights*

The BPM for CRRs was first posted on July 31, 2006, and was based on the CRR rules as filed on February 9, 2007 in Docket No. ER06-615. After stakeholder review and comment and after further updates per the additional CRR rules changes as required by the Commission September 21 Order, the BPM was posted again on January 19, 2007. The version of the BPM for CRRs as provided in Attachment B

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<sup>4</sup> May 8 Order at P 70.

includes the following improvements: 1) recommended and accepted proposed stakeholder changes to better reflect the filed CRR policy; 2) changes to reflect the Long Term CRR provisions as filed on January 29 in Docket No. ER07-475; 3) changes required as a result of the May 8 Order; 4) changes made to the CRR rules on May 7 in Docket No. ER07-869; and 5) changes required as a result of the April 20 Order Granting in Part and Denying in Part Requests for Clarification and Rehearing in Docket No. ER06-615.

While the improvements to the BPM since its last posting on January 19, 2007, reflect a considerable amount of effort in completing this document, the CAISO was not able during the past month to include in its process for finalization of the BPM an opportunity for stakeholder comment to the new material. The CRR BPM as provided in Attachment C is finalized for the purposes of supporting the CRR Allocation as it now contains all the additional requirements that have been developed since January 19. In order to provide stakeholders an opportunity to further comment on the latest BPM before the July CRR go live date, the CAISO is today also concurrently posting the BPM on its website for comments by stakeholders. The CAISO intends to hold a conference call later this month to address any comments submitted by stakeholders to the BPM as posted today. Following this additional stakeholder process, the CAISO will consider revisions to the BPM proposed by stakeholders and if there are any changes necessary will post a revised version of the BPM on or about July 9, 2007. The CAISO does not, however, anticipate that any of the changes that may be made to this BPM going forward will be substantive as the CAISO has endeavored rigorously over the recent months, while also preparing for the start of its CRR allocation, to finalize the BPM so that it contains all the necessary information on all the features of the CRR program with which the CAISO will go live in July.

The CAISO notes that it anticipates a Commission order on the changes to the CRR rules as filed on or about July 9 ("July CRR Order"). After the Commission has issued that order, the BPMs for Candidate CRR Holder Registration and CRRs will again be reviewed to determine whether they will have to be updated to reflect any changes that may be necessary as a result of the July CRR Order. In addition, the CAISO will be making an additional filing on or about July 20 to reflect changes to the CRR rules that do not affect the CRR auction and allocation activity it will be conducting starting in July but will affect the CRR activity to take place later this fall. The CAISO notes that those changes may also require changes to the BPM for CRRs later this year. At this time the CAISO has not scoped out a schedule for these changes as it does not know the magnitude of any such changes that might be necessary.

#### *BPM for Credit Management*

Consistent with the Commission order issued today Order Granting Extension Of Time to the filing for informational purposes the BPM for Credit Management, the CAISO will be filing this BPM for informational purposes no later than June 22, 2007. On May 30, 2007, the CAISO Board approved the proposed credit policy affecting CRRs. On June 6, 2007, the CAISO posted the draft BPM for Credit Management and

draft tariff language relating to CRR credit policy consistent with its Board-approved policy and is scheduled to hold a conference call on June 15, 2007.

### III. ATTACHMENTS

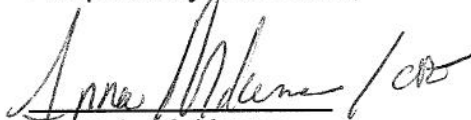
Along with this transmittal letter, the CAISO provides the following supporting materials:

- Attachment A - Business Practice Manual for Candidate CRR Holder Registration
- Attachment B - Business Practice Manual for Congestion Revenue Rights

### IV. CONCLUSION

For all the reasons stated herein, the CAISO respectfully requests that the Commission accept this Compliance Filing.

Respectfully submitted,



Anna A. McKenna  
Counsel  
Sidney M. Davies  
Assistant General Counsel  
California Independent System  
Operator Corporation  
151 Blue Ravine Road  
Folsom, CA 95630  
Tel: (916) 351-4400  
Fax: (916) 608-7296  
E-mail: [amckenna@caiso.com](mailto:amckenna@caiso.com)  
[sdavies@caiso.com](mailto:sdavies@caiso.com)

Dated: June 7, 2007

## CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in the above-captioned docket. Dated at Folsom, California on this 7th day of June, 2007.

  
Anna A. McKenna



California ISO  
Your Link to Power

# Business Practice Manual for Candidate CRR Holder Registration

Version 1

Last Revised: June 7, 2007

## **Disclaimer**

All information contained in this draft Business Practice Manual, along with any other draft Business Practice Manual provided by the California Independent System Operator Corporation (CAISO), is prepared for discussion and information purposes only and provided "as is" without representation or warranty of any kind, including without limitation, accuracy, completeness or appropriateness for any particular purpose. Such draft Business Practice Manuals shall be revised as the development and review of the Business Practice Manuals progresses. The CAISO assumes no responsibility for the consequences of any errors or omissions. The CAISO may revise or withdraw all or part of this information at any time at its discretion without notice.



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## Approval History

Approval Date:

Effective Date:

BPM Owner: Deborah Le Vine

BPM Owner's Title: Director, Market Services

## Revision History

| Version | Date       | Description                         |
|---------|------------|-------------------------------------|
| 3       | MM-DD-YYYY |                                     |
| 2       | MM-DD-YYYY |                                     |
| 1       | 6-07-2007  | Revision after stakeholder comments |
| 0       | 03-28-2007 | Initial Version Release             |

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# 1. Introduction

In this Introduction you will find the following information:

- The purpose of CAISO BPMs
- What you can expect from this CAISO BPM
- Other CAISO BPMs or documents that provide related or additional information

## 1.1 Purpose of California ISO Business Practice Manuals

The Business Practice Manuals (BPMs) developed by CAISO are intended to contain implementation detail, consistent with and supported by the CAISO Tariff, including: instructions, rules, procedures, examples, and guidelines for the administration, operation, planning, and accounting requirements of CAISO and the markets. Exhibit 1-1 lists CAISO BPMs.

**Exhibit 1-1: CAISO BPMs**

| Title   |
|---|
| BPM for Market Operations   |
| BPM for Market Instruments  |
| BPM for Settlements & Billing   |
| BPM for Scheduling Coordinator Certification & Termination  |
| BPM for Congestion Revenue Rights   |
| BPM for Candidate CRR Holder Registration   |
| BPM for Managing Full Network Model   |
| BPM for Rules of Conduct Administration   |
| BPM for Outage Management   |
| BPM for Metering  |
| BPM for Reliability Requirements  |
| BPM for Credit Management (On hold pending outcome of CAISO credit policy tariff amendment in ER06-700) |
| BPM for Compliance Monitoring   |
| BPM for Definitions & Acronyms  |
| BPM for BPM Change Management   |

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## 1.2 Purpose of this Business Practice Manual

The *BPM for Candidate CRR Holder Registration* covers the process that an applicant must complete in order to become a Candidate CRR Holder eligible to participate in the CAISO CRR Allocation, CRR Auction or Secondary Registration System.

In this BPM you will find:

- A description of the application & certification process for a Candidate CRR Holder.
- A listing of obligations & responsibilities for a Candidate CRR Holder.
- General information of use to a Candidate CRR Holder.

The provisions of this BPM are intended to be consistent with the CAISO Tariff. If the provisions of this BPM nevertheless conflict with the CAISO Tariff, the CAISO is bound to operate in accordance with the CAISO Tariff. Any provision of the CAISO Tariff that may have been summarized or repeated in this BPM is only to aid understanding. Even though every effort will be made by CAISO to update the information contained in this BPM and to notify Market Participants of changes, it is the responsibility of each Market Participant to ensure that he or she is using the most recent version of this BPM and to comply with all applicable provision of the CAISO Tariff.

A reference in this BPM to the CAISO Tariff, a given agreement, any other BPM or instrument, is intended to refer to the CAISO Tariff, that agreement, BPM or instrument as modified, amended, supplemented or restated.

The captions and headings in this BPM are intended solely to facilitate reference and not to have any bearing on the meaning of any of the terms and conditions of this BPM.

## 1.3 References

Note to Reader: The definition of acronyms and words beginning with capitalized letters are provided in the *BPM for Definitions & Acronyms*.

In addition to the CAISO FERC Electric Tariff and other CAISO BPMs, the following references are related to this BPM:

- Other CAISO BPMs
- CAISO FERC Electric Tariff, Amended and Restated Second Replacement
- CAISO Credit Policy & Procedures Guide

Current versions of these documents are posted on the CAISO Website.

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## 2. Candidate CRR Holder Registration Process

In this section you will find the following information:

- A high-level timeline for the Candidate CRR Holder registration process.
- How to apply to become a Candidate CRR Holder.
- What registration requirements the Candidate CRR Holder applicant must fulfill to become a Candidate CRR Holder.

### 2.1 Application Timeline

At least sixty (60) calendar days prior to the proposed commencement of the CRR Allocation or CRR Auction, or the effective date of the CRR Transfer through the Secondary Registration System, the Candidate CRR Holder applicant must submit a completed application form to the CAISO. (CAISO Tariff § 4.10.1.3)

Within three (3) Business Days of receiving the application (including the Information Request Form in Attachment B), CAISO sends a written notification to the Candidate CRR Holder applicant stating that it has received the application. (CAISO Tariff § 4.10.1.3) The CAISO assigns to each applicant a Customer Services Client Representative, who assists the applicant throughout the certification process.

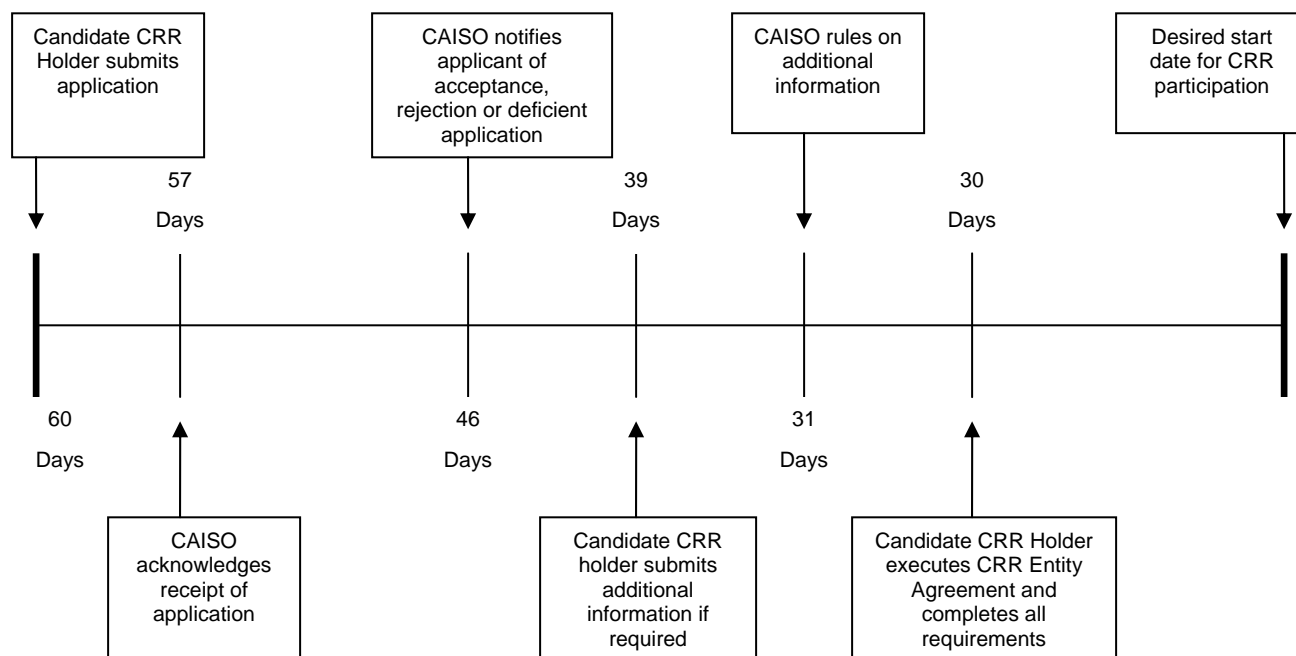
Within ten (10) Business Days after receiving an application, the CAISO notifies the Candidate CRR Holder applicant if the submittal includes all of the necessary information that is required by CAISO. (CAISO Tariff § 4.10.1.4) If the application is deemed to be deficient, the CAISO sends written notification of the deficiency to the Candidate CRR Holder applicant explaining the deficiency and requesting additional clarifying information. (CAISO Tariff § 4.10.1.6) The Candidate CRR Holder applicant has five (5) days (or longer if the CAISO agrees) to provide the additional material that is requested. (CAISO Tariff § 4.10.16.1) If the Candidate CRR Holder applicant does not submit the additional information that was requested by the CAISO within five (5) Business Days (or a longer agreed upon period) then the application may be rejected by the CAISO. (CAISO Tariff § 4.10.1.6.2)

The CAISO makes a decision whether to accept or reject an application within ten (10) Business Days of receipt of the complete application (including any additional or clarifying material that may have been requested). (CAISO Tariff § 4.10.1.7.2)

If the application is accepted, then all certification requirements and applicable contracts must be executed by the applicant and returned to the CAISO within approximately thirty (30)

calendar days prior to the commencement of the CRR Allocation, CRR Auction, or the effective date of the CRR transfer through the Secondary Registration System. The timeline for the Candidate CRR Holder application process is shown in graphical form in Exhibit 2-1.

### Exhibit 2-1: Candidate CRR Holder Application Timeline



#### 2.1.1 Application Sunset Provision

The Candidate CRR Holder applicant has one calendar year in which to complete and pass the requirements for final approval. If an application is not completed within one calendar year from the initial submittal date, CASIO can close the application. At a later date, if the Candidate CRR Holder applicant wishes to again pursue certification, a new application is required (See CAISO Tariff § 4.10.1.5).

#### 2.2 Submit Candidate CRR Holder Application Form

To commence the Candidate CRR Holder application process, a Candidate CRR Holder applicant must complete and return the Candidate CRR Holder Application Form that is located in Attachment A and the CRR Entity Agreement Information Request Form that is located in Attachment B of this document.



Once the Candidate CRR Holder applicant completes the Candidate CRR Holder Application Form and the CRR Entity Agreement Information Sheet, the Candidate CRR Holder applicant must then:

- 1) Send an electronic copy of the application form to [crrdata@caiso.com](mailto:crrdata@caiso.com)
- 2) Send a hardcopy of the application form to:

CAISO External Affairs  
ATTN: Candidate CRR Holder Application Processing Office  
151 Blue Ravine Road  
Folsom, CA 95630

If there are any questions regarding the application or certification process, please contact CAISO at [crrdata@caiso.com](mailto:crrdata@caiso.com)

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## 2.3 Certification Requirements

The Candidate CRR Holder applicant's Client Representative contacts the Candidate CRR Holder applicant to begin the certification requirements once the application has been accepted. This section outlines the certification requirements that a Candidate CRR Holder applicant needs to fulfill to become certified to participate in the CRR Processes.

### 2.3.1 Establish CAISO Portal Access

This requirement enables the Candidate CRR Holder applicant to have access to the CAISO CRR Allocation, CRR Auction and Secondary Registration System (CRR Processes). These applications are only accessed through the CAISO Portal via the Internet. If the Internet carrier selected by a Candidate CRR Holder has an availability issue, it may affect the Candidate CRR Holder's ability to communicate with CAISO. Additionally, industry related news and links, and some content that is available on the CAISO Website is also available through the portal. The process in which a Candidate CRR Holder gains access to the CAISO Portal is described in Section 2.3.2 of this document.

### 2.3.2 Request Application Access

The Application Access Request form captures the applications to which a person designated by the Candidate CRR Holder applicant needs access. Once the form is received, the CAISO determines if a digital certificate is required. If so, the CAISO creates the digital certificate and issues the certificate to the person in question. Only one digital certificate is issued per individual. Each person or system has an individually assigned login account provided through the digital certificate. The application access effective date is the same day that a Candidate CRR Holder applicant becomes a certified Candidate CRR Holder.

All Candidate CRR Holder applicants should request application access to:

- SaMC(Settlements and Market Clearing) and,
- CRR Processes (CRR Allocation, CRR Auction and Secondary Registration System)

The estimated time to for a Candidate CRR Holder applicant to receive digital certificates is approximately fifteen (15) Business Days. Additional information can be obtained at:

[Application Access Request Form](#)

<http://www.caiso.com/pubinfo/info-security/certs/index.html>

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Once the CRR Entity Agreement has been fully executed, CAISO will supply the production URL to access the CRR market system.

### 2.3.3 Attend Training

The Candidate CRR Holder applicant is required to complete training, which consists of:

- CRR Allocation, Auction and Secondary Registration System (SRS)
- CRR Settlements

Entities that are considering application should access the training schedule so that they can obtain necessary training before they intend to operate. All training requirements must be completed before the Candidate CRR Holder applicant is registered and qualified as a Candidate CRR Holder. (See CAISO Tariff § 4.10.1.9.1)

Additional information from previous training courses can be obtained at:

[Training Material](#)

<http://www.caiso.com/docs/2004/01/29/2004012910353027828.html>

Candidate CRR Holders that have participated in prior CRR training with the CAISO may obtain a participant release from the CRR training requirement. In order to receive this waiver the Candidate CRR Holder must demonstrate that they have attended previous training from the CAISO and sign and return the training waiver form to CAISO. Applicants can obtain a copy of the training waiver and instructions from the following URL:

[URL for Training Waiver](#)

<http://www.caiso.com/1bb4/1bb47be735560.pdf>

### 2.3.4 Test Fed-Wire<sup>1</sup>

This requirement ensures that a Candidate CRR Holder applicant can submit payments to, and receive payment from CAISO. The Candidate CRR Holder applicant is required to test its Fed-

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<sup>1</sup> Prior to SaMC (Settlements and Market Clearing) going into production, Electronic Data Interchange (EDI) is mandatory. The ISO's EDI Implementation Guide can be found on the ISO web site at <http://www.caiso.com/docs/1999/01/15/1999011506424228685ex.html>

Wire. Fed-Wire is a computerized high-speed communication system linking the banks within the Federal Reserve System. The network enables transfers to be conducted at high speed for inter-bank dealings and customer transfers. The EDI and Fed-Wire form needs to be completed by all applicants. This form can be found by going to the following URL:

[EDI Fed Wire Form](#)

<http://www.caiso.com/1bb4/1bb47c3b359f0.doc>

The estimated time to set up Fed-Wire transfers is approximately ten (10) Business Days.

Additional information can be obtained at:

[URL to be supplied by CAISO at a later date](#)

### **2.3.5 Affiliate Registration Requirement**

All entities participating in the CRR Processes must be fully registered and qualified as a Candidate CRR Holder with the CAISO and must notify the CAISO of all affiliates of the Candidate CRR Holder or CRR Holder, that are themselves Candidate CRR Holders, CRR Holders or Market Participants. (See CAISO Tariff § 36.7.3)

This is an on-going requirement for as long as the CRR Holder owns CRRs. A CRR Holder must notify the CAISO within five (5) business days of an Affiliate relationship change.

For more specific details, please refer to Section 36.7.3 of the CAISO Tariff. The CRR Holder/Affiliate Form can be found at the following URL:

[URL for Affiliate Form](#)

<http://www.caiso.com/1bb4/1bb47b9235160.doc>

### **2.3.6 Execute CRR Entity Agreement**

The CRR Entity Agreement (CCREA) must be executed prior to becoming a Candidate CRR Holder. (See CAISO Tariff § 4.10.1.9.1) Based on the information provided in Attachment B, CAISO will generate a CRR Entity Agreement and send it to the Candidate CRR Holder applicant. A sample of the Pro forma agreement can be obtained at:

[Pro forma Contracts & Agreements](#)

<http://www.caiso.com/docs/2005/10/28/2005102814063125551.html>

## **2.4 Rejection**

Procedures associated with rejection of an application and grounds for rejection of an application are specified in CAISO Tariff Section 4.10.1.7.1

## **2.5 Other Processes**

There are other processes that affect a Candidate CRR Holder as described in the following section.

### **2.5.1 CRR Participation**

Candidate CRR Holder's that wish to participate in the CRR Processes need to review the information provided in the *BPM for Congestion Revenue Rights*.

*Please Note: This BPM covers only the registration process for Candidate CRR Holders; it does not detail the steps necessary to participate in the CRR Processes (CRR Allocation, CRR Auction and/or Secondary Registration System).*

## **3. Maintaining Candidate CRR Holder Status Obligations & Operations**

Welcome to the *Maintaining Candidate CRR Holder Status Obligations & Operations* section of the *BPM for Candidate CRR Holder Registration*. In this section you will find the following information:

- The ongoing obligations for an Candidate CRR Holder
- The termination procedure for Candidate CRR Holder status

### **3.1 Ongoing Obligations**

Each Candidate CRR Holder and CRR Holder has an ongoing obligation to inform the CAISO of any changes to any of the information that it has submitted to the CAISO as part of the application process. (See CAISO Tariff § 4.10.2.1.1) Such changes must be reported to the CAISO within seven (7) Business Days of the change unless it is a Material Change in Financial

Condition. Any Material Change in Financial Condition must be reported within five (5) Business Days. (See CAISO Tariff § 4.10.2.1.2)

### **3.1.1 Failure to Inform**

If a Candidate CRR Holder fails to inform the CAISO of a material change in the information, including but not limited to Material Change in Financial Condition, that it has supplied to the CAISO and the information in question may affect the Financial Security of the CAISO, then the CAISO may suspend or terminate the Candidate CRR Holder or CRR Holder's rights under the CAISO Tariff in accordance with the CAISO Tariff sections 12.3 and 4.10.4.2.

If the CAISO intends to terminate a Candidate CRR Holder or CRR Holder's status, then it must file a notice of termination with FERC and such termination is only effective upon acceptance of the notice of termination by FERC.

### **3.1.2 Training & Testing**

Candidate CRR Holders and CRR Holders are required to maintain continued proficiency and compliance with the rules and regulations concerning participation in the CAISO CRR Processes. New employees are expected to enroll in the CAISO training classes as soon as practical given their other duties. Refresher training courses may be offered occasionally by the CAISO and all Candidate CRR Holders are encouraged to participate in such training when it is offered.

If a Candidate CRR Holder becomes 'inactive' in the CAISO CRR Processes for a period greater than two years, they are expected to complete the CRR training program again.

