Congestion Revenue Rights (CRR)

CRR Market User Interface (MUI) Training Overview and Secondary Registration System (SRS)
Introduction

To fulfill the Tariff required training each individual needs to complete the following, in the order listed below:

- CRR Basics Overview CBT
- CRR MUI Overview CBT
- One of the following (although both are suggested)
  - MUI Allocation CBT
  - MUI Auction CBT

This course is for the participants, so your feedback would be appreciated. Please send any comments to crrdata@caiso.com
Goal of this Training Course

Provide an overview of the various CRR processes that participants should understand in order to be able to participate in the CRR Allocation and/or CRR Auction. This course specifically focuses on providing an overview of the Market User Interface and the high level features as well as providing information on the Secondary Registration System (SRS).
Training Course Agenda

In this presentation we will discuss the following topics related to Congestion Revenue Rights:

• Section 1 - General Timeline for CRR processes
• Section 2 – General MUI Information
  • Requesting access to CRR system
  • Market Participant Portal
  • MUI Overview and Navigation
• Section 3 - Open Access Same-Time Information System (OASIS)
• Section 4 - Secondary Registration System (SRS)
Section 1 – General Timeline for CRR Processes

General Timeline for CRR Process
- Timeline overview
- Annual Process Timeline
  - Allocation
  - Auction
- Monthly Process Timeline
  - Allocation
  - Auction
General Annual Process for Seasonal/TOU

Historic Load Data

Eligible Quantity of CRRs that may be requested

Nominations

Cleared CRRs

Tier 1 – Priority Nomination Process

Nominations

Cleared CRRs

Tier LT

Nominations

Cleared CRRs

Tier 2

Nominations

Cleared CRRs

Tier 3

Nominations

Cleared CRRs

Auction

Bids

Cleared CRRs

For T1, T2 and T3 the FNM Capacity is Scaled to 75 Percent for Tier LT to 60 Percent

A separate SFT will be run for each TOU

This information, which includes Nexant’s copyright material, is provided for the purposes of this presentation with permission of Nexant.
General Timeline - Schedule

• Posted on CRR Production Page: http://www.caiso.com/market/Pages/ProductsServices/CongestionRevenueRights/Default.aspx
  – Current Process:
    • YYYYY Annual Processes
    • YYYYY Monthly Processes
General Timeline – Annual Schedule

2014 Annual CRR Allocation and Auction Schedule
May 10, 2013

The preparation for 2014 Annual CRR Allocation begins on July 1, 2013.

- OBAALSEs Source Declaration and data template due to crrdata@caiso.com by close of business on July 15, 2013.
- Data template for MSS Operators due to crrdata@caiso.com by close of business on July 15, 2013.
- ETC usage template due to crrdata@caiso.com by July 19, 2013.
- CRR Full Network Model will be posted by 1700 on July 23, 2013.
- Comment on CRR Full Network Model due to crrdata@caiso.com by COB, August 2, 2013.
- Conference call to discuss CRR FNM (NDA Holders only) on August 6, 2013. Details of conference call will be provided to CRR FNM NDA Holders prior to the schedule date of the call.
- Incremental update to CRR FNM will be posted by 1700 on August 22, 2013.
General Timeline – Annual Allocation Schedule

The 2014 Annual CRR Allocation begins on August 13, 2013 and ends on October 31, 2013. The annual allocation consists of five parts:

- Historical Load Submittal Window opens at 0100 on August 13, 2013 and closes at 1700 on August 19, 2013.
- The Priority Nomination Tier nomination window opens at 0100 on September 17, 2013 and closes at 1700 on September 19, 2013. Results of the Priority Nomination Tier will be posted by 1700 on September 24, 2013.
- The Tier Long Term nomination window opens at 0100 on September 27, 2013 and closes at 1700 on October 1, 2013. Results of Tier Long Term will be posted by 1700 on October 4, 2013.
- The Tier 2 nomination window opens at 0100 on October 10, 2013 and closes at 1700 on October 15, 2013. Results of Tier 2 will be posted by 1700 on October 18, 2013.
- The Tier 3 nomination window opens at 0100 on October 24, 2013 and closes at 1700 on October 28, 2013. Results of Tier 3 will be posted by 1700 on October 31, 2013.
General Timeline – Annual Auction Schedule

The 2014 Annual CRR Auction begins on November 7, 2013 and ends on November 15, 2013.

