California ISO
Your Link to Power

Straw Proposal

Congestion Revenue Rights Credit Policy Enhancements

April 14, 2008

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Credit Policy Enhancements

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CRR Credit Policy Enhancements

Prepared for Discussion at Stakeholder Conference Call on April 21, 2008

1 Executive Summary

In the March 25, 2008 Issue Paper titled "CRR Credit Policy Enhancement" (located at: http://www.caiso.com/1f95/1f95f64823100.pdf) and at an April 1, 2008 stakeholder meeting, the CAISO summarized current CRR credit policy and discussed potential policy enhancements with stakeholders. Based on these discussions and the written comments received on April 8, the CAISO now offers Straw Proposals on three issues related to CRR credit policy and proposes to defer three issues for future discussion with stakeholders.

1) **Credit policy enhancements related to CRR transfers associated with load migration;**

Pursuant to existing tariff provisions, when load migrates from one LSE to another, the CAISO will create and allocate new CRRs to the load gaining LSE and will assign counter-flow CRRs to the load losing LSE to offset the CRRs to be transferred with load. If the load losing LSE has already sold the allocated CRRs prior to load migration or the LSE has procured offsetting counter-flow CRRs through the auction, there is a potential risk that the load losing LSE may not have enough credit coverage to cover the counter-flow CRRs, and may be unable to provide it. To prevent this from occurring, the CAISO proposes the following:

i) Disallow netting between allocated CRRs and auctioned CRRs in the credit holding requirement calculation. This will prevent a LSE from cashing out its allocated CRRs and eliminating ongoing credit requirements for holding the allocated CRRs, and

ii) Require LSEs selling allocated CRRs to maintain sufficient credit coverage to cover the counter-flow CRRs that offset the CRRs being sold.

The CAISO recognizes that the proposed enhancement may increase credit requirements for holding CRRs for some market participants. The CAISO nevertheless believes the risk that a LSE may not be able to take on a future counter-flow CRR in the event of load migration, should be mitigated and that the alternative—prohibiting sales of allocated CRRS—would be more onerous to LSEs than requiring credit coverage at the time of sale.

2) **Enhancement to credit holding requirement calculation for Short-Term CRRs**

To reduce the risk of auction prices potentially undervaluing short-term CRRs, i.e., CRRs with a term of one year or less, the CAISO proposes, in the determination of credit holding requirements, to consider both the historical expected value and the auction prices. This enhancement will be implemented one year after the startup of MRTU when seasonal market operation data becomes available.

3) Pre-Auction Credit Margin Requirement

To date, the CAISO has not required auction participants to establish credit coverage for both auction prices and the Credit Margin for their bids in advance of the auction. The Credit Margin is currently a component of the credit requirements for holding CRRs. Currently, the MRTU tariff provides that holding requirements are calculated after the completion of the auction. However, there is a risk that the total amount of available auction credit/collateral is lower than the requirements for holding the CRRs. It is possible that a CRR auction participant could successfully win a portfolio of CRRs, but subsequently not be able to provide sufficient credit coverage for the portfolio.

To mitigate this risk, the CAISO proposes to require auction participants to cover the Credit Margin as part of their credit requirements for participating in the auction.

Other CRR Credit Policy Enhancement Issues Deferred to Subsequent Stakeholder Processes:

- **Reassessment of credit coverage for Long-Term CRRs**

  This issue will be included within a future stakeholder process that may be assessed through the *Market Initiatives Roadmap*.

- **Requirement for corporate parent credit backing of affiliated market participants' Estimated Aggregated Liability**

  In light of stakeholder comments, the CAISO proposes to include this issue within the stakeholder process for other general credit policy enhancements anticipated to begin later this year.

- **Allow the CAISO to increase credit requirements for CRRs due to extraordinary circumstances** such as extended transmission outages and other circumstances that could shift or increase CRR obligations substantially above expected values contemplated at the time of the CRR auction.

  As noted in the March 25 issue paper, the CAISO believes that it has tariff authority to increase credit requirements when events demonstrate CRR credit requirements are not adequate. Nevertheless, the CAISO agrees with stakeholders that it should have a transparent methodology for calculating additional credit requirements and will continue to work with stakeholders to develop an approach for making such calculations.

A separate paper explaining Straw Proposals on other *CRR Issues* is posted and will be reviewed by stakeholders concurrently within this process.