## **Attachment A**

# **CANDIDATE CRR HOLDER APPLICATION FORM**

## A. Candidate CRR Holder Application Form

This application is for certification of the applicant as a Candidate CRR Holder by the California Independent System Operator Corporation (“CAISO”) in accordance with the CAISO Tariff. The information provided for this application will be treated as confidential information.

| <b>Section I: Administrative Requirements</b>   |   |                |               |
|---|---|----------------|---------------|
| <b>Applicant’s Legal Name</b><br><i>Note: This name must be used on all documentation submitted to the CAISO. Use of an inconsistent name may result in the document being returned to you for correction thus delaying the registration process.</i>   |   |                |               |
| <b>Street Address</b>   |   |                |               |
| <b>City, State, Zip Code</b>  | City:   | State:         | Zip Code:     |
| <b>State of Incorporation or Partnership (if applicable)</b>  |   |                |               |
| <b>Entity Type</b> ( <i>Municipal utility, power marketer, investor owned utility, federal or state entity or other</i> )   |   |                |               |
| <b>Is your company a registered certified Scheduling Coordinator with the CAISO?</b>  | <input type="checkbox"/> Yes If Yes, Please provide your SCID(s): _____<br><input type="checkbox"/> No  |                |               |
| <b>If your company is NOT registered as a certified Scheduling Coordinator, please complete this section</b><br><b>Scheduling Coordinator ID (SCID)</b><br><i>Provide three options for your SCID. The SCID has to start with a letter and must be four characters. The SCID is a unique identifier used throughout the CAISO Market systems. The CCRRH applicant is granted one SCID with its application. Each additional SCID request costs \$500.</i> | First Choice:   | Second Choice: | Third Choice: |
| <b>Select the CRR Markets your company wishes to participate in:</b>  | <input type="checkbox"/> CRR Allocation<br><input type="checkbox"/> CRR Auction<br><input type="checkbox"/> CRR Secondary Registration System (SRS) |                |               |
| <b>Has your company attended the CAISO CRR Training Course?</b>   | <input type="checkbox"/> Yes If Yes, Please provide dates _____ (and a signed waiver)<br><input type="checkbox"/> No                                |                |               |



**Section II: Contact Information**

**Authorized Primary Customer Services Contact** *(works with CAISO during/after the Candidate CRR Holder certification process)*

|  |       |        |           |
|--|-------|--------|-----------|
| <b>Name</b>  |       |        |           |
| <b>Title</b>   |       |        |           |
| <b>Email Address</b>   |       |        |           |
| <b>Desk Phone Number</b>   |       |        |           |
| <b>Mobile Phone Number (optional)</b>  |       |        |           |
| <b>Fax Number</b>  |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I- Administrative Requirements.</i> |       |        |           |
| <b>City, State, Zip Code</b>   | City: | State: | Zip Code: |

**Authorized Alternate Customer Services Contact** *(alternate person that can provide backup responsibilities if the CAISO is unable to contact the primary contact)*

|  |       |        |           |
|--|-------|--------|-----------|
| <b>Name</b>  |       |        |           |
| <b>Title</b>   |       |        |           |
| <b>Email Address</b>   |       |        |           |
| <b>Desk Phone Number</b>   |       |        |           |
| <b>Mobile Phone Number (optional)</b>  |       |        |           |
| <b>Fax Number</b>  |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I- Administrative Requirements.</i> |       |        |           |
| <b>City, State, Zip Code</b>   | City: | State: | Zip Code: |

**Primary Information Security Contact** *(submits application access requests & approves digital certificate renewals)*

|  |       |        |           |
|--|-------|--------|-----------|
| <b>Name</b>  |       |        |           |
| <b>Title</b>   |       |        |           |
| <b>Email Address</b>   |       |        |           |
| <b>Desk Phone Number</b>   |       |        |           |
| <b>Mobile Phone Number (optional)</b>  |       |        |           |
| <b>Fax Number</b>  |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I- Administrative Requirements.</i> |       |        |           |
| <b>City, State, Zip Code</b>   | City: | State: | Zip Code: |

| <b>Alternate Information Security Contact</b> <i>(submits application access requests &amp; approves digital cert renewals)</i> |       |        |           |
|---|-------|--------|-----------|
| <b>Name</b>   |       |        |           |
| <b>Title</b>  |       |        |           |
| <b>Email Address</b>  |       |        |           |
| <b>Desk Phone Number</b>  |       |        |           |
| <b>Mobile Phone Number (optional)</b>   |       |        |           |
| <b>Fax Number</b>   |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I- Administrative Requirements.</i>                  |       |        |           |
| <b>City, State, Zip Code</b>  | City: | State: | Zip Code: |

| <b>The following sections are required for Entities that are not Scheduling Coordinators</b>   |       |        |           |
|--|-------|--------|-----------|
| <b>Authorized Primary Invoicing Contact</b> <i>(person responsible for Invoicing and Fed Wire issues.)</i>   |       |        |           |
| <b>Name</b>  |       |        |           |
| <b>Title</b>   |       |        |           |
| <b>Email Address</b>   |       |        |           |
| <b>Desk Phone Number</b>   |       |        |           |
| <b>Mobile Phone Number (optional)</b>  |       |        |           |
| <b>Fax Number</b>  |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I- Administrative Requirements.</i>   |       |        |           |
| <b>City, State, Zip Code</b>   | City: | State: | Zip Code: |
| <b>Authorized Alternate Invoicing Contact</b> <i>(alternate person that can provide backup responsibilities if the CAISO is unable to contact the primary contact)</i> |       |        |           |
| <b>Name</b>  |       |        |           |
| <b>Title</b>   |       |        |           |
| <b>Email Address</b>   |       |        |           |
| <b>Desk Phone Number</b>   |       |        |           |
| <b>Mobile Phone Number (optional)</b>  |       |        |           |
| <b>Fax Number</b>  |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I- Administrative Requirements.</i>   |       |        |           |

|   |       |        |           |
|---|-------|--------|-----------|
| <b>City, State, Zip Code</b>  | City: | State: | Zip Code: |
| <b>Authorized Primary Financial Security Contact</b> <i>(primary person that works with CAISO to ensure Financial Security requirements are being met)</i>                      |       |        |           |
| <b>Name</b>   |       |        |           |
| <b>Title</b>  |       |        |           |
| <b>Email Address</b>  |       |        |           |
| <b>Desk Phone Number</b>  |       |        |           |
| <b>Mobile Phone Number (optional)</b>   |       |        |           |
| <b>Fax Number</b>   |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I-Administrative Requirements.</i>   |       |        |           |
| <b>City, State, Zip Code</b>  | City: | State: | Zip Code: |
| <b>Authorized Alternate Financial Security Contact</b> <i>(alternate person that can provide backup responsibilities if the CAISO is unable to contact the primary contact)</i> |       |        |           |
| <b>Name</b>   |       |        |           |
| <b>Title</b>  |       |        |           |
| <b>Email Address</b>  |       |        |           |
| <b>Desk Phone Number</b>  |       |        |           |
| <b>Mobile Phone Number (optional)</b>   |       |        |           |
| <b>Fax Number</b>   |       |        |           |
| <b>Street Address</b><br><i>If different than the one listed under Section I-Administrative Requirements.</i>   |       |        |           |
| <b>City, State, Zip Code</b>  | City: | State: | Zip Code: |

| <b>Authorized Primary IT Contact</b> <i>(primary person that works with CAISO to resolve IT related issues)</i>                                      |       |        |           |
|--|-------|--------|-----------|
| Name   |       |        |           |
| Title  |       |        |           |
| Email Address  |       |        |           |
| Desk Phone Number  |       |        |           |
| Mobile Phone Number (optional)   |       |        |           |
| Fax Number   |       |        |           |
| Street Address<br><i>If different than the one listed under Section I-Administrative Requirements.</i>   |       |        |           |
| City, State, Zip Code  | City: | State: | Zip Code: |
| <b>Alternate IT Contact</b> <i>(alternate person that can provide backup responsibilities if the CAISO is unable to contact the primary contact)</i> |       |        |           |
| Name   |       |        |           |
| Title  |       |        |           |
| Email Address  |       |        |           |
| Desk Phone Number  |       |        |           |
| Mobile Phone Number (optional)   |       |        |           |
| Fax Number   |       |        |           |
| Street Address<br><i>If different than the one listed under Section I-Administrative Requirements.</i>   |       |        |           |
| City, State, Zip Code  | City: | State: | Zip Code: |

**Section III: Bank Information**

| <b>Section III is required for Entities that are not Scheduling Coordinators</b>                           |  |                 |
|--|--|-----------------|
| <b>Financial Information</b> <i>(to be completed by all Entities that are not Scheduling Coordinators)</i> |  |                 |
|  |  | <b>CAISO</b>    |
| <b>Bank Name</b>   |  | Bank of America |
| <b>Bank ABA Number</b>   |  | 026009593       |
| <b>Federal Tax ID</b>  |  | 94-3274043      |
| <b>Street Address.</b>   |  |                 |

---

|                                  |  |        |           |
|----------------------------------|--|--------|-----------|
| <b>City, State, Zip Code</b>     | City:  | State: | Zip Code: |
| <b>Contact Name</b>              |  |        |           |
| <b>Contact Title</b>             |  |        |           |
| <b>Contact Phone Number</b>      |  |        |           |
| <b>DUNS Number</b>               |  |        |           |
| <b>Company Type, select one:</b> | <input type="checkbox"/> Corporate <input type="checkbox"/> Partnership <input type="checkbox"/> Sole Proprietary<br><input type="checkbox"/> LLC (Company) <input type="checkbox"/> LLC (Corporation) |        |           |

---

**Section IV: Signatory Page**

The undersigned hereby represents and confirms that all information submitted herein is true and accurate to the best of his/her knowledge.

The undersigned hereby acknowledges that it is the responsibility of the undersigned to provide the CAISO with all confidential and/or proprietary information that is reasonably needed to determine the CCRRH applicant's eligibility to become a CCRRH.

The undersigned further hereby acknowledges that: (i) it is the responsibility of the undersigned to inform the CAISO of any change to any of the information submitted in this Candidate CRR Holder Application Form immediately upon learning of any such change; (ii) that this responsibility will continue to apply even after the Applicant becomes a certified CCRRH; (iii) CASIO reserves the right to reevaluate the applicant in light of the new information; and that (iv) an CCRRH applicant's failure to promptly notify the CASIO of a change in information may result in termination of the CCRRH Application Process or revocation of CCRRH Applicant.

**Signatory Block**

|                                      |  |
|--------------------------------------|--|
| Company Name:                        |  |
| Authorized Representative Signature: |  |
| Authorized Representative Name:      |  |
| Authorized Representative Title:     |  |

**Notarization**

State of \_\_\_\_\_ }  
 \_\_\_\_\_ ss  
 County of \_\_\_\_\_ }

[SEAL]

Sworn and subscribed  
 before me this \_\_\_\_ day of  
 \_\_\_\_\_, 20\_\_.

Notary's Signature: \_\_\_\_\_

Send a hardcopy of the applicable applicant forms with the Signatory Page letter to:

CAISO External Affairs  
 ATTN: Candidate CRR Holder Application Processing Office  
 151 Blue Ravine Road  
 Folsom, CA 95630

## **Attachment B**

# **CRR ENTITY AGREEMENT INFORMATION REQUEST SHEET**

## B. CRR ENTITY AGREEMENT INFORMATION REQUEST SHEET

To initiate a CRR Entity Agreement, please fill in the information requested below and return this form with the completed Candidate CRR Holder Application to:

CAISO External Affairs  
 ATTN: Candidate CRR Holder Application Processing Office  
 151 Blue Ravine Road  
 Folsom, CA 95630

**All information must be complete before the execution version of the agreement can be prepared.**

|                                    |   |
|------------------------------------|---|
| Full legal name of company         | (Please verify legal spelling of name including capitalization and punctuation) |
| Legal address of company           |   |
| <b>DUNS Number (required)</b>      |   |
| Name of primary representative     |   |
| Title                              |   |
| Company                            |   |
| Street address                     | (Street address is required with a P.O. Box only as additional information)     |
| City/State/Zip code                |   |
| Email address                      |   |
| Phone                              |   |
| Fax                                |   |
| Name of alternative representative |   |
| Title                              |   |
| Company                            |   |
| Street address                     | (Street address is required with a P.O. Box only as additional information)     |
| City/State/Zip code                |   |
| Email address                      |   |



|                        |  |
|------------------------|--|
| Phone                  |  |
| Fax                    |  |
| Settlement Account No. |  |
| Title on Account       |  |
| Sort Code (ABA number) |  |
| Bank                   |  |

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California ISO  
Your Link to Power

Draft

# Business Practice Manual for Congestion Revenue Rights

Version 2

Revised Draft Version (June 7, 2007)

## Disclaimer

All information contained in this draft Business Practice Manual, along with any other draft Business Practice Manual provided by the California Independent System Operator Corporation (CAISO), is prepared for discussion and information purposes only and provided "as is" without representation or warranty of any kind, including without limitation, accuracy, completeness or appropriateness for any particular purpose. Such draft Business Practice Manuals shall be revised as the development and review of the Business Practice Manuals progresses. CAISO assumes no responsibility for the consequences of any errors or omissions. CAISO may revise or withdraw all or part of this information at any time at its discretion without notice.

## Approval History

Approval Date:

Effective Date:

BPM Owner: Deborah Le Vine

BPM Owner's Title: Director, Market Services

## Revision History

| Version | Date       | Description  |
|---------|------------|--|
| 3       | MM-DD-YYYY |  |
| 2       | 06-07-2007 | Revision after Stakeholder Discussion of CRR Issues and Tariff filing on May 7, 2007 |
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# 1. Introduction

In this Introduction you will find the following information:

- The purpose of CAISO BPMs
- What you can expect from this CAISO BPM
- Other CAISO BPMs or documents that provide related or additional information

## 1.1 Purpose of CAISO Business Practice Manuals

The Business Practice Manuals (BPMs) developed by CAISO are intended to contain implementation detail, consistent with and supported by the CAISO Tariff, including: instructions, rules, procedures, examples, and guidelines for the administration, operation, planning, and accounting requirements of CAISO and the Markets. Exhibit 1-1 lists CAISO BPMs.

**Exhibit 1-1: CAISO BPMs**

| Title   |
|---|
| BPM for Market Operations   |
| BPM for Market Instruments  |
| BPM for Settlements & Billing   |
| BPM for Scheduling Coordinator Certification & Termination  |
| BPM for Congestion Revenue Rights   |
| BPM for Candidate CRR Holder Registration   |
| BPM for Managing Full Network Model   |
| BPM for Rules of Conduct Administration   |
| BPM for Outage Management   |
| BPM for Metering  |
| BPM for Reliability Requirements  |
| BPM for Credit Management (On hold pending outcome of CAISO credit policy tariff amendment in ER06-700) |
| BPM for Compliance Monitoring   |
| BPM for Definitions & Acronyms  |
| BPM for BPM Change Management   |

## 1.2 Purpose of this Business Practice Manual

The purpose of this *BPM for Congestion Revenue Rights* is to provide detail to understand how the Congestion Revenue Rights (CRR) Allocation, Auction, and Secondary Registration System processes work. This BPM should be used in conjunction with the CAISO Tariff and other training materials to provide Market Participants with the necessary information for understanding and participating in the CRR processes.

This BPM benefits readers who want answers to the following questions:

- What is a CRR?
- How are CRRs created?
- How are TORs, ETCs, and CVRs treated with respect to the allocation of CRRs?
- How are CRRs acquired through the allocation process?
- How are CRRs acquired through the auction process?
- How are trades of CRRs registered on the CAISO Secondary Registration System?

Although this BPM is primarily focused on CRRs, certain other provisions related to CRRs are covered in other BPMs. Where appropriate, the reader is directed to these BPMs for additional information.

The provisions of this BPM are intended to be consistent with the CAISO Tariff. If the provisions of this BPM nevertheless conflict with the CAISO Tariff, the CAISO is bound to operate in accordance with the CAISO Tariff. Any provision of the CAISO Tariff that may have been summarized or repeated in this BPM is only to aid understanding. Even though every effort will be made by CAISO to update the information contained in this BPM and to notify Market Participants of changes, it is the responsibility of each Market Participant to ensure that he or she is using the most recent version of this BPM and to comply with all applicable provisions of the CAISO Tariff.

A reference in this BPM to the CAISO Tariff, a given agreement, any other BPM or instrument, is intended to refer to the CAISO Tariff, that agreement, BPM or instrument as modified, amended, supplemented or restated.

The captions and headings in this BPM are intended solely to facilitate reference and not to have any bearing on the meaning of any of the terms and conditions of this BPM.

### 1.3 Purpose & Definition of CRRs

CRRs are financial instruments that enable holders of such instruments to manage variability in Congestion costs that occur under Congestion Management protocol that is based on locational marginal pricing. CRRs are acquired by qualified entities primarily, but not solely, for the purpose of offsetting costs associated with IFM Congestion costs that occur in the Day-Ahead Market. They can also be used for other legitimate activities many of which will increase the liquidity of the CRR market. Only CRR Obligations can be acquired through the CRR Allocation and CRR Auction processes. CRR Options are not available through the CRR Allocation and CRR Auction processes and are only available for Merchant Transmission Facilities.

There are two types of CRRs: CRR Obligations and CRR Options:

- **CRR Obligation** – 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 Charge if the Congestion in a given Trading Hour is in the opposite direction of the CRR. CRR Payments to CRR Holders of CRR Obligations are based on the per-MWh cost of Congestion, which equals the positive amounts of Marginal Cost of Congestion (MCC) at the CRR Sink minus the MCC at the CRR Source multiplied by the MW quantity of the CRR. CRR Charges for CRR Obligations associated with Congestion in the opposite direction are based on the negative amounts of the difference in MCC between the CRR Sink and CRR Source (See CAISO Tariff § 11.2.4.2.2).
- **CRR Option** – 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 Charge if the Congestion is in the opposite direction of the CRR (See CAISO Tariff § 36.2.2). CRR Payments to CRR Holders of CRR Options are based on the per-MWh cost of Congestion, which equals the positive amounts of Marginal Cost of Congestion (MCC) at the CRR Sink minus the MCC at the CRR Source multiplied by the MW quantity of the CRR. There are no CRR Charges associated with Congestion in the opposite direction of CRR Options (see CAISO Tariff § 11.2.4.2.1).

All CRRs held by CRR Holders are settled with revenue collected in the IFM Congestion Fund. (See CAISO Tariff § 11.2.4.4) In the hourly settlement of CRRs, if the IFM Congestion Fund is sufficient to pay all outstanding CRRs, CRR Holders will be paid and charged fully for their CRR entitlements. Any surplus revenue in the IFM Congestion Fund after the hourly settlement will be held in the CRR Balancing Account. If the IFM Congestion Fund is not sufficient to cover all the outstanding CRRs, then the CRR Payments and CRR Charges are pro-rated by a ratio equal to the total hourly amount of the IFM Congestion Funds divided by the net of CRR

Payments for that Settlement Period. Such shortfalls (payments and charges shortfalls) will be tracked and at the end of the month, if the CRR Balancing Account contains a balance sufficient to cover all hourly shortfalls for that month, the CAISO will then pay for such shortfalls through the funds available in the CRR Balancing Account. (See CAISO Tariff § 11.2.4.4.1) If the CRR Balancing Account is not sufficient to cover all outstanding shortfalls for the month, the CAISO will charge all Scheduling Coordinators an amount equal to the revenue shortfall times the ratio of each Scheduling Coordinator's Measured Demand divided by the total Measured Demand for all Scheduling Coordinators in the relevant months, except that this full funding requirement will not apply for shortfalls for System Emergencies, Uncontrollable Forces, or a withdrawal of a Participating Transmission Owner from the CAISO Controlled Grid as provided in CAISO Tariff § 36.8.2. Any surplus revenue in the CRR Balancing Account at the end of the month 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 the total Measured Demand for all Scheduling Coordinators for the relevant month.

CRR Obligations can be acquired as either Point-to-Point (PTP) CRRs or Multi-Point (MPT) CRRs. A PTP CRR is a CRR Obligation defined from a single CRR Source to a single CRR Sink (See CAISO Tariff § 36.2.3). An MPT CRR is defined by more than one CRR Source and/or more than one CRR Sink. An MPT CRR distributes the total MW value over the multiple CRR Sources and/or multiple CRR Sinks so that the total MW assigned to all CRR Sources equals the total MW assigned to all CRR Sinks (See CAISO Tariff § 36.2.4). An MPT CRR nomination in the allocation process will only be able to use a single sink. CRR payments and Charges for MPT CRRs are determined from the sum of the MCCs at each CRR Source and at each CRR Sink weighted by its associated MWh quantity as specified by the CRR (see CAISO Tariff § 11.2.4.2.3).

The Settlement calculations for buying and holding CRR Obligations and Options are described in CAISO Tariff § 11.2.4, CRR Settlements.

There are four terms for CRRs (See CAISO Tariff § 36.3.2:

- **Monthly CRR** – A CRR acquired for one calendar month. Monthly CRRs are made available on a TOU basis.
- **Seasonal CRR** – A CRR acquired through the annual CRR Allocation or CRR Auction process that has a term of one season and either on or off peak. For the purpose of the CRR processes, a season is defined as follows: season 1 is January through March (the only exception is CRR Year One where season 1 is February through March), season 2 is April through June, season 3 is July through September and season 4 is October through December.

- **Long Term CRR** – One of the tiers in the annual allocation process is the Tier LT. Long Term CRRs have a term of 10 years and are allocated on a seasonal/TOU basis.
- **Merchant Transmission CRR** – The Merchant Transmission CRR has a term of 30 years or the pre-specified intended life of the facility, whichever is less. The acquisition of the Merchant Transmission CRR is performed through a separate process that is described in section 14 of this BPM.

## 1.4 Overview of Processes for Creation & Acquisition of CRRs

The following processes exist for the creation and acquisition of CRRs:

- CRRs are created by CAISO through the CRR Allocation and CRR Auction processes and through the allocation of Merchant Transmission CRRs (See CAISO Tariff § 36.11).
- Only internal LSEs and Qualified Out-of-Control Area Load Serving Entities (Qualified OCALSEs) that meet the requirements specified in Section 3.3 of this BPM can participate in the CRR Allocation (See CAISO Tariff § 36.8).
- After the annual (including the Long Term CRR Allocation process) and monthly CRR Allocation processes there will be an annual and monthly CRR Auction for any entity interested in acquiring CRRs that are qualified as either a Candidate CRR Holder or are CRR Holders already. (See CAISO Tariff § 36.13). The annual auction will not include the auction of LT CRRs.
- There is a separate process that allocates CRRs to Project Sponsors of Merchant Transmission Facilities that is discussed in more detail in section 14 of this BPM and in CAISO Tariff § 36.11.
- Parties may also acquire CRRs from CRR Holders through the Secondary Registration System (SRS) through which CRRs are traded bilaterally.
- Transferees must also qualify as Candidate CRR Holders (go through registration and meet requirements as listed in Section 3 of this BPM) prior to acquiring CRRs.

## 1.5 References

The definition of acronyms and words beginning with capitalized letters are given in the *BPM for Definitions & Acronyms*.

Additional information that specifically pertains to CRRs is contained in the following documents:

- CRR Market User Interface (this document is made available to all attendees of the MUI training class)
- BPM for Candidate CRR Holder Registration
- BPM for the Full Network Model
- BPM for Settlements and Billing
- BPM for Market Operations
- BPM for Market Instruments
- BPM for Definitions and Acronyms
- CAISO Credit Policy & Procedures Guide
- CAISO Tariff

## 2. CRR Communication

In this section you will find the following information:

- Who to call if there is a CRR-related issue
- How to contact the CAISO CRR team for CRR Allocation and Auction and Secondary Registration System related activity
- The requirements for digital certificates

### 2.1 Contact for CRR Related Issues

Any questions or concerns regarding CRRs or the CRR system should be forwarded to the CAISO Help Desk. They will determine the appropriate group to address the issue. The CAISO Help Desk can be contacted by calling 1-888-889-0450

### 2.2 System Requirements

The CAISO CRR system is a secure web-based software system operated by CAISO that is accessed via a secure web-browser. The CRR system can be accessed via the CAISO portal with a digital certificate using Internet Explorer, version 6.0 or higher.

### 2.3 Digital Certificates

All CRR users wanting to access the CRR system must complete the CRR registration process as described in the BPM for Candidate CRR Holder Registration, which can be found at: <http://www.caiso.com/1bb4/1bb4b283e840.doc> (See CAISO Tariff §§ 4.10 and 36.5). As part of the CRR registration process a universal certificate request form will be completed, which will allow access to the CRR system via the CAISO portal. Prior to the CAISO issuing the digital certificate the Candidate CRR Holder must have completed all of the necessary steps for registration. This form can be found at:

<http://www.caiso.com/docs/2000/03/01/2000030110195926538.xls>

This completed form is sent to [certrequest@caiso.com](mailto:certrequest@caiso.com). If the entity requesting a digital certificate is not a registered entity with CAISO, then an authorized representative must contact Client Relations at 916-608-1246 or visit the CAISO Website below to register and qualify as a Candidate CRR Holder entity that can transact business with CAISO.

<http://www.caiso.com/1bb4/1bb4745611d10.html>

Consistent with CAISO Tariff § 36.5, it is not a requirement that a CRR Holder or Candidate CRR Holder be a Scheduling Coordinator but it must be registered with the CAISO.



### 3. Registration & Qualification of Candidate CRR Holders

In this section you will find the following information:

- How to begin the CRR system registration process
- What financial information must be provided
- What are the creditworthiness requirements

This section does not address how Candidate CRR Holders or CRR Holders further qualify for CRR Allocation: this topic is covered in Section 5 of this BPM.

#### 3.1 Registration Requirements

Prior to being given access to the CRR system, all entities requesting access must complete the registration and qualification process with CAISO, regardless of whether they wish to acquire CRRs by CRR Allocation, CRR Auction, or the Secondary Registration System (See CAISO Tariff §§ 4.10 and 36.5). If the entity is already a certified Scheduling Coordinator (SC) it may have already completed part of the registration process. Any entity wishing to qualify as a Candidate CRR Holder and to access the CRR system must first complete the CRR registration application form and the information sheet for the CRR Entity Agreement, which are contained in the BPM for Candidate CRR Holder Registration located at:

<http://www.caiso.com/1bb4/1bb4745611d10.html>.

The BPM for Candidate CRR Holder Registration describes the registration process, which includes submission of financial information, Business Associate ID (BAID) assignment and completion of the CRR Holder Affiliate information. All of the necessary registration forms can be found at the above URL.

#### 3.2 Financial Information

As part of the registration process, each entity that intends to hold CRRs through the CRR Allocation, CRR Auction, or the Secondary Registration System must provide financial information that helps demonstrate its ability to accommodate the financial responsibility associated with holding CRRs.

All CRR Holders and Candidate CRR Holders must comply fully with all creditworthiness requirements as provided in CAISO Tariff § 12.

### 3.2.1 Credit Requirements for CRR Auctions

To establish available credit for participating in any CRR Auction, each Candidate CRR Holder must provide security in a form consistent with CAISO Tariff § 12. The amount of available credit for participating in a CRR Auction cannot exceed the entity's Aggregate Credit Limit.