- The auction bidding window opens at 0100 on November 7, 2013 and closes at 1700 on November 12, 2013. The results of the annual auction will be posted by 1700 on November 15, 2013.
CRR Allocation and Auction – Monthly Process

- Tier 1 for one month
  - Nominations
  - Cleared CRRs

- Tier 2 for one month
  - Nominations
  - Cleared CRRs

- Auction for one month
  - Bids
  - Cleared CRRs

Forecasted Load Data

Eligible Quantity of CRRs that may be requested

FNM Capacity at 100 Percent
Less outages and/or de-rates

A separate SFT will be run for each TOU

CRR Participants interacting through the Market User Interface

This information, which includes Nexant’s copyright material, is provided for the purposes of this presentation with permission of Nexant.
General Timeline – Monthly Schedule

November 2013

- Historical Load (OBAALSEs) Submittal Window opens at 0100 on September 10, 2013 and closes at 1700 on September 10, 2013.
- Load Forecast Submittal Window opens at 0100 on September 11, 2013 and closes at 1700 on September 12, 2013.
- CRR Full Network Model will be posted by 1700 on September 25, 2013.
- 30-day Outage data to Outage Coordination Group no later than close of business on October 1, 2013.
- List of outages to be modeled posted by 1700 on October 8, 2013.
- Incremental Update to CRR Full Network Model will be posted by 1700 on October 10, 2013.
- The Tier 1 nomination window opens at 0100 on October 11, 2013 and closes at 1700 on October 11, 2013. Results of Tier 1 will be posted by 1700 on October 16, 2013.
- The Tier 2 nomination window opens at 0100 on October 18, 2013 and closes at 1700 on October 18, 2013. Results of Tier 2 will be posted by 1700 on October 22, 2013.
- The auction bidding window opens at 0100 on October 24, 2013 and closes at 1700 on October 25, 2013. The results of the monthly auction will be posted by 1700 on October 29, 2013.
- UDC’s submit Load Migration data to CRR Team by 1200 (noon) on October 18, 2013.
Section 1 – Questions

General Timeline for CRR Process

- Timeline overview
- Annual Process Timeline
  - Allocation
  - Auction
- Monthly Process Timeline
  - Allocation
  - Auction
Section 2 – General Market User Interface (MUI) Information

Market User Interface

• Requesting access to CRR System
• Market Participant Portal
  • CRR MUI
  • CRR Full Network Model
• MUI Overview and Navigation
  • Roles
  • Public data downloads and messages
  • Private data downloads and messages
Requesting access to the CRR System

- In order to access the CRR System, you will need to have a valid CMA digital certificate and PIN

- To receive a CMA certificate, the following steps must be completed:
  - Establish Point of Contact (POC)
  - Complete a User Application Access Request Form (AARF)
  - POC to send completed AARF using CIDI

Note:
- All forms are located at http://www.caiso.com/pubinfo/info-security/certs/index.html
- It normally takes 10 business days to process the AARF
- Access is only granted to registered Candidate CRR Holders
California ISO Market Participants Portal (MPP)

https://portal.caiso.com/Pages/Default.aspx

Applications that you have access to will appear here.

CRR FNM SharePoint Site
Software Requirements

• The MPP is accessed via the Internet using the following browsers:
  – Microsoft Internet Explorer Version 8

• The Sun’s Java Runtime Environment (JRE version 1.6_Update_21) plug-in is required to display applets on the CRR System portion of the CAISO portal. The CRR System does not require any additional proprietary software to be installed on Market Participants’ computers.
MUI Overview and Navigation

- Overview
- Roles
- Public and Private data downloads
- Public and Private messages
Market User Interface Overview

CRR Market User Interface (MUI) allows MPs to

- View public data, public allocation/auction results, and public announcement and messages
- View private data, private allocation/auction results, and private announcement and messages
- Manage and submit their CRR nominations/bids to an upcoming allocation or auction
- Post ads to buy and sell CRRs using the Secondary Registration Systems (SRS)
- Transfer ownership of CRRs using the SRS
Market User Interface Overview (cont.)

- The CRR System requires upload data, including historical/forecasted load data, CRR nominations and CRR bids to be in extensible Mark-up Language (.xml) format. Many of the CRR System downloads (e.g., allocation and auction results) will also be in .xml format. Tools are available to transfer data from other common formats like comma separated value (.csv) into .xml format for uploading.

- The transformation of CRR data into .xml format is beyond the scope of this class and is the responsibility of each Market Participant to be able to do, as required, to participate in the CRR process.
Market User Interface Overview (cont.)