### 3.2.2 Credit Requirements for Holding CRRs

CRR holdings can affect the calculation of each entity's Estimated Aggregate Liability (EAL). CRR payments and charges associated with CRR holdings are netted with all other market transactions on a daily basis to determine each entity's total EAL. On a daily basis the CRR system provides to Settlements the CRR Holder information to be used in the calculation of EAL for on-going collateral requirements.

The collateral associated with CRR ownership is comprised of two components:

- Collateral related to transactions for past Trading Days
- Collateral related to future Trading Days
- Collateral related to completion of SRS trades

The CAISO is working on a more comprehensive process for valuing the ownership of CRRs. When this process is more developed, the CAISO will provide Market Participants with a discussion paper. The CRR BPM will be updated when the process has been further discussed.

As part of the credit verification process for holding CRRs all SRS trades will be evaluated based on auction clearing prices. Because that information will not be available until the first annual CRR Auction, to be held in November 2007, SRS trades will not be allowed until after the first annual CRR Auction is completed later in the Fall of 2007.

## 3.3 Confirmation & Verification of Specific LSE Status for CRR Allocation Eligibility

As stated in CAISO Tariff § 36.8, CRRs will be allocated to Load Serving Entities (LSEs) serving Load internal to the CAISO Control Area and to Qualified OCALSE. Any entity that wishes to participate in the CRR Allocation process must provide information that demonstrates that it has an obligation to serve Load (See CAISO Tariff § 36.8.2). For entities serving Load internal to the CAISO Control Area, examples of the information that could be submitted include Settlement Quality Meter Data or documents filed with the California Energy Commission.

Qualified OCALSEs should follow the rules outlined in Section 12 of this BPM for their legitimate need showing and any other requirements that apply specifically to OCALSEs (See CAISO Tariff § 36.9).

### 3.4 Training Requirements

CRR Holders and Candidate CRR Holders must attend a CAISO CRR training class at least once prior to participating in the CRR Allocations, CRR Auctions or Secondary Registration System (See CAISO Tariff § 36.5.2). The training class will be given by the CAISO on the operation of the CRR Market User Interface (MUI) as well as CRR basics and CRR Allocation and CRR Auction and SRS rules. Since digital certificates are issued to specific individuals on behalf of the entity they work for, initially it is the individual or individuals attending the training that will be issued the digital certificate. It is the intent that once an employee has been trained at the CAISO that this training would then be passed on to other employees of the company, who would then be eligible to receive a digital certificate to access the CRR system. CAISO can update training requirements annually or on an as-needed basis. If an employee leaves a company, the CAISO should be notified so that this certificate can be revoked. Those entities that have already attended the CRR training class may sign a “Training Waiver” form that would excuse them from attending the annual CRR training class. The “Training Waiver” form can be found at:

<http://www.caiso.com/1bb4/1bb4745611d10.html>

Typically the CRR training will be made available on an annual basis and Market Participants will be notified of available dates via a Market Notice.

## 4. CRR Allocation & CRR Auction Timeline

In this section you will find the following information:

- The calendar of annual events related to CRR Allocations and CRR Auctions

### 4.1 Yearly Calendar of Allocations & Auctions

CAISO conducts an annual CRR Allocation and CRR Auction once a year. The annual CRR Allocation and CRR Auction release Seasonal CRRs for four seasonal periods and two time-of-use periods, on peak and off peak. These seasonal/TOU periods coincide with the calendar quarters (season 1 – January through March, season 2 – April through June, season 3 – July through September, and season 4 – October through December). For CRR Year One season 1 will only include February and March. The time-of-use periods are described in Attachment A of this BPM. Part of the annual CRR Allocation process includes the release of Long Term CRRs

(i.e. Tier LT), which if an entity chooses to participate in, provides the ability to obtain allocated CRRs for a period of ten years. The Long Term CRRs are also allocated based on the four seasonal and two time-of-use periods mentioned above. As required by §§ 36.8.2.2 and 36.13 of the CAISO Tariff, CAISO will also conduct monthly CRR Allocations and CRR Auctions twelve times a year in advance of each month. Within each annual and monthly CRR Allocation and CRR Auction process, CAISO performs distinct processes for each on-peak and off-peak period.

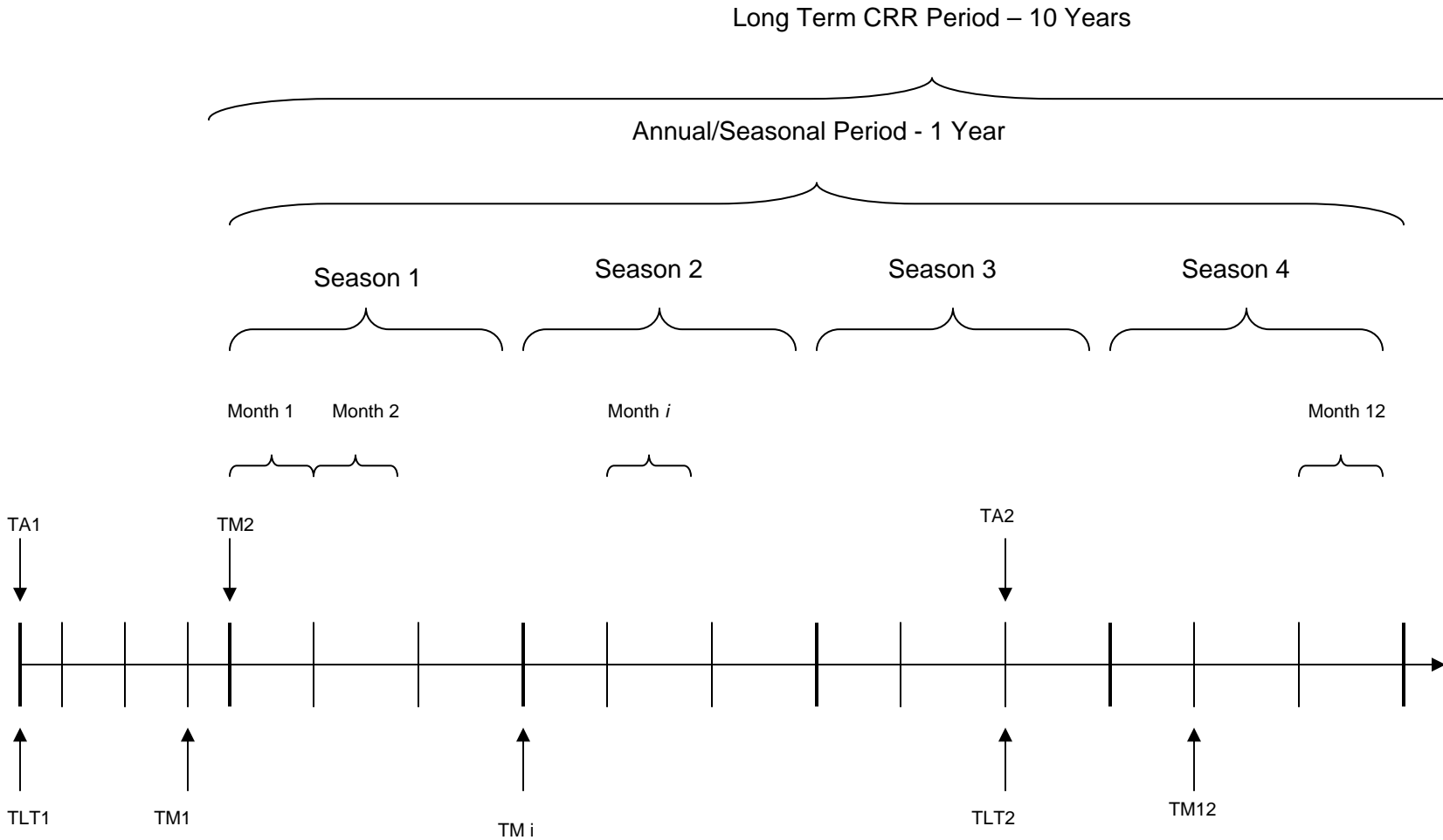
The CRR Allocation process for CRR Year One is a distinct process that differs from subsequent annual CRR Allocations (See CAISO Tariff §§ 36.8.3.1 and 36.8.3.2). In preparation for the annual CRR Allocation process for CRR Year One the CAISO has prepared a “Go-Live” document that explains the timeline for the allocation and auction process for CRR Year One

Each CRR Allocation process is based on nominations submitted to CAISO by LSEs or Qualified OCALSES eligible to receive CRRs. A timeline of the CRR Allocation and CRR Auction processes is given below.

## 4.2 Allocation & Auction Timeline

The annual and monthly CRR Allocation and CRR Auction timeline is illustrated in Exhibit 4-1.

**Exhibit 4-1: Annual, Long Term and Monthly CRR Allocation & Auction Timeline**



The timeline is comprised of repeated steps starting at CRR Year One for the annual process and month 1 of CRR Year One for the monthly process:

- **TA1 & TLT1** – Approximately four months before the start of CRR Year One, the annual CRR Allocation/Auction process begins, which produces on-peak and off-peak, Seasonal CRRs for seasons 1, 2, 3, and 4. During Tier LT of the annual allocation process Long Term CRRs will be allocated for the duration of 10 years.
- **TM1** – Approximately four weeks before the start of the first month (month 1), the monthly process begins, which produces on and off-peak Monthly CRRs for month 1.
- **TM2** – Approximately four weeks before the start of the second month (month 2), the monthly process begins, which produces on and off-peak Monthly CRRs for month 2.
- **TM<sub>i</sub>** – Approximately four weeks before the start of the *i*th month (month *i*), the monthly process begins, which produces on-peak and off-peak Monthly CRRs for month *i*.
- **TM12** – Approximately four weeks before the start of the 12th month (month 12), the monthly process begins, which produces on-peak and off-peak Monthly CRRs for month 12.
- **TA2 & TLT2** – Approximately four months before the start of the second year, the annual CRR Allocation/Auction process begins, which produces on-peak and off-peak Seasonal CRRs for seasons 1, 2, 3, and 4. Tier LT2 and all subsequent Long Term CRR allocation processes will be run after the completion of the Priority Nomination Tier.
- The Merchant Transmission CRR Allocation process will be performed on an as-needed basis during the respective month in which the Merchant Transmission Facility is put into operation.

### 4.3 Key Steps Performed in the CRR Allocation & Auction Processes

This section is intended to provide the readers of this BPM with an overview of the key steps that are completed as part of the CRR Allocation and Auction processes. The details of these steps are provided in the body of this BPM.

- 1) CAISO prepares network model, constraints, Aggregated Pricing Node (APNode) mapping, and contingencies (please refer to Attachment B of this BPM for more details).
- 2) Candidate CRR Holders register for the CRR Allocation and/or CRR Auction (please refer to section 3 of this BPM for more details).
- 3) CAISO performs verification data collection process for entities participating in the CRR Allocation (please refer to section 6.3 of this BPM for more details).
- 4) CAISO prepares data from steps 1 and 3 above and loads it into the CRR system.
- 5) CAISO announces dates of CRR Allocation and Auction markets (please refer to section 4 of this BPM for more details).
- 6) Nominations that reflect the rights under Transmission Ownership Rights (TOR), Existing Transmission Contracts (ETC) and Converted Rights (CVR) nominations are created by the CAISO. Refer to Attachment B, section 4, of this BPM for more information on this process. The TOR, ETC and CVR nominations will be made available under a NDA, prior to the running of the first tier of the annual CRR Allocation (See CAISO Tariff § 6.5.1.1.1). The format and location of where this data will be posted is still being decided. The CRR BPM will be updated with this information.
- 7) CAISO inputs Transmission Ownership Rights (TOR) nominations and runs the Simultaneous Feasibility Test (SFT).
- 8) Annual CRR Allocation process begins with the simultaneous running of Seasons 1 through 4 (please refer to section 7 of this BPM for more details):
  - Open historical load data submittal window for four seasons.
  - During the open and close submittal window, allocation participants are able to submit their historical load via the CRR Market User Interface (MUI) by season, LAP, and hour (the CRR system will convert each hour to the appropriate time of use).<sup>1</sup> The data requirements for the load data are described in detail during the required CRR Training Class. In the class,

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<sup>1</sup> This does not apply to TORs since entities holding these do not receive CRRs or to external load serving entities who submit historical usage at Scheduling Points.

Market Participants learn that “Final Load” is the MW value that will actually be used by the CRR software system to calculate the load metric which is then reduced by any Existing Contract Rights (ETCs), Converted Rights (CVRs) and Transmission Ownership Rights (TORs) the Load Serving Entity may have to arrive at the eligible quantity of CRRs an LSE may request in the allocation. This value is the Adjusted Load Metric. “Preliminary Load”, which is used by Metered Subsystems that choose net settlement, represents the load located within the MSS bubble. When submitting the load data through the MUI the type of load labeled as “Generation” is also used by the MSS choosing net settlement and represents the amount of generation located within the MSS bubble. The difference between the hourly Preliminary Load values and the hourly Generation values equal the “Final Load” previously discussed. “Pump Load” may be used by LSEs having non-conforming load such as pump load.

- Close historical load data submittal window.
  - The CRR system and CAISO staff determine the Seasonal CRR Eligible Quantity for each allocation participant by LAP and time of use period within each of the four seasons.
- 9) The annual allocation process consists of four tiers for each of the four seasons (See CAISO Tariff §§ 36.8.3.1 and 36.8.3.5). For CRR Year One tiers 1 and 2 are run for all seasons for the annual period followed by Tier LT for the allocation of Long Term CRRs and then tier 3 to complete the annual CRR Allocation. Tier LT is run after tiers 1 and 2 of the annual allocation for CRR Year One since Tier LT, for CRR Year One, uses the results of tiers 1 and 2 as verified source/sink pairs able to be requested in tier LT. CAISO posts the timeline for each of the processes prior to the beginning of the annual CRR Allocation. The steps below are run for each of the tiers in the annual CRR Allocation process, including Tier LT (please refer to section 8 of this BPM for more details):
- CAISO determines the Seasonal CRR Eligible Quantity for each tier for all four seasons and provides this information to allocation participants.
  - CAISO creates the current tier’s markets (four seasons, on and off peak) and attaches the respective CRR FNM and commercial information to those markets. The specific commercial information to be released is noted in CAISO Tariff section 6.5.1.1.1 and requires a Non Disclosure Agreement (NDA) to be signed before getting access to this data. If a NDA has been



executed then allocation participants will be able to download the CRR FNM, associated commercial data and Fixed CRRs from previous allocation markets.

- CAISO opens the submission window for the current tier's allocation process for all four seasons.
  - CAISO closes the submission window for the current tier's allocation process for all four seasons.
  - CAISO runs the SFT for all four seasons/TOUs, reviews and posts results.
  - CAISO sends a message, via the MUI, that the allocation processes are complete.
  - Allocation participants can download general allocation results as well as their specific individual results.
- 10) The annual CRR Auction begins once the annual CRR Allocation process is completed (please refer to section 9 of this BPM for more details)
- Interested Candidate CRR Holders or CRR Holders will provide the necessary creditworthiness requirements to the CAISO according to the CRR Auction timeline that will be provided
  - CAISO will provide residual value information on the Scheduling Point/Transmission Interfaces
  - CAISO creates the annual CRR Auction markets (four seasons on and off peak) and attaches the respective CRR FNM and commercial information to those markets. The specific commercial information to be released is noted in CAISO Tariff section 6.5.1.1.1 and requires a Non Disclosure Agreement (NDA) to be signed before getting access to this data. If a NDA has been executed then auction participants will be able to download the CRR FNM and associated commercial data for the current auction market.
  - CAISO opens the bid submission window for the annual CRR Auction markets for all four seasons.
  - CAISO closes the bid submission window for the annual CRR Auction process for all four seasons.

- CAISO runs the SFT for all four seasons and two TOUs, reviews and posts results.
  - CAISO sends a message, via the MUI, that the auction process is complete.
  - CRR Auction participants can download general auction results as well as their specific individual results.
- 11) The monthly CRR Allocation and CRR Auction will follow a similar process as described above for the annual CRR Allocation and CRR Auction (See sections 10 and 11 of this BPM and CAISO Tariff §§ 36.8.3.2, 36.8.3.6, and 36.13).

## 5. Eligibility for Participation in the CRR Allocation Process

In this section you will find the following information:

- How entities of various types become eligible to participate in the CRR Allocation process

The following entities are eligible for participation in the CRR Allocation process:

- Internal LSEs that meet the requirements specified in section 5.1 of this BPM (See CAISO Tariff § 36.8.2).
- OCALSEs that meet the requirements specified in section 5.2 of this BPM (See CAISO Tariff § 36.9).
- Project Sponsors of Merchant Transmission Facilities may also be allocated CRRs and those are accounted for in the allocation process as further described in section 14 of this BPM.

### 5.1 Qualification Process for Internal LSEs

In order to be eligible to participate in the CRR Allocation as an internal LSE, the entity must be able to provide supporting documentation that reflects the Location of the Load for which they are responsible for as a Load Serving Entity. This qualification process will be linked with the sink verification process as described in section 6.4 of this BPM. An LSE is eligible to request CRRs for that amount of Load that is subject to Congestion Charges for the use of the CAISO Controlled Grid as determined in CAISO Tariff §§ 36.8.2.1 and 36.8.2.2. Therefore, Load that is served by TORs, ETCs or CVRs does not qualify for the CRR Allocation.

### 5.2 Qualification Process for OCALSEs

An OCALSE's eligibility for the allocation of CRRs is also measured by the quantity of Load that it serves that is exposed to Congestion Charges for the use of the CAISO Controlled Grid as determined in CAISO Tariff § 36.9.3. Similar to internal LSEs, any Load that an OCALSE has the obligation to serve that is covered under TORs, ETCs or CVRs would not qualify for the CRR Allocation. Further details on this qualification process are in section 12 of this BPM.

### **5.3 Qualification Process for Project Sponsors of Merchant Transmission Facilities**

To qualify for participation in the CRR Allocation process for Merchant Transmission Facilities, the Project Sponsor must demonstrate that they will not recover the cost of the transmission investment through CAISO's Access Charge or other regulatory cost recovery mechanism in accordance with CAISO Tariff § 24.7.3 (See also CAISO Tariff § 36.11). For a discussion on the Merchant Transmission CRR allocation process, refer to Section 14 of this BPM and CAISO Tariff § 36.11.

## 6. CRR Year One CRR Source Verification For Internal LSEs

In this section you will find the following information:

- To whom does the CRR Year One CRR Source verification process apply
- How verification data is submitted to CAISO
- A description of the general requirements for CRR Source verification
- Which sources are allowed for internal LSEs
- What CRR Source verification is required at Scheduling Points

### 6.1 Applicability of CRR Year One CRR Source Verification Process

This section of the CRR BPM only applies to LSEs serving Load internal to the CAISO Control Area. CRR Source verification for OCALSEs includes a requirement for a showing of legitimate need as further described in section 12 of this BPM and in CAISO Tariff § 36.9.1. CRR Source verification for these LSEs is not required for years subsequent to CRR Year One. An annual showing of legitimate need is required of OCALSEs (See CAISO Tariff § 36.9.1). CRR Sink verification applies for CRR Year One and all subsequent allocation processes and is addressed in section 12.2 of this BPM and CAISO Tariff § 36.8.2.

### 6.2 Submittal of Verification Data

Any entity who wants to participate in tiers 1 and 2 of the annual CRR Allocation process and tier 1 of the monthly CRR Allocation process for CRR Year One must submit the data required for CRR Source verification.

#### 6.2.1 Data Template

To assist LSEs in the CRR Source verification process, CAISO has developed a CRR data template to collect CRR Source verification data. This data template can be found at:

<http://www.caiso.com/17d0/17d0daf777b0.html>

The data template is made available by CAISO for Candidate CRR Holders and CRR Holders to submit verification data associated with CRR Source Location and CRR Source MW amounts. The data template is an Excel spreadsheet with multiple tabs to be filled out according to the

markets in which the CRR Holder or Candidate CRR Holder wishes to participate. The first tab is labeled “Read Me” and explains how to complete the template.

### **6.3 CRR Source Verification for CRR Year One Allocation**

In CRR Year One, nominations for tier 1 and tier 2 of the annual CRR Allocation and tier 1 of the monthly CRR Allocations are CRR Source verified (See CAISO Tariff § 36.8.3.4). The topic of CRR Sink verification is discussed in section 6.4 of this BPM. Through the CRR Source verification process described below, an LSE must demonstrate that, for the period January 1, 2006 through December 31, 2006, it is actually entitled to submit Bids or Self-Schedules for Energy from the nominated CRR Sources to serve its Demand either through ownership of, or contractual rights to, the relevant Generating Units PNodes, or else a contract to take ownership of power at the relevant CRR Source such as a Trading Hub or a Scheduling Point.

CRR Source verification uses data for the period beginning January 1, 2006 and ending December 31, 2006 as the basis for determining verified CRR Source locations to be used in the CRR Allocation process for verified tiers. Source verification is not required for years subsequent to CRR Year One. For season 1 of CRR Year One any contracts for January will be considered for calculating the season 1 Adjusted Verified CRR Source Quantities but will not be included for January Verified CRR Source Quantities since there will not be an allocation done for January 2008.

Nominations of CRRs with a CRR Source that is a Scheduling Point are source verified as described in Section 6.3.4.3 of this BPM.

#### **6.3.1 Permissible CRR Source Locations for the CRR Allocation Process**

Pursuant to § 36.8.4 of the CAISO Tariff, the following sources may be used when submitting CRR nominations in the CRR Allocation process:

- Generating Unit PNodes
- Trading Hubs
- Scheduling Points
- Points of Delivery associated with ETCs or CVRs

#### **6.3.2 CRR Source Limitations**

In CRR Year One tiers 1 and 2 of the annual CRR Allocation process, CAISO applies the following restrictions to the nomination of Generating Unit PNodes, Trading Hubs, and Scheduling Points that are nominated as CRR Sources in the CRR Allocation process (See CAISO Tariff § 36.8.4):

- **Generating Unit PNode** – CRR Source nominations at a specific Generating Unit PNode is limited to 75% of the corresponding Generating Unit's PMax in tiers 1 and 2 of the annual CRR Allocation, even if that Generating Unit is owned by or fully contracted to the LSE requesting the CRR. The maximum aggregate MW request from all LSEs, in tiers 1 and 2 of the annual CRR Allocation, using a particular Generating Unit PNode as a CRR Source cannot exceed 75% of the PMax value of the corresponding Generating Unit.
- **Trading Hub** – For tiers 1 and 2 of the annual CRR allocation in CRR Year One, an LSE requesting a CRR for which the CRR Source is a Trading Hub is limited to 75% of the average hourly quantity of Energy contracted for delivery at that Trading Hub for each season and TOU.
- **Scheduling Point** – LSEs may nominate a CRR whose CRR Source is a Scheduling Point to the extent that it can demonstrate that it owned or was a party to a contract with a System Resource for the historical reference period and that it or the counter-party to the contract had procured appropriate transmission from the applicable transmission provider outside CAISO to the Scheduling Point (See CAISO Tariff §§ 36.8.3.4 and 36.8.4.2.1).
- **ETC and CVR Contract Terminating Points** - LSEs that have an ETC or CVR that terminates at a Point of Delivery that differs from where the load is located then those LSEs can use these end points as verified CRR Sources in the verified tiers provided that the Candidate CRR Holder holds an Energy contract that can be delivered utilizing the ETC or CVR transmission service.

### 6.3.3 Requirements for CRR Source Verification

CRR Source Location verification is conducted by CAISO through direct consultations with each of the Candidate CRR Holders (See CAISO Tariff § 36.8.3.4). When completing the 'Source Verification' tab in the CRR Data Template each LSE will provide in the spreadsheet the specific contract information for each source and the associated MW value of the contract, split into monthly segments. When the CRR Data Template is sent to [crrdata@caiso.com](mailto:crrdata@caiso.com) the LSE must attach a PDF version of the signed CRR Source Verification Declaration attesting to the accuracy of the information being provided. Should the CAISO need to review any of the information provided the LSE will make available the contracts or other documentation that demonstrate the CRR Source Locations utilized during the historical reference period specified in § 36.8.3.4 of the CAISO Tariff. The CRR Data Template and CRR Source Verification Declaration can be found at:

<http://www.caiso.com/1bb4/1bb4745611d10.html>

Required verification includes, for each of the following sources:

- **Generating Unit PNodes** – Ownership and Energy contracts
- **Trading Hubs** – Energy contracts
- **Scheduling Points** – Ownership of external Generation resources, Energy contracts and contracts demonstrating an ability to move Energy from the external resource to the Scheduling Point
- **ETC and CVR Contract Points** of Delivery – An ETC or CVR contract that specifies the Point of Delivery being requested for CRR Source verification

To verify a CRR Source Location, the contract duration must be a minimum of 30 days. Generation ownership is demonstrated through the Participating Generator Agreement (PGA) executed with CAISO. In addition, for Scheduling Points, ownership of facilities that are not subject to a PGA will need to be verified. As noted in this section above, the CRR Source verification process will include submittal of a CRR Source Verification Declaration, which will attest to the accuracy of the information being provided.

The next section discusses how the MW values for those CRR Sources are determined once CRR Source Locations have been verified.

#### **6.3.4 CRR Source MW Values**

The CRR Source upper bound MW values are determined from information provided to CAISO by Candidate CRR Holders, through the CRR Data Template, for each source. When the CAISO has received CRR Data Templates from all LSEs wanting to participate in the annual and monthly CRR Allocation processes for CRR Year One the CAISO will review the information to compare total verified values against PMax and Scheduling Point limits. The CAISO will rely upon the CRR Source Verification Declaration as assurance to the accuracy of the submitted data but if the CAISO needs to follow up on specific CRR Source MW amounts listed in the CRR Data Template we might request copies of the contracts or other documentation for verifying CRR Source Location and to verify MW amounts. The determination of Verified CRR Source Quantity (VSQ) for the different source types (Generating Unit PNodes, Trading Hubs, and Scheduling Points) is discussed below (See CAISO Tariff § 36.8.3.4). As mentioned in section 6.3.4.4 of this BPM, there can be a pro rata adjustment for contracts that do not cover the entire CRR term.



#### **6.3.4.1 Generating Unit PNodes**

For Generating Unit PNodes, the LSE must demonstrate they have the right, either through ownership or by right of contract, to use a specific Generating Unit PNode up to a specified MW amount. For an owned generation resource the VSQ will be the PMax of the unit multiplied by the ownership share of the LSE or OCALSE (See CAISO Tariff § 36.8.3.4). For a contract with a generation resource the VSQ will be the hourly MWh of Energy specified in the contract averaged over the hours of the relevant time-of-use, but no greater than the PMax of the unit.

#### **6.3.4.2 Trading Hubs**

LSEs that intend to use Trading Hubs as a CRR Source must demonstrate they have power contracts that source at the Trading Hubs. In the CAISO zonal model the equivalent of the Trading Hub would be inter-SC trades done at one of the existing zones, NP15, SP15 or ZP26. Based on these contracts, the LSE calculates the Verified CRR Source Quantity based on the hourly MWh of energy specified in the contract for delivery at the Trading Hub (CAISO Tariff § 36.8.3.4) averaged over all hours of the relevant TOU period.

#### **6.3.4.3 Scheduling Points**

Pursuant to CAISO Tariff § 36.8.3.4, LSEs that want to nominate Scheduling Points as CRRs must demonstrate that, during the verification period as noted in CAISO Tariff § 36.8.3.4, they had ownership of external generation resources or Energy contracts from external resources; and had contracts demonstrating an ability to move Energy from the external resource to the Scheduling Point. Based on these contracts, the LSE or OCALSE calculates the VSQ based on the hourly MWh of energy specified in the contract for delivery at the Scheduling Point averaged over all hours of the relevant TOU period.

As part of the process for verification of CRR Source locations at Scheduling Points, there is an additional process that calculates the residual capacity on each of the Scheduling Points. The residual value is calculated by starting with the respective Operating Transfer Capability (OTC) at the Scheduling Point and reducing it by the capacity associated with TOR, ETC, CVR and VSQ submissions. Once the residual value is determined the CAISO will distribute 50% of the residual value at each Scheduling Point to all LSEs participating in the allocation based on their respective Seasonal CRR Eligible Quantities and the remaining 50% will be reserved for the CRR Auction process. An example of this process is described below. The CRR Source MW verification process described below applies to CRRs being nominated at Scheduling Points in tiers 1 and 2 of the annual CRR Allocation process and tier 1 of the monthly CRR Allocation process for CRR Year One only:

- All LSEs that are participating in the annual or monthly allocation for CRR Year One are allotted a portion of 50% of the residual value at the Scheduling Points, which they can then choose to request in the source verified tiers of the annual or monthly allocation process for CRR Year One.
- One-half of any remaining residual Scheduling Point capacity (derived after deducting the VSQ and Adjusted Verified CRR Source Quantities (AVSQ) and accounting for capacity associated with TORs, ETCs and CVRs) is allocated pro-rata to all LSEs in proportion to their Seasonal CRR Eligible Quantities. These Scheduling Point MW amounts can then be used in the verified tiers of the annual and monthly allocation processes. The other one-half of the remaining residual Scheduling Point capacity is reserved for the CRR Auction.
- For the annual CRR process, the CRR system uses 75% of the Seasonal Available CRR Capacity when calculating the residual Scheduling Point capacity.

Any remaining residual Scheduling Point capacity not requested and cleared after tiers 1 and 2 of the annual allocation process is made available for tier 3 and subsequently if it is not requested in tier 3 will be made available in the CRR Auction.

CRR Allocation participants will be notified of their shares of any residual Scheduling Point capacity during the annual and monthly CRR allocation process. This information will be provided in a timely fashion so that Candidate CRR Holders or CRR Holders can decide whether to utilize their share in the upcoming verified tiers of the allocation process.

The inputs into the process to determine the residual capacity on the Scheduling Points and the allocation of this residual capacity at the Scheduling Points include:

- Initial Operating Transfer Capability (OTC) for each Scheduling Point
- OTC values used for the season or month for each Scheduling Point
- TOR capacity on each Scheduling Point
- ETC capacity on each Scheduling Point
- Total VSQ and AVSQ for each Scheduling Point
- Each LSE's Seasonal or Monthly CRR Eligible Quantity

The outputs of this process are:

- The final VSQ or AVSQ to be used in the verification tiers for limiting the aggregated source nomination amount for the Scheduling Point per LSE

- A potential residual amount that is the basis for reserving capacity on the Scheduling Point for the CRR Auction

The following example is provided to illustrate the annual and monthly process for determining and allocating residual capacity on the Scheduling Points:

- 1) The OTC value (prior to any scaling for the seasonal process or adjustments for TOR) on Scheduling Point A is 3000 MW.
- 2) Assume a TOR value on Scheduling Point A of 200 MW.
- 3) Assume an ETC value on Scheduling Point A of 400 MW (assume any nominated ETCs cleared at 100%).
- 4) Assume five LSEs are participating in the annual CRR Allocation with the following Seasonal CRR Eligible Quantities, totaling 1000 MW:
  - a) LSE1 – 250 MW or 25% of the total
  - b) LSE2 – 250 MW or 25% of the total
  - c) LSE3 – 100 MW or 10% of the total
  - d) LSE4 – 100 MW or 10% of the total
  - e) LSE5 – 300 MW or 30% of the total
- 5) Assume that LSE1, LSE2, and LSE5 provided verified source information on Scheduling Point A totaling 800 MW (250 MW, 250 MW, and 300 MW, respectively)

The process for determining the residual value and related CRR Source verification amounts on this Scheduling Point is as follows:

- 1) Start with the un-scaled OTC value of 3000 MW and subtract all of the TOR capacity on Path A. [ $3000 - 200 = 2800$  MW].
- 2) For the annual CRR Allocation, the remaining capacity is scaled to 75%. [ $75\% * 2800 = 2100$  MW].

- 3) For the annual CRR Allocation, the nominations for the ETCs are limited by 75% of the total ETC amount. CAISO submits nominations with a high priority for 75% of the ETC capacity. [ $75\% * 400 = 300\text{MW}$ ].
- 4) Continuing with the 2100 MW from step 2, subtract the ETC seasonal value of 300 and 75% of the verified source amounts of 800 (for LSE1, LSE2 & LSE5). [ $2100 - 300 - (75\% * 800) = 1200 \text{ MW}$ ] There is 1200 MW of residual capacity remaining on this Scheduling Point.
- 5) Take 50% of the residual capacity of 1200 MW, to be reserved for the annual CRR Auction. [ $50\% * 1200 = 600 \text{ MW}$ ].
- 6) The remaining 600 MW is spread to all five LSEs, pro rata, based on their respective Seasonal CRR Eligible Quantities. LSEs 1 and 2 receive 150 MW each, LSEs 3 and 4 receive 60 MW each, and LSE5 receives 180 MW as additional amounts as possible sources that they could use in tiers 1 and 2 of the annual CRR Allocation.

A similar process is followed for the monthly CRR Allocation with some additional steps added to account for cleared seasonal nominations and auction bids. To continue this example through the monthly process, assume the following:

1. Assume that the monthly OTC is still 3000MW. For the monthly CRR Allocation process 100% of this amount is made available, assuming no derates or outages impact this Scheduling Point
2. Of the 800MW of VSQ on Scheduling Point A, 600 MW was nominated and cleared, so 200MW is remaining of the VSQ on Scheduling Point A
3. Assume the same five LSEs are participating in the monthly CRR Allocation with the following Monthly CRR Eligible Quantities, totaling 500MW:
  - a. LSE1 – 100MW or 20% of the total
  - b. LSE2 – 75MW or 15% of the total
  - c. LSE3 – 100MW or 20% of the total
  - d. LSE4 – 75MW or 15% of the total
  - e. LSE5 – 150MW or 30% of the total

4. Cleared Seasonal CRRs on Scheduling Point A, from both the CRR Allocation and CRR Auction, total to 2000MW. Of the total capacity of 2100MW that was available in the annual allocation the maximum amounts were nominated or bid for and cleared except for the residual set aside for the LSEs. Of the 600MW that was provided to the LSEs based on their SEQ only 500MW cleared. If the LSE did not request its share in either tier 1 or 2 then any remaining amount would have been available to all other LSEs in tier 3. If it was not nominated in tier 3 then it would become available in the annual CRR Auction. In this example, the 100MW of LSE residual capacity that was not nominated or did not clear is available in the CRR Auction. The 600MW that was set-aside for the auction was bid on and cleared. Listed below is the breakdown of what cleared against the original 2100MW of capacity made available for season 1 on peak.
  - a. 600MW from source verified nominations
  - b. 500MW from tier 3 and annual residual capacity
  - c. 600MW from the CRR Auction
  - d. 300MW of the ETCs
5. Same values used for the TOR and ETC

The process for determining the monthly residual value and related CRR Source verification amounts on this Scheduling Point is as follows:

1. The OTC value on Scheduling Point A remains at 3000MW
2. Remove the TOR capacity [3000 – 200 = 2800]
3. Subtract the ETC amount at 25% from step #2 [2800 – 100 = 2700]. Since the ETC nominations in the annual process are reduced to 75% only the remaining 25% is used for the monthly allocation process and the other 75% that cleared in the annual process is accounted for in step #5 below (assuming that all of the ETCs cleared).
4. Subtract the remaining VSQ of 200MW that was not made available in the annual process since only 75% of the total VSQ ( $800 * 75\% = 600$ ) is allowed [2700 – 200 = 2500]
5. Account for the clearing of CRRs from the annual CRR Allocation and CRR Auction processes [2500 – 2000 = 500]. The remaining amount of 500MW is the

monthly residual value on Scheduling Point A. This monthly residual amount can be viewed as follows:

- a. The 25% of OTC (less TOR) made available for the monthly CRR Allocation process [ $2800 * 25\% = 700$ ]
- b. Plus the amount of capacity that could have been nominated from the annual process but did not get nominated or possibly did not clear [ $2100 - 2000 = 100$ ]
- c. Less 25% of the original VSQ of 800MW that could not be nominated in the annual process [ $800 * 25\% = 200$ ]
- d. Less the remaining 25% of the ETC that will get nominated in the monthly allocation process [ $400 * 25\% = 100$ ].
- e. These bullets when calculated together show the total monthly residual amount of 500MW [ $700 + 100 - 200 - 100 = 500\text{MW}$ ]

#### **6.3.4.3.1 Scheduling Point Residual Set Aside Subsequent to CRR Year One**

For the annual CRR Allocation process for import CRRs in years after CRR Year One, the calculation of the residual value set aside takes place after tier 2 of the CRR Allocation process. After tier 2 of the annual CRR Allocation the CAISO will calculate and set aside for the annual CRR Auction 50% of the residual capacity at the Scheduling Points. The residual value set aside calculation will take into consideration any Long Term CRRs that are valid for the respective season and time-of-use period (See CAISO Tariff § 36.8.4.2.2).

For the monthly CRR Allocation processes for import CRRs in months after CRR Year One, the calculation of the residual value set aside takes place after tier 1. After tier 1 of the monthly CRR Allocation the CAISO will calculate and set aside for the monthly CRR Auction 50% of the residual capacity at the Scheduling Points. The residual value set aside calculation will take into consideration any annual allocated or auctioned CRRs and Long Term CRRs that are valid for the respective month and time-of-use period as well as the results of tier 1 of the monthly CRR Allocation.

#### **6.3.4.4 ETC or CVR Points of Delivery**

For Existing Transmission Contracts (ETCs) or Converted Rights (CVRs) that end at a Point of Delivery that differs from where the load is located then those LSEs can use these end points as verified CRR Sources in the verified tiers provided that the Candidate CRR Holder holds an Energy contract that can be delivered utilizing the ETC or CVR transmission service. The VSQ

associated with these locations will be based on the hourly MWh of Energy specified in the contract for delivery at the Location averaged over all hours of the relevant TOU period.

#### 6.3.4.5 Adjusted of Verified CRR Source Quantity Based on Contract Length

CAISO works with each of the Candidate CRR Holders to review its respective CRR Source verification information submitted via the CRR Data Template. Information that supports the values submitted on the CRR Data Template includes contracts or other documentation that demonstrates CRR Source Locations utilized during the relevant historical period. As noted in CAISO Tariff § 36.8.3.4, the source verification period begins January 1, 2006 and ends December 31, 2006. CAISO considers a contract (or combination of contracts) that covers a portion of a season (minimum 30-day period) to be sufficient verification for the entire season, but the allowable source MW values for CRR Allocation nominations are pro rata adjusted for the relevant term of the CRR if the contracts are not for the complete CRR term. The data in Exhibit 6-1 below shows how the pro-ration would be done for the annual and monthly CRR Allocation processes. The example below uses season 1, on peak as the sample period.

**Exhibit 6-1: MW Limit Example**

| Contract Term       | Source | Contract MW | Season 1 MW Limit for Gen1 | Season 1 Awarded MW | Monthly Source Limit Equation  | Monthly Source Limit MW |
|---------------------|--------|-------------|----------------------------|---------------------|--|-------------------------|
| January<br>31 Days  | Gen1   | 40          | 29.4                       | 25                  | (40 - 25)  | 15                      |
| February<br>28 Days | Gen1   | 60          |                            |                     | (60 - 25)  | 35                      |
| March<br>31 Days    | Gen1   | 20          |                            |                     | No monthly amount since awarded MW is greater than monthly contract MW | 0                       |

The season1 on-peak MW limit of 29.4MW is calculated as follows:

$$\text{Season 1 Limit} = ((40 * 26 \text{ Days}) + (60 * 24 \text{ Days}) + (20 * 27 \text{ Days})) / 77 \text{ Days} =$$

$$(1040 + 1440 + 540) / 77 = 39.2 \text{ MW} * 0.75 = 29.4 \text{ MW}.$$

Where:

- 40 is the January Generation Contract Amount
- 60 is the February Generation Contract Amount
- 20 is the March Generation Contract Amount and
- 0.75 is an adjustment to limit the source during the annual allocation per CAISO Tariff § 36.8.4.

The season 1 Awarded MWs of 25MW reflects that scenario that this LSE nominated the full 29.4MW season1/on peak limit but the SFT only cleared 25 MW.

The monthly source limit column shows the calculation for how the monthly verified source amounts will be determined. To derive the VSQ for each month take the monthly VSQ, or the monthly AVSQ, and subtract the awarded value from the seasonal allocation. Using this methodology for the example above, the results are:

$$\text{Jan} \quad (40 - 25) = 15$$

$$\text{Feb} \quad (60 - 25) = 35$$

$$\text{Mar} \quad (20 - 25) = 0$$

A variation of the above example is considered in CAISO Tariff § 36.8.3.4, when a contract with a duration of not less than one month covers a portion of two consecutive months. In this case the same methodology will be followed but split between the two months for which the contract extends. For example, assume that an LSE has a contract for 50MW that covers 35 days for the on peak period consisting of January 17 through January 31, 2006 and February 1 through February 20, 2006. The table below shows how the season 1 AVSQ is calculated

| Contract Term      | Source | Contract MW | Season 1 MW Limit for Gen1 | Season 1 Awarded MW | Monthly Source Limit Equation | Monthly Source Limit MW |
|--------------------|--------|-------------|----------------------------|---------------------|-------------------------------|-------------------------|
| January<br>15 Days | Gen1   | 50          | 14.6                       | 12                  | (24.2 - 12)                   | 12.2                    |



| Contract Term       | Source      | Contract MW | Season 1 MW Limit for Gen1 | Season 1 Awarded MW | Monthly Source Limit Equation | Monthly Source Limit MW |
|---------------------|-------------|-------------|----------------------------|---------------------|-------------------------------|-------------------------|
| February<br>20 Days | Gen1        | 50          |                            |                     | (35.7 - 12)                   | 23.7                    |
| March               | No Contract | 0           |                            |                     |                               |                         |

To derive the season 1/on peak AVSQ, the CAISO will pro-rate the contract over the entire season by taking the contract amount times the ratio of the contract duration for the month to the total number of on peak days in season 1. January 2006 had 26 days with on peak hours and February 2006 had 24 days with on peak hours. Based on this information the AVSQs for season 1/on peak and January and February on peak are as follows:

$$50 * (30 / 77) = 19.5\text{MW} * 75\% = 14.6\text{MW for the season 1, on peak allocation process}$$

To calculate the January and February Adjusted Verified CRR Source Quantity perform the same pro-rationing as described above but only for each month. An additional adjustment would be made for any of the 14.6MW verified amount that cleared in season 1/on peak.

$$\text{January} \quad 50 * (13 / 26) = 25\text{MW for January, on peak allocation process}$$

$$\text{February} \quad 50 * (17 / 24) = 35.4\text{MW for February, on peak allocation process}$$

## 7. Annual CRR Sink Verification and Eligible Quantity Calculation for Internal LSEs

In this section you will find the following information:

- How historical and forecasted Demand for CRR Sink verification is determined
- How Seasonal and Monthly CRR Load Metrics are calculated

### 7.1 CRR Sink Verification for Allocation Process

CRR Sink verification for the CRR Allocation process is conducted every year before the CRR Allocation process commences.

#### 7.1.1 Market User Interface used for Submittal of Sink Verification Data

In the verification process, the CRR MUI is used to submit load data, which is used in a process to derive the sink MW for each entity on a season and time of use basis. The process for the calculation of the sink MW value is discussed below).

#### 7.1.2 LSEs

For CRR Sink verification purposes, the historical period for the annual/seasonal verification is the prior year (See CAISO Tariff § 36.8.2.1). The following sinks may be used when submitting CRR nominations in the CRR Allocation process (See CAISO Tariff § 36.8.2:

- Default Load Aggregation Points (LAP)
- Sub-LAPs if within the LSE's Default LAP (in the annual tier 3 and monthly tier 2)<sup>2</sup>
- Metered Subsystem (MSS) LAP for a MSS Operator that chooses net settlement
- Scheduling Points for external LSEs
- Custom LAP for loads that are Pumped-Storage Hydro Units and Participating Load

The CAISO will make available, prior to the beginning of the CRR Allocation process, a list of allowable sources and sinks to be used in the allocation.

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<sup>2</sup> This information is made available prior to each allocation and auction process and the source and sink list being used for the CRR Dry Run is available at: <http://www.caiso.com/17f4/17f4e864293e0.xls>. In this spreadsheet there is a column for Resource Type "Sub-LAP" which displays all sub-laps.

For the CRR Year One Allocation process, LSEs, as well as MSS Operators choosing gross settlement, are limited to the Default LAPs (PGE, SCE, and SDGE) as CRR Sinks. LSEs must demonstrate that they serve Demand in the LAP or LAPs they intend to use as CRR Sinks. LSE's sink verification can be based upon Settlement Quality Meter Data submitted to the CAISO or information filed with the CPUC reflecting where the LSE's load is located.<sup>3</sup> MSS Operators choosing gross settlement may use their filed MSS agreement as a means of verification.

For MSS Operators that choose the net settlement option, a specific MSS LAP is created by CAISO as a CRR Sink and is used by the MSS Operator when nominating CRRs. These MSS Operators can verify their CRR Sink Location using their filed MSS agreement. The MSS election of gross or net is made on an annual basis, at least 60 days prior to the deadline for the annual CRR Allocation process. For CRR Year One the deadline for the annual CRR Allocation process to begin is late July 2007. Once the election is made it is valid for each of the monthly allocations within that annual term. If the MSS Operator does not notify CAISO of their election then the default is gross settlement (CAISO Tariff § 4.9.13).

In tier 3 of the annual CRR Allocation and in tier 2 of the monthly CRR Allocation, sub-LAPs are eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP (See CAISO Tariff §§ 36.8.3.1 and 36.8.3.2).

### **7.1.3 OCALSEs**

Qualified OCALSEs that request CRRs in CRR Allocations may only use Scheduling Points for CRR Sinks. These entities must provide historical export scheduling information that confirms these Scheduling Points were used during the prior year. Supporting documentation would be final Hour Ahead schedules submitted to the CAISO through the scheduling system as further described in 12.2.3 of this BPM (See CAISO Tariff § 36.9.3).

## **7.2 Historical/Forecasted Demand**

CAISO Tariff § 36.8.2.1, Seasonal CRR Eligible Quantity; CAISO Tariff § 36.8.2.2, Monthly CRR Eligible Quantity

To determine the CRR eligible quantities for the annual and monthly CRR Allocation processes, Candidate CRR Holders and CRR Holders must submit their historical and forecasted Demand data through the CRR MUI.

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<sup>3</sup> Data submitted to the CPUC or CEC can be used to verify the sink MW values for the historical period as long as it is in the hourly/TOU format required by the CRR MUI. For an entity that is submitting historical load data to the CAISO for CRR Allocation they will need to have accurate and verifiable data. Any information filed with the CPUC or CEC showing proof of the entity being a LSE would suffice for the sink verification.

## **7.2.1 Historical Demand Period & Calculation of Seasonal CRR Load Metric**

This section describes data requested by the CAISO that is used to calculate the Seasonal and Monthly CRR Load Metric Values (See CAISO Tariff § 36.8.2.1).

For the historical Demand reference period, CAISO generally uses a calendar year and standard quarter terms (Q1/Jan-Mar, Q2/Apr-Jun, Q3/Jul-Sep, and Q4/Oct-Dec). However, for CRR Year One the first quarter will only include February and March 2008 since the start-up date for MRTU is February 1, 2008. The reference period includes the most recent period when the full calendar year of historical Demand data is available. For example, the CRR Allocation process for the calendar year 2008 actually begins in October of 2007 and the most recent historical Demand reference period that contains a full year's worth of data is January 2006 through December 2006, the previous full calendar year.

When the historical Demand data is submitted through the CRR MUI, it is grouped into the four seasons, two time-of-use (TOU) periods, and the individual LAPs within which the LSE serves Load. The CRR system then derives Load duration curves for each season, TOU, and LAP. The LSE's Seasonal CRR Load Metric for each season and time of use period is the MW level of Demand that is exceeded only in 0.5% of the hours based on the LSE's historical Demand data.

## **7.2.2 Forecast Load Methodology & Calculation of Monthly CRR Load Metric**

### **7.2.2.1 Forecast Load Methodology**

For the monthly CRR Allocation process each LSE submits its forecasted Demand data to CAISO through the CRR MUI. The CAISO may adjust the submitted data to ensure consistency with CEC data associated with the Resource Adequacy data and is currently holding a stakeholder process to develop this methodology.<sup>4</sup>

### **7.2.2.2 Calculation of Monthly CRR Load Metric**

As each subsequent monthly CRR Allocation period is opened, the LSE's submitted monthly Demand forecast is used to calculate two Load duration curves (one on-peak and one off-peak for the applicable month) to form the basis for monthly CRR Allocations for each LAP in which the LSE serves Load. The Monthly CRR Load Metric is the MW level of Demand that is

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<sup>4</sup> This adjustment is pending FERC approval.

exceeded only 0.5% of the hours based on the LSE's submitted Demand forecast (See CAISO Tariff § 36.8.2.2).

### **7.2.3 Load Migration & Adjustments to Load Data**

During the annual CRR Allocation process when an LSE submits its historical Demand, if Load has migrated to or from the LSE prior to submitting this historical Demand data, then there will be an adjustment made to reflect this migrated Load in the LSE's historical Demand data (See CAISO Tariff § 36.8.5). The monthly forecasted Demand data will account for any Load migration for the monthly CRR Allocation. Load migration from an LSE's portfolio reduces the Priority Nomination Process (PNP) Eligible Quantities for that LSE. The reduction in PNP Eligible Quantities is applied as a constant percentage to all CRRs allocated to that LSE in the prior annual CRR Allocation.