Summary of MUI Functions

• **Public data functions**
  – Download public CRR data
  – Retrieve public messages

• **Private data functions**
  – Download private data, including auction results
  – Retrieve private messages
  – Create, upload, edit and submit CRR allocation and auction portfolios
  – Upload/view historical/forecasted load data
  – Transfer ownership of CRRs using the secondary registration system
Market User Interface Roles

• **The Market User Interface has two “roles”** – Non Restricted (MUI) and Restricted (MUI – Restricted)
  
  - Non Restricted Access (MUI) – Individual that has signed Exhibit A of the CRR FNM NDA.
  - Restricted Access (MUI – Restricted) – Individual has not signed Exhibit A of the CRR FNM NDA.

• **CRR FNM NDA** is located at [http://www.caiso.com/market/Pages/ProductsServices/CongestionRevenueRights/Default.aspx](http://www.caiso.com/market/Pages/ProductsServices/CongestionRevenueRights/Default.aspx)

• **Contact:** CAISO NDA @ caisonda@caiso.com
## Public and Private Download Summary

### CRR System Download Summary

<table>
<thead>
<tr>
<th></th>
<th>Non Restricted Access</th>
<th>Restricted Access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auction</td>
<td>Allocation</td>
</tr>
<tr>
<td>General</td>
<td>Existing CRRs *</td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td>Network Model,</td>
<td>Network Model,</td>
</tr>
<tr>
<td></td>
<td>Contingencies,</td>
<td>Contingencies,</td>
</tr>
<tr>
<td></td>
<td>Monitored Lines and</td>
<td>Monitored Lines</td>
</tr>
<tr>
<td></td>
<td>Transformers,</td>
<td>and Transformers,</td>
</tr>
<tr>
<td></td>
<td>Interface Definitions</td>
<td>Interface</td>
</tr>
<tr>
<td>Market</td>
<td>Source and Sink Data,</td>
<td>Source and Sink</td>
</tr>
<tr>
<td></td>
<td>Base Loading CRRs</td>
<td>Base Loading</td>
</tr>
<tr>
<td>Market Result</td>
<td>CRR Results**,</td>
<td>CRR Results**,</td>
</tr>
<tr>
<td></td>
<td>Binding Constraints,</td>
<td>Source/Sink Clearing Prices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Binding Constraints</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Download</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>Existing CRRs</td>
<td></td>
</tr>
<tr>
<td>Market</td>
<td>Source and Sink Data,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signature Validation Data</td>
<td></td>
</tr>
<tr>
<td>Market Result</td>
<td>CRR Results</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** CRR Results (results for nomination and bid CRRs for that market—no previously fixed CRRs will be displayed)

* Existing CRRs are all outstanding non-expired CRRs
Public - General Tab

1) Click here to retrieve public data

2) Click here to select downloadable General Data - Existing CRR Data

3) Click on list box to select category

4) Click here on the link to download the desired item – then at the subsequent prompt, enter the name of the file to be saved to

5) Existing CRRs are all outstanding non-expired CRRs by the time the file was updated (last modified date).

6) Last Modified Date is the last time the file was updated.
Public - Network Tab

1) Click here for the list of downloadable Network Data

2) Select Auction or Allocation button

3) Click on the desired link to download the respective network model data files

Note: This tab does not appear if you are a MUI - Restricted users

<table>
<thead>
<tr>
<th>Download Type</th>
<th>Network Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AUC_MN_2012_M03_TC_ON.raw PSSEv25_AUC_MN_2012_M03_TC_OFF.raw</td>
</tr>
<tr>
<td>Contingencies</td>
<td>XML Format</td>
</tr>
<tr>
<td>Monitored Lines And Transformers</td>
<td>XML Format</td>
</tr>
<tr>
<td>Interface Definitions</td>
<td>XML Format</td>
</tr>
</tbody>
</table>

Note: The full network model for on and off peak periods will likely be the same.
Public - Market Tab

1) Click here for the list of downloadable Market Data

2) Select Auction or Allocation, then the desired market

3) Select the market name from the drop down list (note: both on and off-peak CRRs are included in the same market.)