The migration of Load is reflected as a decrease to one LSE's historical Demand level and a corresponding increase for the receiving LSE taking the Demand. During the time period prior to the next annual CRR Allocation the migrated Load is reflected in the monthly forecasted Demand data that will be submitted by the LSE acquiring the migrated Load.

## 8. Annual CRR Allocation

In this section you will find the following information:

- An overview of the annual CRR Allocation process flow
- How the Seasonal Available CRR Capacity is determined
- How an LSE's Seasonal CRR Eligible Quantity is calculated
- How the four tier allocation process is conducted, consisting of the allocation of Seasonal and Long Term CRRs
- A description of the Priority Nomination Process

### 8.1 CRR Load Metric & CRR Eligible Quantity

LSEs submit through the MUI historical Demand data to CAISO for the prior year, for each LAP within which the LSE serves Load. The CRR system uses this data to calculate the CRR Load Metric<sup>5</sup> for each LSE, season, LAP, and time-of-use period. The CRR Load Metric represents the level of load for a season that is expected to be equaled or exceeded only 0.5% of the time or near the peak (See CAISO Tariff § 36.8.2.1). For determination of OCALSE's eligible quantity please refer to section 12.2.4 of this BPM.

In the event that the LSE has lost or gained net Demand through Load migration during the course of the prior year, the historical Demand data is adjusted to reflect the loss or gain as described in Sections 7.1.3, 8.6, and 10.5 of this BPM.

The quantity of CRR nominations an LSE can request for each season, LAP, and time-of-use period is determined by the Seasonal CRR Eligible Quantity. CAISO calculates an LSE's Seasonal CRR Eligible Quantity by subtracting from that LSE's Seasonal CRR Load Metric the quantity of Demand served by its TORs, ETCs, and CVRs. CAISO works with each LSE on an individual basis to determine the quantity of TORs, ETCs, and/or CVRs to be subtracted from its Seasonal CRR Load Metric to derive the Adjusted Load Metric. This value is then scaled down to 75% to arrive at the Seasonal CRR Eligible Quantity.

For MSS Operators that elect net Settlement, their CRR Eligible Quantities reflect their net Demand (See CAISO Tariff § 4.9.13.1). These MSS Operators submit hourly historical net

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<sup>5</sup> The term CRR Load Metric will be used in general to refer to a Load metric calculated for a season or a month by load location and TOU.

Demand data and net Demand forecast data from which CAISO constructs net Load duration curves to determine their Seasonal and Monthly CRR Eligible Quantities.

## 8.2 Annual Allocation of Seasonal and Long Term CRRs

In this section, we describe the general process used to allocate Seasonal and Long Term CRRs as shown in Exhibit 8-1 on the next page.

Only Candidate CRR Holders or CRR Holders that are also LSEs or Qualified OCALSEs can participate and obtain CRRs through the CRR Allocation process (See CAISO Tariff § 36.8).<sup>6</sup> The Seasonal CRR Eligible Quantity is the starting point for calculating a LSE's nomination limits for each season of the annual allocation process. For tier 1, Allocation Eligible Entities may nominate up to 50% of the Seasonal CRR Eligible Quantity. Nominations are submitted into the CRR system via the MUI by the Allocation Eligible Entities. Submitted nominations are verified by the CRR system for permissible CRR Source and CRR Sink locations and MW values.

If the nominations pass the validation process (i.e. nominations include only allowable CRR Sources and CRR Sinks and don't exceed the associated MW values), they are included in the CRR market where they undergo an SFT with other CRR nominations in the same CRR market (see Attachment B – Simultaneous Feasibility Test). Cleared CRRs are then provided back to Allocation Eligible Entities via the CRR MUI. CAISO then calculates and provides back to Allocation Eligible Entities the new eligible quantities for tier 2, based upon the Seasonal CRR Eligible Quantity less the CRRs that cleared in tier 1. Allocation Eligible Entities repeat the same process in tier 2 as they followed in tier 1.

After the tier 1 and tier 2 allocation processes of CRR Year One the CAISO will run the Long Term CRR Allocation tier (Tier LT). In Tier LT Allocation Eligible Entities or Qualified OCALSEs may nominate any of the Seasonal CRRs allocated in tiers 1 and 2, except that Point-to-Point CRRs awarded as disaggregated CRR nominations sourced at a Trading Hub must be nominated as Trading Hub CRRs as described in CAISO Tariff section 36.8.3.1.3. In addition, the total quantity of Seasonal CRRs to be nominated cannot exceed 50% of the Allocation Eligible Entity's Adjusted Load Metric.

For tier 3, the eligible quantity is calculated as 100% of the Seasonal CRR Eligible Quantity less the CRRs that cleared in tier 1 and tier 2. For tier 3, the CRR Source Location and MW verification is not enforced. However, the CRR Sink Location and MW value verifications are preserved with the exception that for tier 3 Allocation Eligible Entities may request Sub-LAPs as

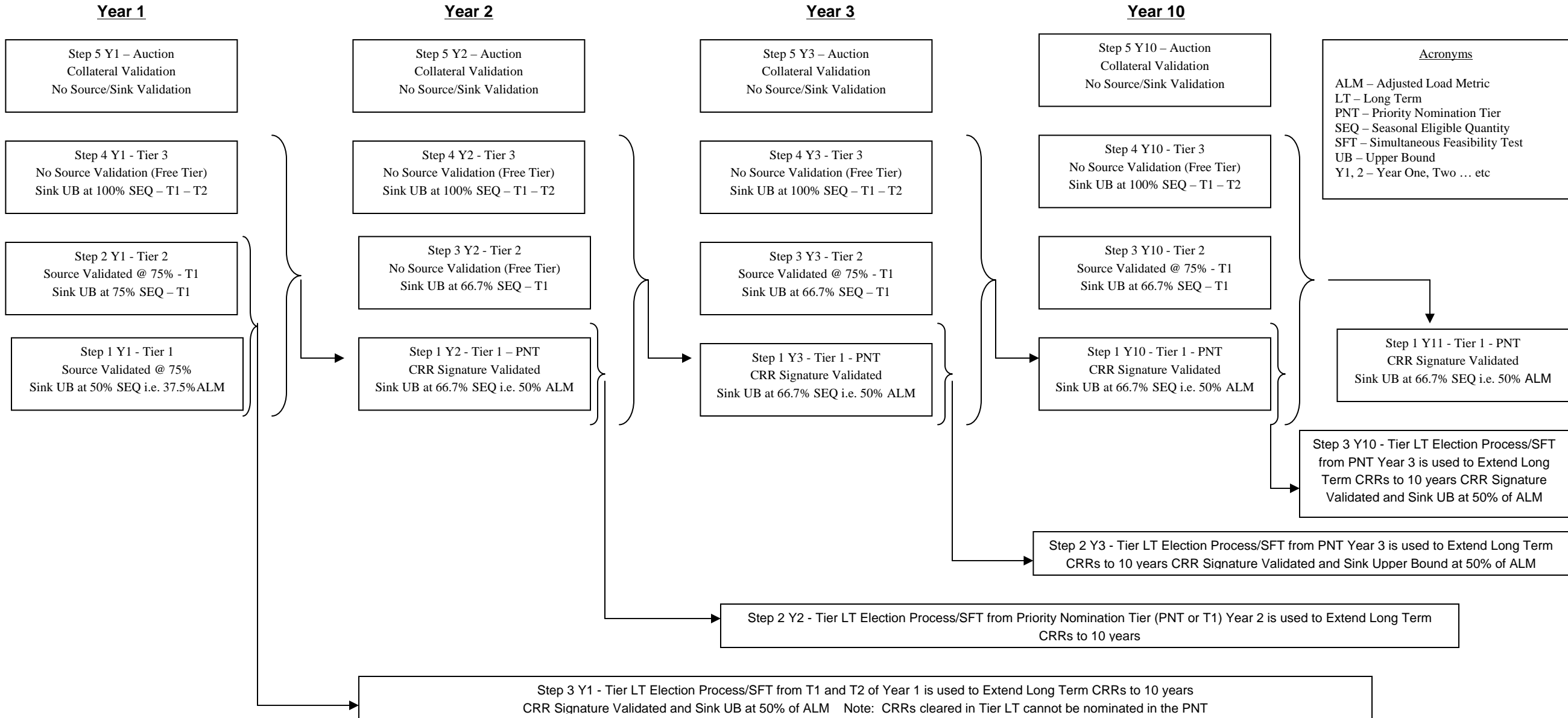
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<sup>6</sup> For the sake of convenience, in this document such entities are referred to as Allocation Eligible Entities.

the sink as long as the Sub-LAP is contained in the Default LAP that the Allocation Eligible Entity is eligible to request from.



### Exhibit 8-1: Congestion Revenue Rights Data Flow for the Annual Allocation Process Across Years



As shown graphically in Exhibit 8-1, when CAISO starts the annual CRR Allocation process, it runs tier 1 for each of the four seasons and two TOU periods simultaneously, runs the nominations through the SFT, and makes this information available to the Allocation Eligible Entities (AEEs) prior to opening tier 2 for the nomination process. CAISO then opens tier 2 for all four season/TOU combinations, runs the nominations through the SFT, and makes the results available to the AEEs prior to running the Long Term process, Tier LT. After the Long Term CRRs have been awarded the CAISO will then run the final annual allocation tier 3 nominations.

CAISO publishes a detailed timeline for the monthly CRR Allocation and CRR Auction processes 30 days prior to beginning the annual CRR Allocation and CRR Auction process.

### **8.2.1 Treatment of CRR Source Nominations at Trading Hubs**

When Trading Hubs are nominated as CRR Sources in tier 1 and 2 of the allocation tiers the CRR system will disaggregate the Trading Hub nominations into individual Point-to-Point CRRs from all of the generator PNodes making up the Trading Hub, based on the Trading Hub generation distribution factors (See CAISO Tariff §§ 36.8.3.1.2 and 36.8.4.1). These PTP disaggregated nominations will then be applied to the SFT and cleared as PTP CRRs. If a constraint is binding on one particular generator PNode then that PTP nomination would be reduced or pro-rata adjusted while the other PTP nominations from the other generator PNodes would not be reduced if no other constraints were present.

### **8.2.2 Eligible Quantity Calculation Example**

To illustrate how the eligible quantity determination works with the verified source amounts please see the following example that will describe the steps that an AEE would go through if they participated in the annual CRR Allocation. For simplification the example only goes through the process for a single season/TOU of the annual allocation process:

To establish the data being used for the example assume the following for a season1 on peak allocation:

- The annual source verification process, as detailed in section 6.3.2 of this BPM, for season1/on peak for AEE1 provided the following verified sources and the associated MW values
  - Generator 1 (Gen1) verified at 300MW
  - Scheduling Point 1 (SP1) verified at 75MW

- AEE1 also received a pro-rata allocation on SP1 for 25MW as part of the process described in section 6.3.4.3 (step 6) of this BPM for residual capacity on Scheduling Points. This provides AEE1 with a total of 100MW that can be used as a verified source on SP1 for season1 of the annual allocation process.
- Trading Hub 1 (TH1) verified at 100MW
- The process for determining the Seasonal CRR Load Metric for AEE1, as described in section 7.1.1 of this BPM, requires AEE1 to submit historical load data via the MUI. Using AEE1 historical load data at the PG&E Default LAP (PGE\_DFLAP) the CRR system calculated the Seasonal CRR Load Metric to be 500MW for PGE\_DFLAP.
- Assume AEE1 does not have any TOR, ETC or CVR to serve its Load and its entire Load is served in the PG&E area. AEE1's Adjusted Load Metric is the same as the Seasonal CRR Load Metric of 500MW. The Seasonal CRR Eligible Quantity is calculated by taking the Seasonal CRR Load Metric of 500MW and multiplying it by 75%, to derive the Seasonal CRR Eligible Quantity (SEQ) of 375MW at the PGE\_DFLAP.
- Based on the above assumptions the table below reflects a hypothetical situation that AEE1 might see as it steps through the four tiers of the annual allocation process for season1.

## Exhibit 8-2: Annual CRR Allocation Example

| Annual Process         | Limitation from Source Verification Data |                              | Limitation from Sink Data |                                  |  |  |
|------------------------|--|------------------------------|---------------------------|----------------------------------|--|--|
| <b>Tier 1 Limits</b>   | Gen1                                     | 300 * 75% = 225MW            |                           | 50% * 375 = 187.5MW              |  |  |
|                        | SP1                                      | 100 * 75% = 75MW             |                           |                                  |  |  |
|                        | TH1                                      | 100 * 75% = 75MW             |                           |                                  |  |  |
| <b>Tier 1 Noms</b>     | Gen1                                     | 100                          | 187.5                     |                                  |  |  |
|                        | SP1                                      | 50                           |                           |                                  |  |  |
|                        | TH1                                      | 37.5                         |                           |                                  |  |  |
| <b>Tier 1 Results</b>  | Gen1                                     | 80                           | 145                       |                                  |  |  |
|                        | SP1                                      | 30                           |                           |                                  |  |  |
|                        | TH1                                      | 35                           |                           |                                  |  |  |
| Tier 2 Limits          | Gen1                                     | 225 - 80 = 145MW             |                           | (75% * 375) - 145 = 136.3MW      |  |  |
|                        | SP1                                      | 75 - 30 = 45MW               |                           |                                  |  |  |
|                        | TH1                                      | 75 - 35 = 40MW               |                           |                                  |  |  |
| Tier 2 Noms            | Gen1                                     | 75                           | 136.3                     |                                  |  |  |
|                        | SP1                                      | 25                           |                           |                                  |  |  |
|                        | TH1                                      | 36.3                         |                           |                                  |  |  |
| Tier 2 Results         | Gen1                                     | 70                           | 125                       |                                  |  |  |
|                        | SP1                                      | 25                           |                           |                                  |  |  |
|                        | TH1                                      | 30                           |                           |                                  |  |  |
| <b>Tier LT Limits</b>  | Gen1                                     | 80 + 70 = 150MW              |                           | (50% * 500) = 250MW              |  |  |
|                        | SP1                                      | 30 + 25 = 55MW               |                           |                                  |  |  |
|                        | TH1                                      | 35 + 30 = 65MW               |                           |                                  |  |  |
| <b>Tier LT Noms</b>    | Gen1                                     | 150                          | 250                       |                                  |  |  |
|                        | SP1                                      | 40                           |                           |                                  |  |  |
|                        | TH1                                      | 60                           |                           |                                  |  |  |
| <b>Tier LT Results</b> | Gen1                                     | 140                          | 225                       |                                  |  |  |
|                        | SP1                                      | 35                           |                           |                                  |  |  |
|                        | TH1                                      | 50                           |                           |                                  |  |  |
| Tier 3 Limits          | Gen1                                     | No Source Verification Limit |                           | (100% * 375) - 145 - 125 = 105MW |  |  |
|                        | SP1                                      | No Source Verification Limit |                           |                                  |  |  |
|                        | TH1                                      | No Source Verification Limit |                           |                                  |  |  |
| Tier 3 Noms            | Gen2                                     | 80                           | 105                       |                                  |  |  |
|                        | SP2                                      | 25                           |                           |                                  |  |  |
| Tier 3 Results         | Gen2                                     | 65                           | 85                        |                                  |  |  |
|                        | SP2                                      | 20                           |                           |                                  |  |  |

The bullets below describe, in a little more detail, the steps and results associated with the table above.

- As AEE1 goes into tier1 of season1/on peak there are two distinct limits associated with the CRR nominations that can be made. AEE1 is limited to the source verification limits noted at the top of the table; Gen1 cannot exceed 225MW, SP1 cannot exceed 75MW and TH1 cannot exceed 75MW. In addition, there is the sink limitation of 50% of the SEQ of 375MW. This means that in total all nominations with a sink at PGE\_DFLAP cannot exceed 375MW and the aggregated CRR nominations with sources at Gen1, SP1 and TH1 cannot exceed the above limits. AEE1 can only request these three sources and the PGE\_DFLAP as the sink for tiers 1 and 2 of the annual allocation process.
- In this example we only see the results of season1 on peak but the process for going through the annual allocation will be to run all tier 1 nominations for all four seasons and two TOUs at the same time since they are independent of each other.
- In this example, for tier 1 AEE1 submits CRR nominations for Gen1 of 100MW, SP1 of 50MW and TH1 of 37.5, this total of 187.5MW meets the sink limitation and the nominations are accepted. As noted in section 8.2.1 of this BPM the TH nominations are automatically disaggregated by the CRR system when the nominations are submitted.
- Once the Simultaneous Feasibility Test (SFT) has been run for all tier 1 nominations and the results are produced then the CAISO will update the verification information based on tier 1 results. Between the tiers the AEEs will be able to review the results and create their nominations for tier 2. The results from tier 1 will become “Fixed” CRRs for the tier 2 SFT. This means that tier 1 CRRs cannot be adjusted by the optimization. This same process will also be done between tiers 2, LT and 3.
- In this example the tier 1 results have AEE1 being awarded 80MW at Gen1, 30MW at SP1 and 35MW at TH1 for a total of 145MW. In this example, the 35MW of cleared “TH” CRRs were really 35MW of PTP CRRs at each of the various generator PNodes that constitute the Trading Hub. All of these CRRs sink at PGE\_DFLAP.
- The source verification process for tier 2 takes the tier 1 results and subtracts them from the beginning source verified amounts. These values then become the source verified limits for tier 2. In this example the new limits for tier 2 are 145MW for Gen1, 45MW for SP1 and 40MW for TH1.

- The sink limits for tier 2 take 75% of the starting SEQ of 375MW and subtract what was awarded in tier 1. This results in the new sink limitation of 136.3MW.
- For tier 2 AEE1 nominates CRRs with source amounts that do not exceed the individual limits and in aggregate do not exceed the sink limitation of 136.3MW. The results of tier 2 are shown in the above table.
- For Tier LT the sink limitation is 50% of the Adjusted Load Metric or 250MW (50% \* 500MW), in this example.
- For Tier LT AEE1 can only nominate CRRs from the specific source/sink pairs that cleared in tier 1 and 2 of the seasonal allocation process. A total of 270MW cleared in tier 1 and 2 but the sink limitation of 250MW restricted the nominations made in Tier LT.
- For tier 3 there is no source verification limitation but the aggregate of all nominations cannot exceed 100% of the SEQ for AEE1 less what cleared in tiers 1 and 2. In this example the new sink limitation is 105MW. For tier 3 AEE1 can request any source and the sink is limited to PGE\_DFLAP or any Sub\_-LAP that is a subset of PGE\_DFLAP. The Sub-LAPs are identified in the source/sink list that is posted on the CAISO OASIS prior to the beginning of the CRR Allocation and Auction process.
- For tier 3, AEE1 submits CRR nominations with sources at Gen2 and SP2, which since source verification is not enforced in tier 3, is allowed as long as the total nomination does not exceed the sink limitation of 105MW.
- Once the annual allocation process has been completed (all four tiers, including tier LT, have been run for the four seasons and two TOUs) the CAISO will open up the auction for all four seasons with the respective seasonal allocated CRRs for the three tiers of the annual/seasonal allocation (excluding tier LT) becoming “Fixed” for each season’s auction. The results of tier LT do not become fixed CRRs for the annual auction since the term for the awarded tier LT CRRs starts the following year. For years subsequent to CRR Year One the previous year’s Tier LT will be considered as fixed CRRs for the Simultaneous Feasibility Test (SFT).

### **8.3 Available CRR Capacity**

CAISO makes available 75% of Seasonal Available CRR Capacity for the annual CRR Allocation and CRR Auction processes, 60% of the Seasonal Available CRR Capacity in Tier LT, and 100% of Monthly Available CRR Capacity for the monthly CRR Allocation and CRR Auction processes (See CAISO Tariff § 36.4.1). The percentages noted above are also applied to the Operating Transfer Capability values to be used for each of the Scheduling Points.

An additional adjustment to the available capacity at Scheduling Points is determined in accordance with CAISO Tariff § 36.8.4.2, for the purposes of the CRR Allocation and CRR Auction of CRRs that have a CRR Source identified at a Scheduling Point.

In the annual or monthly CRR Allocation and CRR Auction processes, the CAISO will account for any Merchant Transmission CRRs (see Section 14 of this BPM) as Fixed CRRs on the DC CRR FNM that is used in the SFT for the CRR Allocation and CRR Auction (see Attachment B).

For the purpose of the annual CRR Allocation and CRR Auction, CAISO assumes all transmission facilities, within the CAISO Controlled Grid, are in service unless CAISO is aware of a major outage that is scheduled for a long portion of one or more of the seasons in the annual process. If the outage is deemed to be significant then the CAISO may choose to reduce the operating limit of the facility or to take the facility completely out of service.

### **8.4 Scheduling Point Residual Set-Aside Process Following CRR Year One**

In the annual CRR processes following CRR Year One, there are no special provisions regarding CRR Sources at Scheduling Points in tiers 1 and 2. Although, for tier 3, CAISO sets aside 50% of the import capacity at each Scheduling Point that remains after the tier 1, tier 2 and Tier LT allocations (see CAISO Tariff § 36.8.4.2.2). Similarly, for the monthly CRR Allocation processes subsequent to CRR Year One, there are no special provisions in tier 1. Although, in tier 2, CAISO sets aside 50% of the import capacity that remains at each Scheduling Point after accounting for the annual CRR Allocation (including any applicable Tier

LT results) and CRR Auction results affecting that month and tier 1 of the monthly CRR Allocation.

## **8.5 Priority Nomination Process for Years after CRR Year One**

The Priority Nomination Process (PNP) provides a means for AEEs that participated in the CRR Allocation for CRR Year One to re-acquire in subsequent years the CRRs that were allocated to them in CRR Year One (See CAISO Tariff § 36.8.3.5.1). The PNP is used in tier 1 for each of the annual CRR Allocations after CRR Year One. The SFT for tier 1 of all annual CRR Allocations beyond CRR Year One only includes those CRRs previously allocated to AEEs during the previous annual CRR Allocation, subject to the limitations as noted in CAISO Tariff § 36.8.3.5.1, tier – 1 Priority Nomination Process. Tiers 2 and 3 are non-verified tiers, meaning that AEEs can request from any source, up to the limit of their eligible quantity for that tier.

## **8.6 Load Migration Reflected in Annual Allocation Process**

An AEE that loses or gains net Demand through Load migration in any year has its Seasonal CRR Eligible Quantities in the next annual CRR Allocation reduced or increased in proportion to the net Demand lost or gained (See CAISO Tariff § 36.8.3.5.1). In addition, an AEE who loses Demand through Load migration in any year has its PNP eligible quantities reduced in proportion to the gross amount of Demand lost through Load migration. This reduction in PNP eligible quantities is applied as a constant percentage to all CRRs that were allocated to that AEE in the prior annual CRR Allocation.

There is no increase in an AEE's PNP eligible quantities due to an increase in Demand from Load migration. The Demand-gaining AEE may acquire additional CRRs for net Demand gained in tiers 2 and 3 of the subsequent annual CRR Allocation. CAISO reserves CRRs in the annual PNP corresponding to the CRRs released by AEEs that had PNP eligible quantities that were reduced, and then releases these CRRs for tiers 2 and 3. The Demand-gaining AEE is not required to request the precise CRRs released by the relevant Demand-losing AEE but can nominate its preferred CRRs in tiers 2 and 3.

## **8.7 Mid-Year Adjustments to Seasonal CRR Holdings to Account for Load Migration**

CAISO Tariff § 36.8.5.2.1, Mid-Year Adjustments in Seasonal CRR Holdings

This process is still being worked out in a stakeholder process.



## 8.8 Priority Weights for Multi-Point Nominations

There are two types of CRRs that may be nominated: a Point-to-Point (PTP) and Multi-Point (MPT). The MPT CRR can have multiple CRR Sources and multiple Sinks but for the allocation process the MPT CRR can only have one sink (See CAISO Tariff § 36.2.4). The CRR participant, when entering their MPT nomination will provide the priority associated with the CRR Sources. For the CRR Allocation process when using the MPT the CRR system will assign priority weights for the allocation nominations based on the priorities provided by the AEE. A MPT CRR can have two priority CRR Source nominations, a primary source and a secondary or back-up source. The weights for the CRR Source and CRR Sink components of the PTP and MPT CRR nominations are listed below:

MPT CRR Sink weight 10,000

MPT CRR primary source weight = 0.01

MPT CRR secondary source weight = 9,999

The PTP weight is equal to MPT CRR Sink - MPT CRR primary.

If a PTP CRR competes with a MPT CRR with a primary source (assume same effectiveness on an overloaded constraint) and there is no secondary source, both nominations are reduced prorata based on nominated MW value. If the MPT has a secondary source, but the secondary source is contributing positively to the overload, the MPT and PTP are reduced pro-rata. However, if there is a secondary source, which does not positively contribute to the overload, then the PTP wins and the MPT's secondary source is used to balance with the MPT sink as much as possible. This happens because the objective function is larger by using the PTP and the MPT's secondary source as compared to just using the PTP and the MPT's primary source.