4) Click on the desired file
Public – Market Results Tab

1) Click here for the list of downloadable Market Results Data

2) Select Auction or Allocation, then the desired market

Note: Binding Constraints does not appear if you are a MUI – Restricted users

1) Click on the desired file
### Public Messages

#### Public CRR
- Downloads
- Messages

#### Private CRR

<table>
<thead>
<tr>
<th>Posted</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-03-18T17:12:27-0700</td>
<td>The April 09 Tier 2 Allocation results are now available via the MUI. Please check the values. Please send any questions related to the results to <a href="mailto:cradata@caiso.com">cradata@caiso.com</a> by COB Friday, March 20th. Thanks CRR Team</td>
</tr>
<tr>
<td>2009-03-16T08:31:11-0700</td>
<td>Candidate CRR Holders, This is a reminder that the nomination window for Tier 2 of the April Monthly Allocation process opened at 0100 on Monday March 16th and will close at 1700 on Monday March 16th. Thanks.</td>
</tr>
<tr>
<td>2009-03-13T16:59:49-0700</td>
<td>The MEOs for Tier 2 of the April is now available. The data is located at Private CRR - Downloads - Market. Please validate this information and contact <a href="mailto:cradata@caiso.com">cradata@caiso.com</a> by March 15th. Thanks, CRR Team</td>
</tr>
<tr>
<td>2008-12-02T17:47:43-0800</td>
<td>Good Afternoon. The CRR team has posted the 2009 Annual Auction market results today. You can download and review the results through the CRR MUI system.</td>
</tr>
<tr>
<td>2008-11-10T16:09:04-0800</td>
<td>Good Afternoon. The CRR team has posted the 2009 Allocation Tier 3 market results today. You can download and review the results through the CRR MUI system.</td>
</tr>
<tr>
<td>2008-10-30T18:00:03-0700</td>
<td>10/30/08 Due to the size of the exist CRR file, several Market staff members requested for us to provide to them the results from the TOR market. The results are attached here. Please send any questions or comments to <a href="mailto:cradata@caiso.com">cradata@caiso.com</a>. Thanks</td>
</tr>
<tr>
<td>2008-10-30T13:57:56-0700</td>
<td>10/30/08 Attached is the posted results from 2009 Long Term Tier. Please contact <a href="mailto:cradata@caiso.com">cradata@caiso.com</a> if you have any questions. Thanks.</td>
</tr>
<tr>
<td>2008-10-28T16:22:08-0700</td>
<td>Good Afternoon. The CRR team has posted the Long Term 2010 market results today. You can download and review the results through the CRR MUI system.</td>
</tr>
<tr>
<td>2008-10-15T16:10:10-0700</td>
<td>Good Afternoon. The CRR team has posted the TOR 2010 market results today. You can download and review the results through the CRR MUI system. Please also find Long Term CRR for 2010 from the previous Long Term market in the Existing CRRs download.</td>
</tr>
<tr>
<td>2008-10-13T18:44:49-0700</td>
<td>Good evening. The CAISO has successfully posted the 2009 Annual Allocation Tier 2 results on Oct 13 2008. Please access the CRR MUI system to download and review your results. Please let the CRR team know if you have any question.</td>
</tr>
<tr>
<td>2008-10-07T17:06:26-0700</td>
<td>CRR Tier 2 Annual Allocation 2009 market nomination submission window was closed at</td>
</tr>
</tbody>
</table>

1) Click here to see the Public Message Board
2) Any messages will be posted here
Public Messages

• View current messages broadcasted by the ISO CRR Market Operators

• Messages are color coded depending on their priority
  – Low (Green)
  – Medium (Yellow)
  – High (Red)
Private – General Tab

1) Click here to navigate to the Private CRR Downloads

2) Click here to select downloadable General Data - Existing CRR Data

3) Click on list box to select category

4) Click the desired download format – this prompts for the name of the file to be saved to.
Private – Market Tab

1) Click here to navigate to the Private CRR Downloads

2) Click here to select downloadable Market – Market Validation Data

3) Click on list box to select category

4) Click the desired download format – this prompts for the name of the file to be saved to
Private – Market Results Tab

1) Click here to navigate to the Private CRR Downloads

2) Click here for the list of downloadable Market Results Data

3) Select Auction or Allocation radial button

4) Hit the drop down arrow and then select the market name, then click on the desired link
Private – Load Migration Tab

1) Click here to navigate to the Private CRR Downloads

2) Click here for the list of downloadable Load Migration Data

3) Hit the drop down arrow, select the market name and then click on the XML format link to download
Private Messages

1) Click here to see the Private User Message Board

2) All messages will be posted here

3) Messages from CRR market operators are color coded (green, yellow and red)

4) Messages in black are posted by the system

5) All attachments will be shown here. Click on the link to download the attachment (if there are any).
Section 2 – Questions

Market User Interface
  • Requesting access to CRR System
  • Market Participant Portal
    • CRR MUI
    • CRR Full Network Model
  • MUI Overview and Navigation
    • Roles
    • Public data downloads and messages
    • Private data downloads and messages
Section 3 – Open Access Same-Time Information System (OASIS)

CRR Information on OASIS
- CRR Inventory
- CRR Auction Clearing Prices
- CRR Auction Bid Data
Open Access Same-time Information System (OASIS)

Welcome to the California ISO Open Access Same-time Information System (OASIS) site. On OASIS you will find real-time data related to the ISO transmission system and its Market, such as system demand forecasts, transmission outage and capacity status, market prices and market result data.