## 9. Annual CRR Auction

In this section you will find the following information:

- How bids are submitted for the annual CRR Auction
- What creditworthiness requirements apply to the submission of bids
- What is the impact of holding CRRs on collateral requirements

### 9.1 Annual Auction Overview

The annual CRR Auction process takes place after the four-tiered annual CRR Allocation process. Any Candidate CRR Holder or CRR Holder may participate in the CRR Auction subject to the creditworthiness requirements under the CAISO Tariff (See CAISO Tariff §§ 36.5, 36.13.3, and 12). Candidate CRR Holders or CRR Holders interested in the annual CRR Auction may submit bids, once the market is opened, via the CRR MUI to the extent that they do not exceed their posted collateral. This collateral may be posted specifically for both bidding in the CRR Auctions and holding CRRs or may be supported from a Candidate CRR Holder's overall Financial Security (see the CAISO Credit Policy & Procedures Guide). A Candidate CRR Holder may choose to use its excess collateral as calculated below or may choose to post collateral solely for the purpose of participating in the CRR Auction.

Participants wanting to submit bids in the CRR Auction must ensure that they have the desired collateral amount posted with the CAISO Finance Department at least seven business days prior to the CRR Auction market opening. For an explanation of how the CRR system calculates the exposure for CRR Auction bids please refer to Attachment C, Maximum Purchase Amount Calculation Examples.

For purposes of the CRR Auction collateral values, the CRR team obtains from the CAISO Finance Department on a weekly basis the Aggregate Credit Limit for every entity that has completed the registration process for becoming a Candidate CRR Holder and populates the CRR system. The formula for calculating the Aggregate Credit Limit is as follows:

Posted Collateral – Estimated Aggregate Liability = Aggregate Credit Limit available for the CRR Auction

Any Market Participant (MP) wishing to participate in the CRR Auction must complete the registration process in advance of any CRR market in which they want to participate. The complete registration process is detailed in the CRR for Candidate CRR Holder Registration, which can be found at: <http://caiso.com/1bb4/1bb4745611d10.html>. Once an entity has

successfully registered and fulfilled all the requirements, they become a Candidate CRR Holder. An entity that is already a CRR Holder is not required to go through the registration process again to participate in the CRR Auction, but is still subject to the creditworthiness requirements in CAISO Tariff § 12. For collateral purposes, the Candidate CRR Holder or CRR Holder works with its Client Representative to determine its Aggregate Credit Limit and posts additional collateral with CAISO if desired. The CRR team then works with the Finance Department, as noted above, to ensure that the collateral value is collected and made available for the CRR Auction.

Once the bid submittal period is over, CAISO runs the SFT and optimization (see Attachment B) and returns results to the CRR Holders via the CRR MUI. CAISO publishes a detailed timeline for the annual CRR Allocation and CRR Auction processes 30 days prior to the beginning of the CRR Allocation and Auction process.

## 9.2 CRR Source & Sink Location for the Auction Process

Allowable CRR Sources and Sinks in the CRR Auction process are Generating Unit PNodes, Scheduling Points, Trading Hubs, LAPs, MSS-LAPs, and Sub-LAPs as noted in the exhibit below (See CAISO Tariff § 36.13.5).

**Exhibit 9-1: Allowable CRR Auction Sources & Sinks**

| CRR Sources            | CRR Sinks              |
|------------------------|------------------------|
| Generating Unit PNodes | Generating Unit PNodes |
| Trading Hubs           | Trading Hubs           |
| LAPs                   | LAPs                   |
| MSS-LAPs               | MSS-LAPs               |
| Sub-LAPs               | Sub-LAPs               |
| Scheduling Points      | Scheduling Points      |

## 9.3 CRR Bids Submission

Bids to purchase CRRs via the CRR Auction must be submitted as described below. Once submitted to CAISO, CRR bids may not be withdrawn after the submission window has closed. The CAISO will notify auction participants when the open and close dates are for each auction market. Candidate CRR Holders or CRR Holders may bid for both Point-to-Point CRRs and Multi-Point CRRs (See CAISO Tariff § 36.13.4).

Each bid for a Point-to-Point CRR must specify the following information:

- The associated season and time-of-use period
- The associated CRR Source and CRR Sink
- 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 must specify the following information:

- The associated season and time-of-use period
- The associated CRR Sources and CRR Sinks
- For each CRR Source, a monotonically non-decreasing piecewise linear bid curve in quantities (denominated in tenths of MW) and prices (\$/MW)
- For each CRR Sink, a monotonically non-increasing piecewise linear bid curve in quantities (denominated in tenths of MW) and prices (\$/MW)

Submitted CRR bid prices may be negative.

## 10. Monthly CRR Allocation

In this section you will find the following information:

- The time line for the monthly Allocation process
- How the Monthly Available CRR Capacity is calculated
- How is an AEE's Monthly CRR Eligible Quantity determined

### 10.1 Monthly CRR Load Metric & CRR Eligible Quantity

The monthly CRR Allocation process is similar to the annual CRR Allocation process. Each month CAISO uses the AEE's monthly Demand Forecast submitted through the CRR MUI 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 AEE serves Demand or the applicable Scheduling Point for a Qualified OCALSE. The Monthly CRR Load Metric is the MW level of Load that is exceeded only in 0.5% of the hours based on the AEE's submitted Demand Forecast or the Qualified OCALSE's historical Real-Time Interchange Export Schedules. CAISO calculates an AEE's Monthly CRR Eligible Quantity by subtracting from that AEE's Monthly CRR Load Metric the quantity of Load served by TORs, ETCs or CVRs (See CAISO Tariff § 36.8.2.2). The CAISO then takes the Monthly CRR Eligible Quantity and reduces it by any Seasonal CRRs allocated in the annual CRR Allocation and, for years beyond CRR Year One, any holdings of Long Term CRRs allocated in prior years that are valid for the month and time of use of the CRRs being nominated (See CAISO Tariff §§ 36.8.3.2 and 36.8.3.6).

The Monthly CRR Eligible Quantity is the starting point for calculating an AEE's nomination limit. In tier 1, AEEs may submit nomination requests up to 50% of the difference between their Monthly CRR Eligible Quantity and the quantity of Seasonal and Long Term CRRs they were allocated for the respective month (See CAISO Tariff §§ 36.8.3.2.a. and 36.8.3.6.a.). For tier 2 they may submit nomination requests up to 100% of the difference between their Monthly CRR Eligible Quantity and the quantity of Seasonal and Long Term CRRs they were allocated for the respective month less the quantity of CRRs awarded in tier 1 (See CAISO Tariff §§ 36.8.3.2.b. and 36.8.3.6.b.). The Monthly CRR Eligible Quantity is also adjusted downward for transmission rights (TOR, ETC and CVR) as in the annual process (See CAISO Tariff § 36.8.2.2).

Tier 1 CRR nomination submittals are verified for the CRR Source and CRR Sink Location and MW values when nominations are submitted via the MUI and targeted to an allocation market.

In tier 2, the verification for CRR Source Location and MW value is relaxed but verification for CRR Sink Location and MW values remain.

### 10.1.1 Monthly CRR Eligible Quantity Beyond CRR Year One

See the example below on how the Monthly CRR Eligible Quantity is calculated for a month beyond CRR Year One. To illustrate how Tier LT results can impact the Monthly CRR Eligible Quantity calculation we will assume the same values from the 2008 annual CRR Allocation example from section 8.2.2 of this BPM cleared for the 2009 annual CRR Allocation. The values to be used in this example for the final 2009 season 1/on peak results are as listed below for a total of 355MW cleared in the 2009 season1/on peak allocation:

- Gen1            150MW
- SP1             55MW
- TH1             65MW
- Gen2            65MW
- SP2             20MW

In this example assume the following:

- The monthly process is for February 2009.
- In all monthly processes subsequent to CRR Year One there is no CRR Source verification but there is CRR Sink verification
- The forecasted load generated a Monthly CRR Load Metric of 520MW.
- The Tier LT allocation process that was done in 2008 awarded Long Term CRRs for 2009 out. Since the monthly allocation process that is being assumed in this example is for February 2009, the cleared Tier LT CRRs will reduce the Monthly CRR Eligible Quantity. In tier LT this AEE had 50MW of CRRs allocated for season 1/on peak for the next nine years. These awarded Long Term CRRs will be used to reduce the Monthly CRR Eligible Quantity.
- This AEE does not have any Load served by TORs, ETC or CVRs.

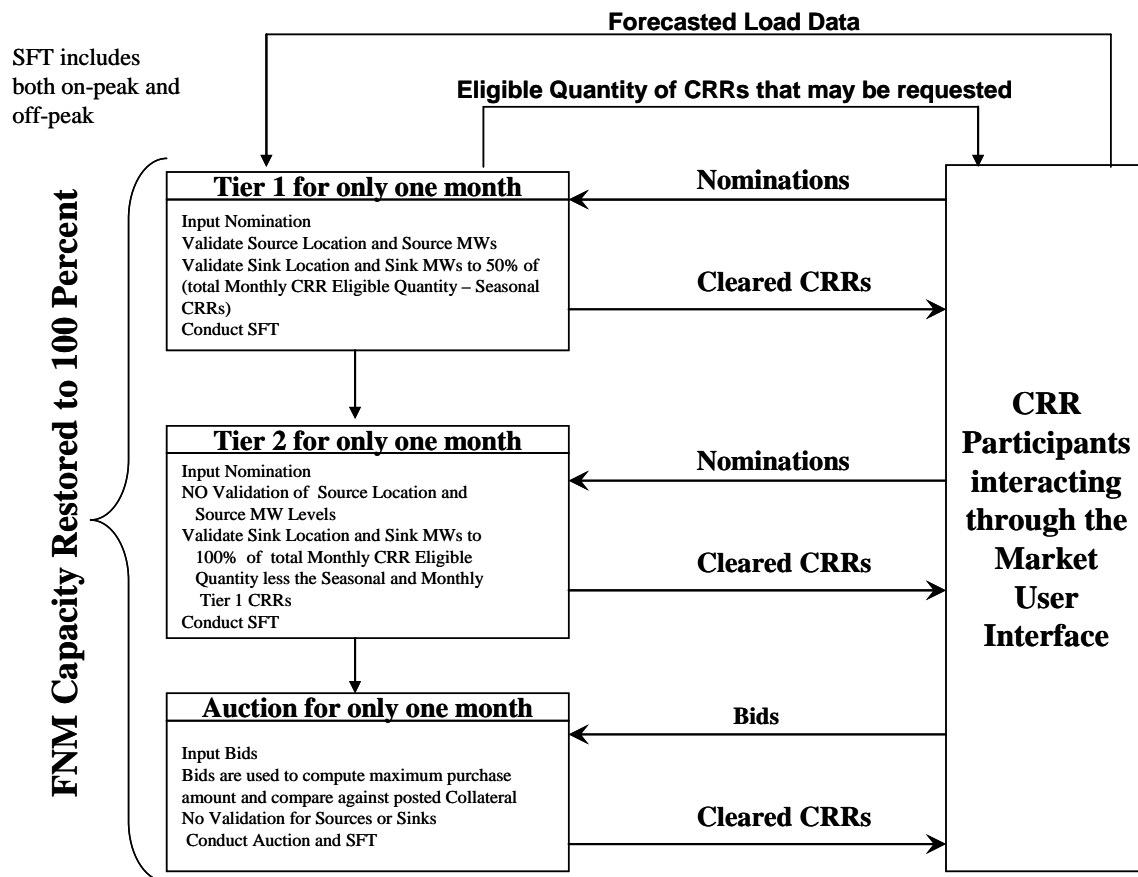
From the above information the first step would be to start with the Monthly CRR Load Metric of 520MW, remove the cleared seasonal CRRs from season 1/on peak of 355MW and also

subtract the cleared Long Term CRRs for season 1/on peak of 50MW. This leaves the AEE with a Monthly CRR Eligible Quantity of 115MW. Of the 115MW 50% can be nominated in tier 1 of the monthly CRR Allocation process for February 2009.

## 10.2 Timing of Tiers

Exhibit 10-1 below presents the process for the monthly CRR Allocation and CRR Auction. CAISO publishes a detailed timeline for the monthly CRR Allocation and CRR Auction processes 30 days prior to opening a market.

Exhibit 10-1: Monthly CRR Allocation and CRR Auction Process



## 10.3 Incorporation of Transmission Outages

For the purpose of the monthly CRR Allocation and CRR Auction, CAISO works with Outage Coordination Operations Engineering to review proposed Outages to determine which Outages



should be reflected in the network model<sup>7</sup>. The modeling of these Outages for the monthly allocation can have a significant impact on CAISO being able to maintain revenue adequacy for the CRR Holders.

It is possible for Outages modeled in the monthly allocation to render previously awarded CRRs infeasible. When this occurs, a special feature in the CRR system called "soft limits" functionality can be activated. This functionality will increase the limits on any constraints that are overloaded as a result of the transmission outages such that all the previously awarded CRRs will be feasible. The act of changing operating limits like this is a factor that could contribute to but does not necessarily mean a possible revenue inadequate condition (See CAISO Tariff §§ 36.4.2).

## **10.4 Available Capacity at Scheduling Points**

CAISO Tariff § 36.4.1, Transmission Capacity Available for CRR Allocation and CRR Auction

### **10.4.1 Monthly Scheduling Point Residual Set Aside in CRR Year One**

For the monthly CRR Allocation and CRR Auction, CAISO makes available 100% of the Monthly Available CRR Capacity after making the adjustments noted below (See CAISO Tariff § 36.4.1).

The Monthly Available CRR Capacity at a Scheduling Point is the OTC value adjusted for monthly outages and derates and any relevant TOR on that particular Scheduling Point. Starting with this adjusted OTC, for each of the monthly CRR Allocation processes, as part of the process for verification of CRR Source locations at Scheduling Points, there is a sub-process that calculates the residual capacity on each of the Scheduling Points. The residual value is calculated by starting with the respective Operating Transfer Capability (OTC) at the Scheduling Point and reducing it by the capacity associated with TOR, ETC, CVR and verified monthly Scheduling Point CRR Source submissions and the annual CRR Allocation and CRR Auction results for the respective month. Part of the reduction due to the cleared CRRs from the annual CRR Allocation process will include those CRRs cleared during Tier LT. Once the residual value is determined the CAISO will distribute 50% of the residual value at each Scheduling Point to all AEEs participating in the allocation based on their respective Monthly CRR Eligible Quantities and the remaining 50% will be reserved for the monthly CRR Auction process (See CAISO Tariff § 36.8.4.2.1).

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<sup>7</sup> The CRR Team confers on a regular basis with ISO Outage Coordination and Operations Engineers to review proposed scheduled outages. These reviews include discussions on the expected location and duration of these outages and leads to a determination as to which lines may be taken out of service in the full network model for purposes of the CRR Allocation and Auction process.

### **10.4.2 Monthly Scheduling Point Residual Subsequent to CRR Year One**

For the monthly CRR Allocation processes for import CRRs (i.e., CRRs at Scheduling Points) in months after CRR Year One, the calculation of the residual value set aside takes place after tier one of each monthly CRR Allocation. After tier 1 of the monthly CRR Allocation the CAISO will calculate and set aside for the monthly CRR Auction 50% of the residual capacity at the Scheduling Points. The residual value set aside calculation will take into consideration any annual allocated or auctioned CRRs and Long Term CRRs that are valid for the respective month and time-of-use period as well as the results of tier 1 of the monthly CRR Allocation (See CAISO Tariff § 36.8.4.2.2).

### **10.5 Monthly Allocations Beyond CRR Year One**

Monthly CRR Allocations for years beyond CRR Year One are identical to monthly CRR Allocations for CRR Year One with the exception that there is no longer any verification process done (See CAISO Tariff § 36.8.3.6).

### **10.6 Load Migration**

An AEE that loses or gains net Demand through Load migration must reflect that loss or gain in the monthly Demand Forecasts it submits to CAISO for determining its monthly CRR Eligible Quantities for future monthly CRR Allocations. This process is still having stakeholder discussions and the CRR BPM will be updated at a later date.

## 11. Monthly CRR Auction

In this section you will find the following information:

- How bids are submitted for the monthly CRR Auction
- What creditworthiness requirements apply to the submission of bids

### 11.1 Monthly CRR Auction Overview

The monthly CRR Auction process takes place after the two-tiered monthly CRR Allocation process. Any Candidate CRR Holder or CRR Holder may participate in the monthly CRR Auction subject to the creditworthiness requirements under the CAISO Tariff (See CAISO Tariff §§ 36.5, 36.13.3, and 12). An entity that is already a CRR Holder is not required to go through the registration process again to participate in the CRR Auction, but is still subject to the creditworthiness requirements in CAISO Tariff § 12. Candidate CRR Holders interested in the monthly CRR Auction may submit bids, once the market is opened, via the CRR MUI to the extent that they do not exceed their Aggregate Credit Limit. The collateral amount used in the CRR Auction may be posted specifically for bidding in the CRR Auctions and holding CRRs or may be supported from a Candidate CRR Holder's overall Financial Security, as reflected in the entity's Aggregate Credit Limit (see the CAISO Credit Policy & Procedures Guide).

Once the bid submittal period is over, CAISO closes the market and runs the SFT and optimization and returns results to the CRR Holders via the CRR MUI. CAISO publishes a detailed timeline for the monthly CRR Allocation and CRR Auction processes 30 days prior to opening a market.

The allowable CRR Sources and CRR Sinks in the CRR Auction process are Generator PNodes, Scheduling Points, Trading Hubs, LAPs, MSS-LAPs, and Sub-LAPs (see Exhibit 9-1).

### 11.2 CRR Bid Submission

Bids to purchase CRRs via the CRR Auction must be submitted as described below. Once submitted to CAISO, the Candidate CRR Holder may not withdraw the CRR bids after the CRR Auction submission window is closed. Candidate CRR Holders may bid for both Point-to-Point CRR Obligations and Multi-Point CRR Obligations (See CAISO Tariff § 36.13.4).

Each bid for a Point-to-Point CRR must specify the following information:

- The associated month and time-of-use period

- The associated CRR Source and CRR Sink
- 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 must specify the following information:

- The associated month and time-of-use period
- The associated CRR Sources and CRR Sinks
- For each CRR Source, a monotonically non-decreasing piecewise linear bid curve in quantities (denominated in tenths of MW) and prices (\$/MW)
- For each CRR Sink, a monotonically non-increasing piecewise linear bid curve in quantities (denominated in tenths of MW) and prices (\$/MW)

Bid prices in all CRR bids may be negative.

## 12. CRR Allocations to Out-of-Control Area Load Serving Entities (OCALSEs)

In this section you will find the following information:

- CRR eligibility requirements for OCALSEs
- CRR Source and CRR Sink verification information
- Responsibility for prepaying the Wheeling Access Charge

### 12.1 Requirements for OCALSEs

OCALSEs can participate in the annual and monthly CRR Allocation processes subject to the following conditions:

- The OCALSE makes a showing of legitimate need by demonstrating ownership of or contract with a Generating Unit PNode internal to the CAISO Control Area (See CAISO Tariff § 36.9.1).
- For CRRs sources at Scheduling Points, the OCALSE demonstrates that the generating resources located outside of the CAISO Control Area that is used for imports are not in the OCALSE's own control area; and further complies with the source verification rules that apply to all AEEs in CRR Year One for nominations at Scheduling points as provided in section 6.3.3 of this BPM and further detailed in CAISO Tariff §§ 36.8.4.2 and 36.8.3.4 (See CAISO Tariff §§ 36.9.1).
- On an annual basis, the OCALSE demonstrates that it has obtained firm transmission rights pursuant to the tariffs of intervening transmission providers between the CAISO Control Area and the location of the OCALSE's Load (See CAISO Tariff § 36.9.1).
- The OCALSE prepays the appropriate Wheeling Access Charge as described in Section 12.3 of this BPM and in CAISO Tariff § 36.9.2 .
- The external Load for which CRRs are nominated is not served through a TOR, ETC or CVR that has been designated as eligible to receive the reversal of Congestion Charges.

## 12.2 Verification Process for OCALSEs

The verification process for demand external to the CAISO Control Area is similar to the verification process described in Section 6 of this BPM but has some unique aspects that are described below.

### 12.2.1 Source Location Verification

For entities serving Load external to the CAISO Control Area that meet the requirements listed in Section 12.1 of this BPM, the eligible CRR Source locations can be either Generating Unit PNodes located within the CAISO Control Area that were owned or contracted for or generating resources located outside of the CAISO Control Area that use Scheduling Points to import this Energy into the CAISO Control Area. For internal Generating Units to be used as verified sources the determination of legitimate need will be based on demonstration by the OCALSE of an Energy contract from a Generating Unit that covers the time period for which the CRRs are being nominated. Scheduling Points, associated with the import of Energy from a generating resource located outside of the CAISO Control Area will also be allowed as eligible CRR Source locations for nominating seasonal and monthly CRRs, subject to the same source verification rules applicable to internal LSEs as described in CAISO Tariff § 36.8.4.2 and section 6.3.4.3 of this BPM. In addition, generation resources used for verification of Scheduling Points as CRR Sources for Qualified OCALSEs may not be in the OCALSE's control area (See CAISO Tariff § 36.9.1). Scheduling Points will not be allowed as verified sources for the Long Term allocation. Trading Hubs are not an allowable source for OCALSEs (See CAISO Tariff §§ 36.8.3.1.1, 36.8.3.1.2, and 36.8.3.1.3).

Source verification, for OCALSEs, is done for all tiers of the annual CRR Allocation process in all years.

### 12.2.2 Source MW Verification

As it is for internal LSEs the verified source MW amount is derived from the PMax of the Generating Unit, if it is owned, or from the contract value that the OCALSE intends to nominate as the CRR Source. For the annual allocation process the source MW amount is limited to 75% of the Generating Unit PNode's PMax if the unit is owned by the OCALSE or otherwise to 75% of the contract value for that Generating Unit PNode (See CAISO Tariff §§ 36.9.1, 36.8.4 and 36.8.3.4). For Generating Units the source verification is based on projected usage. For CRR Year One for verified sources at Scheduling Points the OCALSE must demonstrate it owned or was party to a contract with a System Resource and that it had acquired transmission to deliver to the Scheduling Point being requested as a verified source location (See CAISO Tariff §§ 36.9.1 and 36.8.4.2.1). The contract at the Scheduling Point must be for a minimum 30 day

duration and may be subject to the same adjustment rules as described in section 6.3.4.4 of this BPM.

### **12.2.3 CRR Sink Location Verification**

The eligible CRR Sink Locations are Scheduling Points that the entity historically used to serve its load. To verify a CRR Sink Location, the historical hourly export values will be based on the tagged Real-Time Interchange Export Schedules for the OCALSE at that particular Scheduling Point (See CAISO Tariff § 36.9.3). The historical period for purpose of the CRR Sink Location verification process is the same period as described in CAISO Tariff § 36.8.2.

### **12.2.4 CRR Sink MW Verification**

For the purpose of determining the Seasonal and Monthly CRR Eligible Quantities, the entity must submit two sets of data. The annual CRR Allocation process will use the total historical hourly export values, described above in section 12.2.3 of this BPM, from the prior year to derive the OCALSE's Seasonal CRR Eligible Quantity and historical export values for the forecasted month to derive the OCALSE's Monthly CRR Eligible Quantity. In addition, the OCALSE will need to submit the prior year's historical or monthly forecasted (depending upon whether it is for the annual or monthly allocation process) hourly metered/forecasted load data for its end-use customers that were exposed to Congestion Charges for use of the CAISO Grid. This data will be submitted using the CRR MUI. From this data, the CRR system constructs a usage curve for each season or month and time of use and selects the MW level that is exceeded in 0.5% of the hours. The OCALSE's Seasonal and Monthly CRR Eligible Quantities will be based on the lesser of (1) the total historical hourly export data for all Scheduling Points submitted as CRR Sinks and (2) the hourly metered Load for the external end-use customers served by the OCALSE that were exposed to CAISO Congestion Charges (See CAISO Tariff § 36.8.2). The lesser of these two values is the external entity's Seasonal or Monthly CRR Load Metric. From this amount, CAISO subtracts any load served by TOR, ETC or CVR to derive the Seasonal or Monthly CRR Eligible Quantity. The Monthly CRR Load Metric would also be adjusted by subtracting any CRRs cleared in the annual allocation process.

## **12.3 Calculation of Prepayment of Wheeling Access Charge**

Out-of-Control Area Load Serving Entities (OCALSEs) are required to prepay the relevant Wheeling Access Charges (WACs) in order to participate in the CRR Allocation processes and be eligible to receive allocated CRRs (See CAISO Tariff § 36.9.2). For each MW of CRR nominated, the nominating entity must prepay one MW of the relevant WAC, which equals the per-MWh WAC that is expected (at the time the CRR Allocation process is conducted) to be applicable for the period of the CRR times the number of hours comprising the period of the

CRR. Pursuant to CAISO Tariff § 36.9.2 an OCALSE that is creditworthy under the requirements of CAISO Tariff § 12 may elect to prepay WAC on a monthly basis for the Seasonal CRRs they seek to be allocated. The OCALSE will need to demonstrate a commitment to pay for the entire term prior to each month by submitting to the CAISO a written sworn statement to this effect.

To the extent that an entity prepays a quantity of the WAC and is not allocated the full amount of CRRs nominated, WAC prepayment for CRRs not allocated is refunded by CAISO within a reasonable time following the completion of the relevant CRR Allocation process.

An OCALSE that wants to request Long Term CRRs will be required to prepay the associated WAC for the full ten year term of the CRRs being nominated prior to participating in the allocation. Pursuant to CAISO Tariff § 36.9.2 an OCALSE that is creditworthy under the requirements of CAISO Tariff § 12 may elect to prepay WAC on an annual basis for the Long Term CRRs they seek to be allocated. The OCALSE will need to demonstrate a commitment to pay for the entire term prior to the beginning of each annual period by submitting to the CAISO a written sworn statement to this effect.



## 13. Secondary Registration System

In this section you will find the following information:

- How the Secondary Registration System operates

### 13.1 SRS Overview

CAISO provides for registered Candidate CRR Holders and CRR Holders a Secondary Registration System (SRS) to facilitate and track the CRR bilateral transactions that occur between CRR Holders. The SRS is a subsystem within the CRR system.

Using the SRS, a CRR Holder may transfer ownership of CRRs to any entity eligible to be a CRR Holder. Transfers must be for at least a full day term consistent with the on-peak or off-peak specification of the CRR and must be in increments of at least a tenth of a MW. The entity receiving the CRRs may be any entity eligible to be a CRR Holder. All CRRs that are traded continue to be subject to the relevant terms and conditions set forth in the CAISO Tariff and relevant BPMs (See CAISO Tariff § 36.7).

The SRS also enables any entity that specifically wishes to purchase or sell CRRs to post information describing those CRRs. The information that will be posted includes a description of the CRR for purchase or sale (CRR Source, CRR Sink, MW value, duration, time of use) and the price. It also includes a place to put contact information.

Who the owners of CRRs are is public information and this information is available on the CAISO OASIS website.

### 13.2 SRS Business Rules

#### CAISO Tariff § 36.7.3, CRR Holder Reporting Requirement

CRR Holders must report to CAISO, by way of the SRS, all bilateral CRR transactions. Both the transferor and the transferee of the CRRs must register the transfer of the CRR with CAISO using the SRS at least five business days prior to the effective date of transfer of revenues associated with a CRR. CRRs can be traded on a daily, TOU (on and off-peak) basis in increments as small as a tenth of a MW. CRRs cannot be traded on an hourly basis. A CRR Holder could, for example, trade a CRR for January 22<sup>nd</sup>, On-Peak but could not trade just HE10 through HE16 of that day.

CAISO does not assess any CRR Settlement charges or make any CRR Settlement payments with any entity other than the CRR Holder of record until the CRR transfer is successfully

recorded through the SRS and the transferee meets all the creditworthiness requirements specified in CAISO Tariff § 12.

Both the transferor and transferee must submit the following information to the SRS:

- The effective start and end dates of the transfer of the CRR
- The identity of the transferor
- The identity of the transferee
- The quantity of CRRs being transferred
- The CRR Sources and CRR Sinks of the CRRs being transferred
- The time of use period of the CRR

The transferee must meet all requirements of CRR Holders, including disclosure to CAISO of all entities with which the transferee is affiliated that are CRR Holders or Market Participants (See CAISO Tariff § 36.7.3). As part of the CRR registration process all entities complete and submit a CRR Holder Affiliate form (which is included in the registration document on the CAISO Website) located at

<http://caiso.com/1bb4/1bb4745611d10.html>.

### 13.2.1 Creditworthiness in SRS

The SRS portion of the CRR system is provided to facilitate the buying and selling of CRRs acquired through the CRR Allocation or CRR Auction. Within the SRS there is a functionality that performs a creditworthiness check of all SRS trades to ensure that the receiving party of the transaction has sufficient collateral to cover the ownership of the CRR. The value associated with the CRRs being traded, to be used for this creditworthiness review, is currently being developed by the CAISO and its stakeholders. A proposal was submitted to the CAISO Board of Governors on May 30<sup>th</sup> and a copy of the presentation on the proposed methodology is available for review at <http://caiso.com/1bee/1bee89542ba20.pdf>. Further details on the CRR credit proposal can be found at <http://caiso.com/1be6/1be6b6a320da12.pdf>. If the projected value of the CRR is negative, meaning that the expected revenue stream is negative and the CRR Holder would be expected to owe CAISO for holding that CRR, then the new CRR Holder needs to have sufficient collateral posted with CAISO to cover the term of the CRR. If sufficient collateral is available then the trade is confirmed. If there is not sufficient collateral, the trade is rejected until such time as the entity can post the additional required collateral. For Long Term CRRs the CRR Holder may sell or transfer only the term corresponding to the current calendar year as well as the calendar year covered by the most recently completed annual CRR Allocation.

### **13.2.2 SRS Trades for CRR Year One Prior to First Annual Auction**

Since the CAISO will not have available, immediately after the first allocation process, prices on which to evaluate the net projected value of the CRRs traded bilaterally, the CAISO will not be able to perform the creditworthiness check discussed above in the SRS and therefore will not be able to allow any SRS trades until later when the CRR Auction will produce market clearing prices.

## **14. Merchant Transmission Upgrades**

### **14.1 Merchant Transmission Sponsor**

The Project Sponsor of a Merchant Transmission Facility will be eligible for Merchant Transmission CRRs only if such entity has turned such facilities over to the CAISO and has elected not to recover costs of its investment on that specific transmission upgrade through the CAISO's transmission access charges or other regulatory cost recovery mechanism (See CAISO Tariff § 36.11).

### **14.2 Merchant Transmission CRRs**

Listed below are the basic characteristics of the Merchant Transmission CRR:

- The duration of the Merchant Transmission CRRs will be for 30 years or the pre-specified intended life of the facility, whichever is less.
- A Project Sponsor of a Merchant Transmission Facility may elect Merchant Transmission CRRs as either option CRRs or obligation CRRs or a combination of both.
- The quantity and CRR Source-Sink pattern of Merchant Transmission CRRs allocated to the Project Sponsor for a Merchant Transmission Facility will be commensurate with the transfer capacity that the project adds to the CAISO Controlled Grid, as determined by the process and methodology proposed in CAISO Tariff § 36.11 and further described in this section 14.
- The Project Sponsor of a Merchant Transmission Facility's entitlement to Merchant Transmission CRRs will begin when the Merchant Transmission Facility has been energized and operational control has been turned over to the CAISO.

### **14.3 Process and Methodology for Determining Merchant Transmission CRRs**

The CAISO proposes to follow a three-step process that compares the CRRs that are feasible on the network model before the Merchant Transmission Facility with the incremental CRRs that are feasible after the Merchant Transmission Facility.

#### **14.3.1 Step 1: The Capability of the Existing Transmission System**

In Step 1 the CAISO determines the CRRs that the Project Sponsor for the Merchant Transmission Facility would not be eligible to be awarded as a result of its upgrade.

The CAISO would begin with a Full Network Model that does not include the Merchant Transmission Facility, but includes all adjustments for Transmission Ownership Rights (TORs), and any Merchant Transmission Facility for which Merchant Transmission CRRs were previously allocated. The CAISO would apply to this model all encumbrances on the system including previously released short-term and Long Term CRRs, Existing Transmission Contracts [ETCs] and Converted Rights [CVRs], which would be modeled as Fixed CRRs. These Fixed CRRs should be feasible for this CRR model.

The Project Sponsor for the Merchant Transmission Facility would be allowed to submit, at one time, up to five Merchant Transmission CRR nominations specifying the source, sink and number of megawatts of incremental CRRs that it would like to receive for its upgrade. The CAISO would add the nominated Merchant Transmission CRRs to the set of Fixed CRRs already modeled on the FNM but, in doing so, would replace the nominated MW quantity of each nominated Merchant Transmission CRR with a large, positive quantity. These quantities, for each source/sink Merchant Transmission CRR nomination, will be large enough to cause infeasibility when these CRRs are applied to the CRR model.

The CAISO would next perform an optimization subject to a simultaneous feasibility test to determine the quantity of each nominated Merchant Transmission CRR that is feasible on the transmission grid (FNM) prior to including the Merchant Transmission Facility in the FNM. Since the Merchant Transmission CRR nominations are the only control variables in this optimization/SFT process, the nominated CRRs will be reduced to obtain feasibility. These cleared CRRs will be termed "Capacity CRRs" and will be modeled as additional fixed CRRs on the FNM that does not include the MT Facility.

### **14.3.2 Step Two: Mitigation of Impacts on Existing Encumbrances**

This step will ensure that the addition of the Merchant Transmission Facility does not negatively impact any existing encumbrances through the end of the term for which the annual CRR Allocation and CRR Auction processes have already been conducted; including the most recently completed monthly CRR Allocation and CRR Auction processes. The CAISO will test the simultaneous feasibility of all the Fixed CRRs identified above by adding the proposed Merchant Transmission Facility to the DC FNM and run the SFT using the Fixed CRRs. This test is to ensure that the addition of the Merchant Transmission Facility does not negatively impact any of these other encumbrances. For any impacts identified in this step the Project Sponsor will be required to provide mitigation. This mitigation can include having the Project Sponsor hold counterflow CRRs that are necessary to maintain the feasibility of the existing encumbrances over the same period.

### **14.3.3 Step Three: Incremental Merchant Transmission CRRs**

This step will determine the incremental amount of CRRs that the Merchant Transmission Project Sponsor can be allocated as Merchant Transmission CRRs. The CAISO would add the Merchant Transmission Facility to the CRR FNM, and then apply to that CRR model the various Fixed CRRs identified above, including previously released short-term and Long Term CRRs, ETC, CVR and any previously allocated Merchant Transmission CRRs, plus the “Capacity CRRs” and any counterflow CRRs that were required as a result of the final test of Step two above. With this set-up the CAISO would apply the Merchant Transmission CRR nominations (the original source-sink pairs and MW quantities nominated by the Project Sponsor of the Merchant Transmission Facility) and would award to the Merchant Transmission Project Sponsor as many of these as clear the SFT. The CAISO will also ensure that the Merchant Transmission CRRs are also feasible absent all Fixed CRRs.

## **14.4 Existing Capacity that is Not Currently Used by CRRs**

Under the proposed methodology, the reservation of Capacity CRRs in Step 1 of the proposed three step allocation process for Merchant Transmission CRRs will ensure that any CRRs that the Merchant Transmission sponsor nominates that are feasible on the transmission grid prior to the Merchant Transmission upgrade will not be awarded to the Project Sponsor of the Merchant Transmission Facility as Merchant Transmission CRRs. The process for reserving Capacity CRRs is applied only to the Merchant Transmission CRRs that the Project Sponsor for the Merchant Transmission Facility nominates, however, it does not necessarily reserve all CRRs that might be feasible, unallocated and unauctioned for the existing transmission system. The allocation of Merchant Transmission CRRs may rest on transmission capacity that is not used by prior encumbrances (i.e., ETC, CVR, Long Term CRRs, auctioned seasonal and monthly CRRs, allocated seasonal and monthly CRRs) that exist at the time that the determination is made of the award of the Merchant Transmission CRRs. An important point is that any such “fallow” transmission capacity could have been obtained by any qualified participant in the last annual or monthly CRR auction. Thus, by definition, the transmission capacity that Merchant Transmission CRRs appropriate is transmission capacity that no market participant chose to buy at any price.

## **14.5 Timing of Allocation to Merchant Transmission Project Sponsors**

Pursuant to CAISO Tariff § 36.11.2, no less than 45 days prior to the in-service date of the Merchant Transmission Facility the Project Sponsor needs to notify the CAISO of the in-service date of the facility and that the Project Sponsor will be requesting Merchant Transmission CRRs associated with this facility. Since the process for the allocation of Merchant Transmission

CRRs will be completed after the in-service date of the facility the payment stream associated with those Merchant Transmission CRRs will be retroactive back to the in-service date.

## **Attachment A**

# **CRR TIME OF USE DEFINITION**

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## A. CRR Time of Use Definition

### CAISO Tariff § 36.3.3, On-Peak and Off-Peak Specifications

CRRs are defined either for on-peak or off-peak hours consistent with the WECC standards at the time of the relevant CRR Allocation or CRR Auction. The Time-of-Use definition is described as follows:

- For the normal weekdays, Monday to Saturday, the off-peak hours are the hours ending 1 through 6 and hour ending 23 and 24; the on-peak hours are the hours ending 7 through 22.
- Public holidays (listed in Exhibit A-1) and all Sundays are treated as off-peak. That is, all 24 hours are off-peak hours on these days.
- Based on NAESB Business Practices, Appendix A, which may be accessed using the following link:
  - [http://www.naesb.org/pdf2/weq\\_bklet\\_011505\\_iip\\_mc.pdf](http://www.naesb.org/pdf2/weq_bklet_011505_iip_mc.pdf)
  - If a public holiday falls on a Saturday, that Saturday is treated as a holiday (i.e., all 24 hours are off-peak hours)
  - If a public holiday falls on a Sunday, the following Monday is treated as a holiday, (i.e. all 24 hours are off-peak hours).
- Beginning in 2007 the start and end dates for Daylight Savings Time (DST) will change. DST will begin on the second Sunday of March and end the first Sunday of November.
- Hour ending 3 is excluded for the short day on March 9, 2008.
- Hour ending 25 is added for the long day on Nov 2, 2008.

#### ➤ Exhibit A-1: Public Holidays

| Summary of Public Holidays from<br>Feb 1 2008 to Jan 31 2009 |            |          |
|--|------------|----------|
| Holiday  | Date       | Day      |
| Memorial Day   | 5/26/2008  | Monday   |
| Independence Day   | 7/4/2008   | Friday   |
| Labor Day  | 9/1/2008   | Monday   |
| Thanksgiving Day   | 11/27/2008 | Thursday |
| Christmas Day  | 12/25/2008 | Thursday |
| New Year's Day   | 1/1/2009   | Thursday |

CAISO will post a yearly update on the CAISO website with an up to date definition of On and Off Peak.

## **Attachment B**

# **SIMULTANEOUS FEASIBILITY TEST**

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## B. Simultaneous Feasibility Test

### CAISO Tariff § 36.4.2, Simultaneous Feasibility

The annual and monthly CRR Allocation and CRR Auction processes release CRRs to fulfill CRR nominations and bids as fully as possible, subject to a Simultaneous Feasibility Test (SFT). For the CRR Allocation, to the extent that CRR nominations are not simultaneously feasible, the nominations are reduced in accordance with the CRR Allocation optimization formulation until simultaneous feasibility is achieved. For the CRR Auction, to the extent that bids are not simultaneously feasible, the bids are reduced in accordance with the CRR auction optimization formulation.

The main purpose for applying the SFT is to help ensure that the CRRs created through an allocation or auction process are revenue adequate. Revenue adequacy is the situation in which, over a given period, at least as much congestion revenue is collected by the CAISO than is paid out in CRR entitlements to the CRR Holders.

In the CRR Allocation process, the SFT is applied by modeling CRR Source nominations and CRR Sink nominations as injections and withdrawals, respectively, onto a Full Network Model (FNM). The location and amount of injection is based on the definition of the CRR Source in terms of its member Pricing Nodes (PNodes) and allocation factors<sup>8</sup>. The location and amount of withdrawal is based on the definition of the CRR Sink in terms of its member PNodes and allocation factors. The same process applies to the CRR Auction process. The application of the sources and sinks onto the FNM creates flows on operating constraints based on the nominated MW amount in the case of an allocation and the MW amount from the bid curve in the case of the auction. These flows, along with any flows due to Fixed CRRs (see below), are compared to the constraint limits. All nominated CRR Sources and CRR Sinks are applied simultaneously in the CRR Allocation process and likewise all CRR bids are applied simultaneously in the CRR Auction process. The comparison of the resulting flows against the constraint limits is performed simultaneously. This simultaneous comparison is the SFT. Note that Point-to-Point CRR nominations and bids are pre-balanced in terms of injection and withdrawal amounts for the SFT. However, Multi-Point CRR nominations and bids are not required to be balanced upon submittal by the CRR participant. During the SFT process, the aggregate injections and aggregate withdrawals are balanced, in accordance with the balancing constraint.

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<sup>8</sup> Allocation Factors are the weights that define the fractional MW amount that is mapped from a Source or Sink to a Pnode. See the CRR Educational Material at: <http://www.caiso.com/docs/2004/01/29/2004012910353027828.html>

If the SFT fails, for a given set of nominations or bids, feasibility must be achieved. This is accomplished by reducing the MW quantity amounts associated with the nomination or bids. This reduction is performed through an optimization process. In fact, the SFT is embedded within an optimization formulation. The optimization formulation has an objective function and a set of constraints. During the optimization process, the objective function is either maximized (or minimized which ever is the case) while all constraints are simultaneously satisfied (i.e., not violated).

During the CRR SFT optimization, the CRR software will relieve a binding constraint based on the effectiveness of the nominations or bids that contribute to the binding constraint. The CRR software will reduce any overloads by curtailing the CRR nominations or bids that have the greatest impact on the constraint (i.e. the ones with the highest shift factor). Any curtailment of CRR nominations or bids by the CRR system is done with the directive of maximizing the objective function. The objective function in the CRR system for the allocation process is to maximize the number of CRRs that clear. For the auction process, the objective function is to maximize the bid-based value. These optimization processes are discussed in detail below.

For the CRR Allocation Process, the objective function is:

$$\text{Max} \left( \sum_i (\alpha_i \times MW_i) + \sum_j \left( \sum_l (\beta_{jl}^{\text{sink}} \times MW_{jl}^{\text{sink}}) - \sum_k (\beta_{jk}^{\text{source}} \times MW_{jk}^{\text{source}}) \right) \right)$$

Where

$i$  is the index over all Point-to-Point CRR nominations

$\alpha_i$  is the Priority Weight for the  $i^{\text{th}}$  Point-to-Point CRR nomination

$MW_i$  is the MW quantity value for the  $i^{\text{th}}$  Point-to-Point CRR nomination

$j$  is the index over all Multi-Point CRR nominations

$l$  is the index over all sinks in a Multi-Point CRR nomination

$k$  is the index over all sources in a Multi-Point CRR nomination

$\beta_{jl}^{\text{sink}}$  is the priority weight for the  $l^{\text{th}}$  sink in the  $j^{\text{th}}$  Multi-Point CRR nomination

$MW_{jl}^{\text{sink}}$  is the MW quantity value for the  $l^{\text{th}}$  sink in the  $j^{\text{th}}$  Multi-Point CRR nomination

$\beta_{jk}^{source}$  is the Priority Weight for the  $k^{th}$  source in the  $j^{th}$  Multi-Point CRR nominations. The Priority Weight is based on the priority of the source given by the CRR participant.

$MW_{jk}^{source}$  is the MW quantity value for the  $k^{th}$  source in the  $j^{th}$  Multi-Point CRR nomination

The MW values in the objective function are the control variables. The priority weights are pre-determined parameters. The CAISO will be responsible for submitting nominations associated with ETCs and CVRs. These nominations will be PTP nominations. The Priority Weights for these PTP nominations will be given a higher value than the proxy-bids associated with the nominations submitted by the CRR Allocation participants.

For MPT nominations submitted in the allocation, the value of the priority weight for a MPT source nomination is correlated to the priority of the MPT source nomination<sup>9</sup>. For MPT nominations, the higher the priority the smaller the priority weight. The priority weight for a Point-to-Point CRR nomination is equal to the priority weight for a Multi-Point CRR Sink nomination discounted by the Priority Weight for a priority 1 Multi-Point CRR Source nomination, i.e.,  $\alpha_i = \beta_{jl}^{sink} - \beta_{jk}^{source}$ , where  $\beta_{jk}^{source}$  is associated with a priority 1 source nomination.

The constraints in the CRR Allocation process optimization formulation are:

- $0 \leq MW \text{ control variable} \leq \text{nominated MW quantity}$
- The CRR Source MW equals the sink MW in each Point-to-Point CRR nomination
- For every Multi-Point CRR nomination, the sum of the source MW equals the sum of the sink MW
- The resulting flows (established through shift factors) on transmission constraints are within or equal to the constraint limits

During the CRR Allocation optimization process, CRR Obligation nominations are allowed to provide counter-flow on constraints, whereas CRR Option nominations do not provide any counter-flow on constraints.

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<sup>9</sup> The MPT CRR Source MW value is part of the objective function for the CRR Allocation optimization process. (See Section B). The objective function is to maximize its value. The product of the MPT Source value and the MPT CRR Source priority weight is discounted from the rest of the objective function value due to the negative sign in front of the summation of the product of the MPT Source value and the MPT CRR Source priority weight. The larger the Priority Weight the more discount to the objective function value. The smaller the priority weight the less discount to the objective function value. Since the objective function is to be maximized, the lower Priority Weight is more attractive to be used.

The objective function in the CRR Auction process is very similar to the objective function of the CRR Allocation. The exception is that the priority weights in the CRR Allocation process are replaced by market submitted bids. The constraints are identical in form to those listed for the allocation.

Nominations or bids that are tied, i.e. nominations having the same effectiveness on a binding constraint or bids having the same effective price for relieving a constraint, are pro-rata allocated/awarded based on the nominated or bid MW amounts.

Because the CRR entitlements are funded by Day-Ahead congestion revenue and the Marginal Cost of Congestion (MCC) component of a Locational Marginal Prices (LMP) are part of the entitlement formulation, the SFT is related to the Day-Ahead Market process. The relationship is through the use of the Full Network Model (FNM) and the limits on constraints. If the following two conditions apply for the SFT process and a particular hour of the DAM process revenue adequacy is guaranteed:

Condition #1: The shift factors used in CRR SFT process are the same that are used in the calculation of the MCC LMPs in the DAM.

Condition #2: The transmission constraint limits used in the CRR SFT process are equal to or more restrictive than those used in the DAM. The CRR SFT process can only calculate active power MW flows on MW flow constraints.

The two conditions are sufficient but not necessary for ensuring revenue adequacy. In other words, if the conditions do not hold, revenue adequacy is not necessarily violated.

There are instances however, where these conditions might not hold since the CRR Allocation and Auction process creates CRRs several weeks up to several months before the maturity date of the CRR has arrived. Because of this timing, certain assumptions need to be made about the data used in the SFT process. One such data item is the FNM. The FNM can be different for example during any hour of the Integrated Forward Market due to transmission outages. Shift factors are dependent on the FNM topology and outages affect the topology. Also, Load Distribution Factors impact the shift factors. Assumptions on the Load Distribution Factors (allocation factors for the Default Load Aggregation Points) must also be made for each SFT process. These assumed Load Distribution Factors (LDFs) may be different during the IFM process, because the IFM may use actual State Estimation data from the previous day to update and make more accurate the LDFs used in the IFM.

The SFT process within each CRR Allocation and CRR Auction considers the following items. Some of these items will be described in more detail in the subsequent sections. :

- Configuration of the FNM (i.e., network topology)
- Transmission constraints
- The mapping definition of the CRR Sources and CRR Sinks to the FNM. This includes Pricing Nodes and allocation factors.
- CRR Options that are used to remove TOR capacity in the SFT.
- ETC and CVR capacity that is modeled in the SFT as CRR Obligation nominations
- CRRs that cleared in a previous allocation or auction markets within the same time period and time-of-use period, which are referred to as “Fixed CRRs”. For a given tier, the CRRs allocated in previous CRR Allocation tiers as described in CAISO Tariff § 36 are considered Fixed CRRs. For the processing of a tier 3 from a particular season and time-of-use period, the CRRs that were cleared in tiers 1 and 2 for that same season and time-of-use period and the CRR that were used to model the TOR capacity would be modeled as Fixed CRRs.

Note that the CRR SFT for the allocation and auction processes does not model unscheduled flows (sometimes called loop flows). The modeling of unscheduled flows is more closely related to the Integrated Forward Market (IFM). The modeling of CRRs for the CRR allocation and auction must be as consistent as possible with how modeling is done in the IFM. At this time, the IFM does not model unscheduled flows, so to be consistent the CRR model will not consider unscheduled flows. If it is determined that unscheduled flows should be modeled in the FNM used for the IFM, the CRR SFT will be modified to be consistent with the FNM modeling.