**Standards Information**
- North American Energy Standards Board (NAESB)
- ISO Business Practice Models
- Available Transfer Capability Information

**OASIS History**
This site contains reports from April 1, 2009 to the current trading day.
- Access prior trading day as:

**System Help**
For interface technical specifications, product release plans and other supporting documents go to:
- System Technical Information
- Support
- Other OASIS sites

This information, which includes Nexant’s copyright material, is provided for the purposes of this presentation with permission of Nexant.
Open Access Same-time Information System (OASIS)

- Access Public CRR data
  - Inventory
  - Clearing Prices
  - Public Bids
- URL: [http://oasis.caiso.com/mrioasis](http://oasis.caiso.com/mrioasis)
Open Access Same-time Information System (OASIS)

How to retrieve Inventory data
• Congestion Revenue Rights – CRR Inventory
Open Access Same-time Information System (OASIS)

Filters:
- Start Date
- Market Name
- Term
- Time of Use

Dates have to be between the start date and the end date of the specified market for data to show.

Apply to show data

Download data in xml or csv format
Open Access Same-time Information System (OASIS)

How to retrieve Clearing Prices
• Congestion Revenue Rights
  – CRR Clearing Prices
Open Access Same-time Information System (OASIS)

Filters:
- Start Date
- Market Name
- Term
- Time of Use

Dates have to be between the start date and the end date of the specified market for data to show.

Download data in xml or csv format

Apply to show data
Open Access Same-time Information System (OASIS)

CRR Public Bids

- Bids submitted and used in the CRR auction markets, with bid id masked by pseudo bid id.
- Posted for the monthly auctions 90 days after the close of markets and seasonal auctions after each relevant quarter has passed.
- The Public Bid Data is downloadable to XML and CSV only, for a single market at a time.
Open Access Same-time Information System (OASIS)

How to retrieve Public Bids
  • Public Bids
    – CRR Public Bids
Open Access Same-time Information System (OASIS)

Filters:

- Start Date
- Market Term

Effective start date of the auction market, has to be the first day of the term

Select market term to choose monthly auction market or seasonal auction market

Download data in xml or csv format
Section 3 – Questions

CRR Information on OASIS

- CRR Inventory
- CRR Auction Clearing Prices
- CRR Auction Bid Data
Section 4 – Secondary Registration System

• SRS Overview
• Bulletin Board Postings
• Credit Evaluation
Secondary Registration System Overview

- Market Participants may trade CRRs bilaterally amongst themselves. The Tariff requires these trades to be registered with the CAISO.
  - The Secondary Registration System (SRS) is part of the CRR system and is designed only to facilitate the trading of CRRs by market participants. It does not effectuate buys and sells.
  - The financial rights (possibly portions of it) for each traded CRR are reassigned to the new owner by the SRS.
  - The SRS is used to register changes in CRR ownership so the CAISO Settlement system is aware of the current owner.
  - The SRS has an automated credit check to allow the ISO to ensure credit worthiness of buyers and sellers.
  - Seller and Buyer need to register CRR transfers 5 business days before effective date of transfer of revenues associated with the CRR (Tariff section 36.7.3) or with sufficient time for the ISO to perform the necessary credit check.
Secondary Registration System

• SRS operates like a “classified advertisement” bulletin board
  – CRR buy bids and sell offers are posted like advertisements for other market participants to see and peruse on their own
  – Market participants
    • Communicate directly with the owners that have posted the item of interest
    • Negotiate the terms of the CRR transaction
    • Finalize the financial settlement privately
  – The money is exchanged outside the purview of the CRR System
  – Only the transfer of ownership of the CRR is conducted through the CRR System.

• The SRS registers change of ownership only and the CAISO is not responsible for any disputes with regards to the financial settlement of secondary transaction
Secondary Registration System

- All existing CRRs may be posted
  - On the CAISO SRS bulletin board
  - Only viewed by CAISO-accredited CRR Market Participants
- During the process of transferring ownership of a CRR, the CRR system
  - Will conduct a credit check to ensure credit worthiness of buyer and seller
- Once the transfer of ownership is complete, the CRR system
  - Considers the new owner for settlement purposes in regard to future billing statements
Secondary Registration System

For more details on how to execute a buy or sell offer in the SRS please refer to section 8 of the Market User Interface manual. For any assistance please contact the CRR team at crrdata@caiso.com.
Section 4 – Questions

- SRS Overview
- Bulletin Board Postings
- Credit Evaluation
- End of CRR MUI Overview and SRS Training