## B.1 FNM Configuration

The SFT within each allocation and auction process utilizes a FNM. More specifically, the shift factors utilized in the optimization process that reduces CRR MW quantities under infeasible situations are directly derived from the DC (direct current) conversion of the FNM. The shift factors are dependent upon:

- The topology of the FNM (i.e., which transmission facilities are in-service and how these are transmission facilities are connected to one another)
- The DC conversion of the FNM

In the event that transmission outages and derates modeled for the monthly CRR Allocation and CRR Auction render previously issued Seasonal CRRs infeasible, CAISO increases the transfer



capacity on the overloaded facilities just enough to render all Seasonal CRRs issued for the respective month feasible without creating any additional capacity beyond what is needed for the feasibility of the Seasonal CRRs.

This section addresses the following questions:

- How is the topology of the FNM, that is converted, initially determined?
- What assumptions are made in the DC conversion of the FNM?
- When CRR participants download the FNM associated with the CRR process (assuming the CRR participants are qualified to do so), what is the content and format of the FNM data?

## **B.1.1 FNM Topology Determination**

### **B.1.1.1 Origin of the FNM**

To ensure consistency between the SFT and the Day-Ahead Market process, the FNM data is retrieved from the same database source as the FNM used in the DAM, HASP, and Real-Time Market processes. The construction of the FNM is described in the Business Practice Manual for Managing Full Network Model (FNM BPM).

### **B.1.1.2 Starting Base for the FNM**

As a starting base to derive the final FNM for use in an SFT process (either annual or monthly), the FNM includes all transmission facilities that are energized and in-service at the time the allocation or auction process is initialized. CAISO does not use expected in-service dates for determining which transmission facilities are included in the FNM.

### **B.1.1.3 FNM Topology for the Annual Process**

During the annual allocation and auction process, CRRs with seasonal/time-of-use (TOU) terms are created. The creation of each seasonal/TOU CRR is accomplished through a process that includes an SFT. A different FNM may be used for each seasonal/TOU SFT process.

Seasonal switching schedules are applied to the FNM for the applicable seasons. These transmission facility connection operations are contained in the PTO's seasonal switching schedule.

For the FNM used in the annual SFT processes, all transmission facilities are modeled as in-service, taking into consideration those facilities associated with the seasonal switching schedule, with the following exception. If there is a known outage of a major transmission

facility for a significant duration of any season (e.g., a 500 kV transmission facility) at the time the annual process is initiated, CAISO will review whether the transmission facility should be modeled as an outage (i.e., out-of-service in the FNM) for each season that intersects with the scheduled outage period.

#### **B.1.1.4 FNM Topology for the Monthly Process**

During the monthly allocation and auction process, CRRs with monthly/time-of-use (TOU) terms are created. The creation of each monthly/TOU CRR is accomplished through a process that includes an SFT and thus is dependent upon the FNM used in the SFT.

For the FNM utilized in the monthly SFT processes, all transmission facilities are modeled as in-service, taking into consideration those facilities associated with the seasonal switching schedule and those facilities identified as being modeled out-of-service by applying the monthly outage selection criteria. The transmission facilities identified by applying the monthly outage selection criteria to all scheduled transmission outages at the initiation of the monthly process are modeled as out-of-service in the FNM.

#### **B.1.1.5 Monthly Outage Selection Criteria**

For the planning of each monthly CRR Allocation and Auction Process, the CAISO will take into consideration all planned outages and constraint de-rates that the Participating Transmission Owners (PTO) have provided to the CAISO (via the CAISO SLIC web client application).

The data that is provided by the PTOs for planned outages will include the identification of the transmission facilities and the planned start and end dates of the outage or de-rate of the facility.<sup>10</sup> For each facility that is actually out of service over a given period of time, the CAISO has the option to either remove this facility from the FNM or de-rate the facility or a corresponding constraint by some value through the associated constraint limit value.

The CAISO is in the process of developing criteria for modifying the FNM topology and modifying constraint limits based on scheduled outages and de-rates.<sup>11</sup>

Consistent with the CAISO Tariff requirements, the CAISO will announce these adjustments to the market prior to conducting the monthly CRR Allocation and CRR Auction.

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<sup>10</sup> The requirement for PTOs to provide scheduled outage information to the ISO is stated in Paragraph 1333 of the September 21, 2006 FERC Order.

<sup>11</sup> The CAISO has not finalized the way to reflect outages in the CRR process. The CRR Dry Run will provide the opportunity to test a simple methodology based upon a proration of the operating constraint OTC value as a function of the duration of the anticipated scheduled outages known at the time the CRR allocation is conducted. This methodology will be followed for scheduled outages of less than 11 days. For outages of 11 or more days, the line would be taken out of service.

## B.1.2 DC Conversion of the FNM

The SFT process converts the FNM (AC FNM) into a DC FNM for the purposes of determining the shift factors used in the SFT process.

There are four assumptions made when creating the DC FNM:

**Assumption #1:** All generators and Loads within the FNM are neglected: the DC conversion of the FNM creates a DC FNM that is passive (i.e., no active components).

**Assumption #2:** All bus voltage magnitudes are 1.0 per-unit.

**Assumption #3:** All transmission branch resistances are ignored (i.e., resistance = 0.0 per-unit).

Based on Assumption #2 and Assumption #3, assume that if there is one branch from bus  $i$  to bus  $j$ , the real power (MW) flow on the transmission branch from bus  $i$  to bus  $j$  is:

$$P_{ij} = \frac{1}{x_{ij}} \sin(\theta_i - \theta_j)$$

where  $x_{ij}$  is the reactance of the branch that connects buses  $i$  and  $j$ . The angles  $\theta_i$  and  $\theta_j$  are the bus voltage phase angles for buses  $i$  and  $j$ , respectively in radians. Then:

**Assumption #4:**  $\sin(\theta_i - \theta_j) = \theta_i - \theta_j$ , i.e., the angle difference is small such that the sine function of the angle difference is assumed to be equal to the angle difference

Assumptions #2, #3, and #4 create a linear relationship between an injection (real power) into the DC FNM (along with a balanced withdrawal at the reference Location) and the active power flow on any transmission branch in the DC FNM. In other words, the shift factors determined from the DC FNM are not dependent on other items except the topology of the FNM and the reactances of the transmission branches.

## B.1.3 Content and Format of the FNM for Market Participant Download

The CRR system actually imports an AC FNM into its internal database and stores the FNM as an AC FNM. In fact, the CRR system can import many AC FNMs. During the setup of a SFT, the CRR market operator picks the AC FNM that is the basis for the DC FNM that is used in the SFT process. During an SFT process, the CRR system creates a DC FNM from the conversion process described above and uses this DC FNM in the SFT process.

The AC FNMs are available to CRR participants through the CRR Market User Interface as long as the CRR participant meets certain criteria as described in CAISO Tariff § 6.5.1.1 (e.g., signs a non-disclosure agreement with CAISO). The AC FNM is made available in the Siemens PTI PSS/E (Power System Simulator for Engineering) version 26 format.

The AC FNM download includes bus data, generator data, load data, branch data and other related information. The generation pattern and load pattern is based on the original WECC base case from which this FNM was derived.

Each data record from the bus data, generator data, load data, branch data and sections includes an additional field at the end of each record that is called the “augmented bus name”, “augmented generator name”, “augmented load name” and “augmented branch name”. The data type for this field is a text string and the value of this field is unique. The only relevant fields are those associated with the bus data records and branch data records. The bus data record augmented field correlates to information in the Aggregated Pricing Nodes data sets. The branch data record augmented field correlates to information in the constraints and contingency data sets. The description of the formats for constraints, contingencies and APNodes sets for download from the CRR Market User Interface will be included in the CRR Market User Interface manual.

## B.2 Transmission Constraints

During the SFT, transmission constraints will be enforced. The CAISO will attempt to make these transmission constraints, to the extent possible, consistent with the transmission constraints that are enforced in the DAM. Consistent with § 36.4 of the CAISO Tariff, CAISO considers the following guidelines in determining the operating constraints to be used in the CRR FNM.

The transmission constraints that are used in the SFT are normal and emergency ratings of transmission lines and transformers as well as Transmission Interfaces and nomograms that are based solely on Transmission Interfaces (collectively referred to as generalized group limits in the CRR SFT process). See the FNM BPM for additional information on normal/emergency ratings and Transmission Interfaces and nomograms that are based solely on Transmission Interfaces. The emergency ratings of transmission and transformers will be enforced during contingency analysis.

Thermal limits of branches include normal and emergency thermal limits for the lines and transformers that comprise the branch. These limits generally do not vary by time of use (e.g., on-peak and off-peak) but may vary between summer and winter. Consequently, the use of summer and winter limits will be taken into account in the SFT.

Generalized group limits, which include simple Transmission Interface limits and nomograms limits, which are based solely on Transmission Interface flows, may consist of both single and multiple lines with a single limit. Some constraint limits do not vary with season or time of use, while others do.

During the annual CRR Allocation and CRR Auction process, the CRR team plans to use eight sets of variable constraint limits<sup>12</sup> representing each season of the year and time of use period for those constraints whose limits vary. To assist in this process, the CAISO will review historical Operating Transfer Capability (OTC) values and analyze OTC duration curves to collect further information on which to base the determination of OTC values to use for the various seasonal and monthly values. The normal and emergency thermal ratings that are in MVA will be adjusted downward to take into consideration that reactive power is not modeled within the DC FNM. The CRR team works with CAISO operating engineers to determine the appropriate adjustment to these limits.

### B.3 Pricing Nodes and Allocation Factors

Within the SFT process, CRR Sources and CRR Sinks within nominations or bids are mapped back to the FNM through PNodes or APNodes. Since APNodes are comprised of two or more PNodes, each source and sink is mapped to the FNM through one or more PNodes. If the mapping for certain sources or sinks only consist of one PNode, the allocation factor is by default one. If the mapping for certain sources or sinks consists of two or more PNodes, (i.e., modeled as an APnode), an allocation factor must be defined for each PNode and this allocation factor will determine the fractional amount of the injection or withdrawal that will be modeled at the PNode. The allocation factors for a particular APnode must be normalized, i.e., they sum to one. Each allocation factor must be greater than or equal to zero and less than or equal to one.

The PNode and APNode sets used for modeling CRR Sources and CRR Sinks will be consistent with the corresponding resources used in the DAM, to the extent possible. The PNodes will be similar although the allocation factors used for the CRR process will be fixed for the term of the CRR while the allocation factors used in the DAM can change hourly or day-to-day. The allocation factors for the Default LAPs, Sub-LAPs, MSS LAPs and Participating Load are based on Load Distribution Factors (LDFs). As defined in the CAISO Tariff, the Trading Hub allocation factors are based on the weighted average generation output of all Generating Units

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<sup>12</sup> The general limits in a network model are the thermal limits of the lines represented but the constraint limits referred to in this sentence are those associated with Transmission Interfaces or interface limits. These "variable constraint limits" are variable because they can change each hour, so there is not a static set of values that can be used for every CRR allocation. This requires these variable constraint limits be reviewed/ revised for each time CRR allocation time period so that they properly reflect seasonal and TOU variations.

within a Trading Hub. Sources, representing Generating Units that are modeled, as aggregated units will use allocation factors based on Generation Distribution Factors. Listed below are the main areas in which CAISO applies the use of various types of allocation factors.

### **B.3.1 Default Load Aggregation Points**

Pursuant to § 27.2 of the CAISO Tariff, there are three Default Load Aggregation Points (Default LAPs), one for each of the service territories of PG&E, SCE, and SDG&E. The allocation factors for these APNodes will be based on the respective LDFs and will be used to allocate the CRR Sink MWs to the underlying PNodes. Consistent with § 36.8.2 of the CAISO Tariff, CAISO creates and maintains different sets of LDFs by season and time of use period (i.e., on-peak and off-peak) to be used in the CRR Allocations and CRR Auctions.

### **B.3.2 Sub-Load Aggregation Points**

As provided in §§ 36.8.3.1, 36.13.5 and 36.8.3.2 of the CAISO Tariff respectively, the Sub-Load Aggregation Points (Sub-LAPs) may be used in tier 3 of the annual CRR Allocation, in tier 2 of the monthly CRR Allocation, and in the CRR Auctions. The allocation factors for these Sub-LAPs are based on allocation factors from the Default LAPs (i.e., PG&E, SCE and SDG&E Aggregated Pricing Nodes). Each Sub-LAP is associated with a Default LAP. The PNodes within a particular Sub-LAP form a subset of the PNodes within the associated Default LAP. For a given season and time of use period, the allocation factor for each PNode within a Sub-LAP is based on the re-normalization of the set of PNode allocation factors that are associated with the Default LAP.

### **B.3.3 Metered Subsystem Load Aggregation Points**

CAISO Tariff § 36.10, CRR Allocation to Metered Subsystems

The LAP used for the Metered Subsystem (MSS) that chooses net settlement is comprised of the PNodes specifically identified as being part of the MSS (i.e. MSS LAP). The PNodes that are part of the net MSS are those PNodes identified in the CRR FNM. The allocation factors used for this purpose will be based on LDFs.

### **B.3.4 Participating Load**

The allocation factors used in APNodes or the Custom LAPs associated with Participating Load will be based on Load Distribution Factors.

### **B.3.5 Trading Hubs**

CAISO's Trading Hubs facilitate bilateral Energy transactions. Certain Trading Hubs are defined based upon Generation resources within Existing Zones (regions formally referred to as NP15, SP15, and ZP26). These Trading Hubs, known as Existing Zone Generation (EZ-Gen) Trading Hubs, are used in settlement of Inter-SC Trades as provided in § 11.9.1 of the CAISO Tariff, as a CRR Source during the CRR Allocation process as provided in §§ 36.8.3.4 and 36.8.4 of the CAISO Tariff, and as either a CRR Source or a CRR Sink in the CRR Auction process as provided in § 36.13.5 of the CAISO Tariff.

Each Trading Hub is comprised of all Generating Unit PNodes within that Existing Zone. The allocation factor for each PNode within a Trading Hub is based upon the ratio of the total output of Energy at a PNode divided by the total Generation output in that Existing Zone over a given reference period.

### **B.3.6 Generating Units Comprised of Multiple PNodes**

Sources representing Generating Units that consist of more than one PNode will have allocation factors to distribute the CRR Source MW nomination distributed to the individual PNodes that make up the APNode of the Generating Unit. The total of these allocation factors will equal one and be based on Generator Distribution Factors.

### **B.3.7. Allocation Factors for Fixed CRRs in the SFT**

During the SFT process, Fixed CRRs will be applied to the FNM using the allocation factor set that was used to originally allocate or auction these Fixed CRRs. Note that this original allocation factor set may be different from the allocation factor set that will be used to clear CRR nominations or CRR bids in the SFT process for the current allocation or auction.

## **B.4 Modeling of Transmission Rights**

Prior to beginning the annual allocation process the CAISO will need to determine how to model the transmission rights described in this section. As provided in § 36.4 of the CAISO Tariff, the CAISO will model Transmission Ownership Rights (TORs), Existing Transmission Contract (ETC) rights, and Converted Rights (CVRs) in the FNM. The CAISO's modeling of these various transmission rights is based on its consultations with the respective Transmission Owners.

### **B.4.1 Transmission Ownership Rights**

TORs involve existing transmission facilities located within the CAISO Control Area that are non CAISO-Controlled Grid (i.e., not under the direct control of CAISO). As provided in §§ 11.2.1.5 and 11.5.7 of the CAISO Tariff, TOR Self-Schedules is not subject to Congestion charges. As such, pursuant to § 36.4 of the CAISO Tariff, the appropriate TOR capacity will be removed from the FNM prior to running the CRR Allocation and CRR Auction markets by using Point-to-Point CRR Options. These Point-to-Point CRR Options will be held by the CAISO.

### **B.4.2 Existing Transmissions Contract Rights and Converted Rights**

As provided in § 11.2.1.5 of the CAISO Tariff, ETC and CVR Self-Schedules (CVR Schedules through the Access Charge transition period) will not be subject to Congestion charges, pursuant to the rights that are contained in the respective contracts. The CVR and ETC rights will be modeled as Point-to-Point Obligations. The location of the ETC sinks will be modeled at the actual ETC load location rather than being included as part of a Default LAP whereas the CVR sink locations will be at the Default LAP. These Point-to-Point CRR Obligations will be held by the CAISO. For both ETCs and CVRs, CAISO is responsible for preventing ETC and CVR capacity from being made available to LSEs and those participating in the CRR Auction. Consequently, CAISO submits high priority (determined by weighting factors input into the CRR System) CRR nominations into the CRR Allocation corresponding to existing ETCs and CVRs. The cleared amounts are used to prevent others from obtaining the ETC and CVR capacity.



## **Attachment C**

# **MAXIMUM PURCHASE AMOUNT CALCULATION**

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## C. Maximum Purchase Amount Calculation Examples

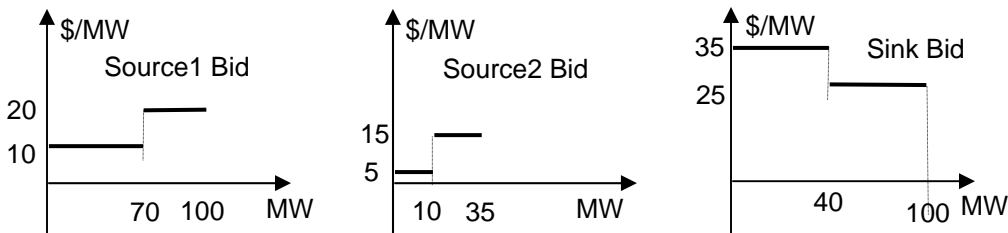
Following is an example of how the CRR system determines the maximum purchase amount for a Multi-Point (MPT) CRR and a Point-to-Point (PTP) CRR Auction buy bid.

For an MPT CRR Auction buy bid, the steps involved in this estimation calculation are as follows:

- Create an aggregate source bid for all individual sources bids within the MPT CRR.
- Create an aggregate sink bid for all individual sink bids within the MPT CRR.
- Create a net sink bid from the aggregate sink bid and aggregate source bid.
- Determine the maximum purchase amount for this MPT CRR auction buy bid (which also generically covers the point-to-point bid from this net sink buy bid).

Assume an MPT CRR auction bid that has two source bids (Source1 bid and Source2 bid) and one sink bid as shown graphically below in Exhibit C-1.

**Exhibit C-1: MPT Source Bids & Sink Bid**



### Step 1:

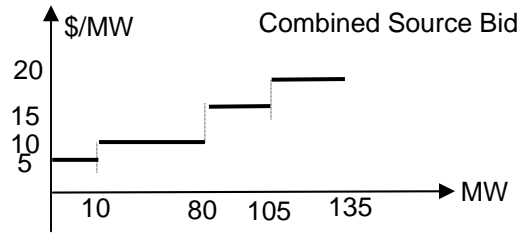
An aggregate Source bid is created by combining the two Source bids in order of ascending price segments. In tabular form the sorted segments are shown in Exhibit C-2.

**Exhibit C-2: Sorted Source Bid Segments**

| Price (\$/MW) | MW Segment | Original Source Bid |
|---------------|------------|---------------------|
| 5             | 10         | #2                  |
| 10            | 70         | #1                  |
| 15            | 25         | #2                  |
| 20            | 30         | #1                  |

The aggregated Source bid is shown in Exhibit C-3.

**Exhibit C-3: Aggregate Source Bid**



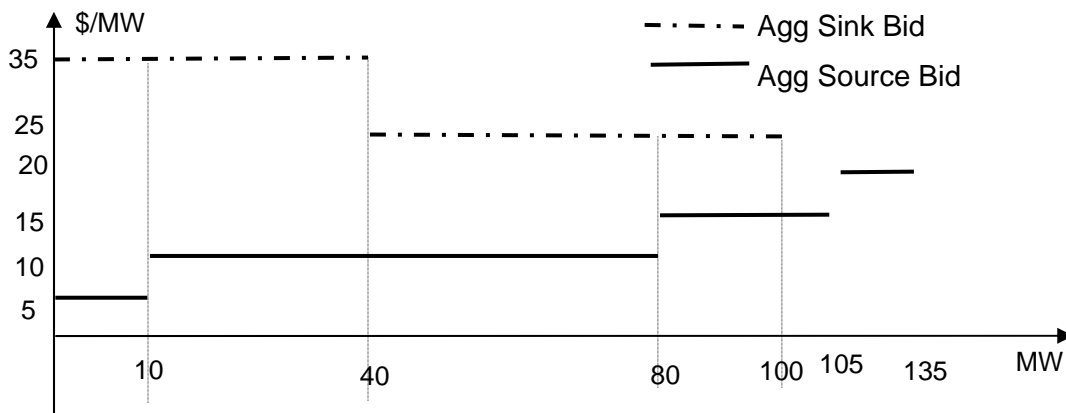
**Step 2:**

Since there is only one sink bid, this one sink bid is equivalent to the aggregate sink bid. If there were more than one sink bid, the aggregate bid would be constructed in a manner similar to the construction of the aggregate source bid, but with the prices ordered in descending order.

**Step 3:**

The net sink bid is constructed by effectively subtracting the aggregate source bid price from the aggregate sink bid price on a MW-by-MW basis. This operation is shown more effectively if the two bids are shown together as in Exhibit C-4.

**Exhibit C-4: Aggregate Source Bid & Aggregate Sink Bid**



The net sink bid is shown in tabular form in Exhibit C-5.

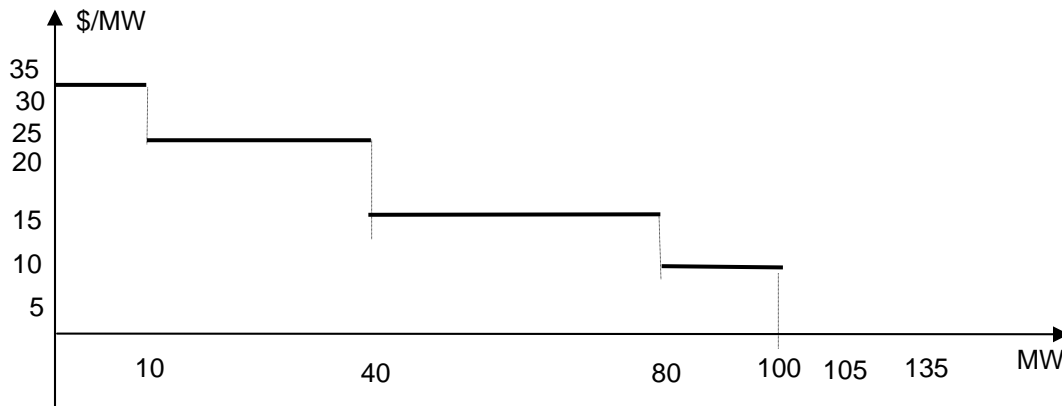
**Exhibit C-5: Net Sink Bid Segments**

| Net Price (\$/MW) | MW Segment      |
|-------------------|-----------------|
| $30 = 35 - 5$     | $10 = 10 - 0$   |
| $25 = 35 - 10$    | $30 = 40 - 10$  |
| $15 = 25 - 10$    | $40 = 80 - 40$  |
| $10 = 25 - 15$    | $20 = 100 - 80$ |

The operation proceeds to the MW end of either the aggregate source bid or the aggregate sink bid, whichever is smaller in value. Also, the operation need not continue after the net bid becomes negative (if it becomes negative).

The net sink bid is shown in Exhibit C-6.

**Exhibit C-6: Net Sink Bid**



At this point in the process, the net sink bid resembles a bid for a Point-to-Point CRR. Thus, this sample bid can be used to complete step 4 for both an MPT CRR and a PTP CRR bid. Each bid segment in the sink bid presents the maximum price that the buyer is willing to pay for the CRR for each MW within the bid segment. For example, in the segment from 40 MW to 80 MW, the buyer is not willing to pay more than \$15/MW for each additional MW in this segment. Also, since the prices in the CRR Auction are based on the marginal bids, if the buyer was awarded, say, 50 MW, the price to be paid for the total of the 50 MW would not exceed \$15/MW for the whole 50 MW. The same logic applies to each segment.

Exhibit C-7 provides a summary of these price limits.

**Exhibit C-7: Maximum Prices To Be Paid Over Certain MW Limits**

| Maximum Price (\$/MW)<br>To Pay for All MW<br>Purchased | Buying at Least This<br>Many MW | Buying at Most This<br>Many MW | Potentially Maximum<br>Amount to Pay (\$) for<br>MW Purchased {Price ×<br>Quantity} |
|---|---------------------------------|--------------------------------|---|
| 30  | 0                               | 10                             | 300 = 30 × 10   |
| 25  | 10                              | 40                             | 1,000 = 25 × 40   |
| 15  | 40                              | 80                             | 1,200 = 15 × 80   |
| 10  | 80                              | 100                            | 1,000 = 10 × 100  |

In this example, the maximum amount that the buyer would pay (i.e., the maximum purchase amount) would be \$1,200. If  $P(Q)$  represents the price function of the net sink bid curve for each MW value ( $Q$ ), the maximum purchase amount is calculated as:

$$\max_{Q \in [0, Q_{\max}]} (P(Q) \times Q, 0)$$