2 Proposed Timetable for this Stakeholder Process

March 25	CAISO posts ***Issues Paper on CRR Credit Policy Enhancements*** as well as separately posted ***Issues Paper*** on other CRR-related topics.
April 1	Initial Stakeholder Meeting *(10:00 am-5:00 pm @ CAISO's North and South Lake Tahoe Room)*
April 8	Initial Stakeholder written comments due to CRRComments@caiso.com
April 14	CAISO posts ***Straw Proposal*** for CRR Credit Policy Enhancements as well as a separately posted ***Straw Proposal*** on other CRR-related policy changes.
April 21	Stakeholder Conference Call
April 28	Stakeholder written comments due to CRRComments@caiso.com
April 30	CAISO posts ***Final Proposal*** for policy changes
May 7	Final Stakeholder Conference Call
May 21-22, 2008	Presentation to CAISO Board of Governors
Late May	Filing to FERC on CRR Issues

The CAISO proposes the following additional dates for stakeholder review of draft tariff changes that will be filed at the conclusion of this stakeholder process, assuming approval by the CAISO Board of Governors.

- May 1: CAISO posts draft Tariff Language
- May 15: Stakeholder written comments due
- May 23: Stakeholder conference call to review draft Tariff Language (tentatively between 10:00 am – 1:00 pm)
- May 30: Filing to FERC on CRR Issues

3 Straw Proposals on CRR Credit Policy Issues

This section offers Straw Proposals on three major CRR credit policy enhancements for stakeholder review and discussion.

3.1 Credit Policy Enhancements Related to CRR Transfers Associated with Load Migration

LSEs receive allocated CRRs free of charge through the allocation process based on the load that they serve. When load migrates from one LSE to another, the CRRs associated with the migrated load must be transferred to the load gaining LSE. According to the current CAISO MRTU Tariff, the CAISO will create new CRRs identical to the CRRs being transferred with load and allocate the new CRRs to the load gaining LSE. The load losing LSE will be assigned counter-flow CRRs to offset the CRRs to be transferred with load.

Specifically, MRTU Tariff Section 36.8.5.3 states that, upon load migration, the CAISO "*will perform the adjustments by creating and allocating equal and opposite sets of new CRRs for each pair of LSEs affected by Load Migration. The net Load gaining LSE of the pair will receive a set of new CRRs that match the CRR Sources and CRR Sinks of all the Seasonal CRRs and Long Term CRRs previously allocated to the net Load losing LSE of the pair, in MW quantities proportional to the net amount of the net Load losing LSE's Load that migrated to the net Load gaining LSE of the pair within each LAP in which the LSEs serve Load. The net Load losing LSE of the pair will receive a set of new Offsetting CRRs.*"

A potential credit risk exists in the situation where the original owner does not have financial capability to cover the credit requirements of the counter-flow CRRs upon load migration. This could occur in either one of the following circumstances:

1) The load losing LSE has already sold the allocated CRRs prior to load migration; or
2) The LSE has procured offsetting counter-flow CRRs through a subsequent auction.

In either case, prior to the load migration, according to the current CRR credit policy, the LSE may need to maintain little or no credit coverage for the CRRs or other obligations with the CAISO. Therefore, once load migration occurs, there is a risk that the load losing LSE would be unable to meet the financial requirements of taking on the counter-flow CRRs.

It has been observed in the first CRR allocation and auction process that some LSEs that received allocated CRRs bought negatively-valued near exact counter-flow CRRs from the auction (i.e. were paid by the CAISO to take on such CRRs). At present, the allocated CRRs offset the counter-flow CRRs in credit requirement calculation.[1] To mitigate the associated credit risk, the CAISO proposes to prohibit netting between allocated CRRs and auctioned CRRs in the credit requirement calculation. As a result, LSEs that acquire counter-flow CRRs in the auction would need to have sufficient available unsecured credit and/or posted collateral to hold those auctioned CRRs.

In summary, to mitigate the credit risk of CRR transfers associated with load migration, the CAISO suggested several credit enhancement options for stakeholder discussion in the March 25 Issue Paper. With consideration of the stakeholder comments received on April 8, the CAISO now proposes the following:

1) Disallow netting between allocated CRRs and auctioned CRRs in the credit holding requirement calculation, and

2) Require LSEs selling allocated CRRs to maintain sufficient credit coverage (through an unsecured credit limit or posted collateral) to cover the counter-flow CRRs that offset the CRRs being sold.

As a result, LSEs that have acquired counter-flow CRRs in the auction or have sold allocated CRRs will need to have sufficient collateral to cover the counter-flow CRRs. This enhancement will prevent a LSE from cashing out its allocated CRRs, thus eliminating ongoing credit requirements for the allocated CRRs.

This proposed enhancement may increase credit requirements for holding CRRs for some market participants, nevertheless, the CAISO believes the risk that a LSE may not be able to take on a future counter-flow CRR in the event of load migration, should be mitigated and that an alternative—prohibiting sales of allocated CRRS—would be more onerous to LSEs than requiring credit coverage at the time of sale.

3.2 Enhancement to Short-Term CRR Credit Holding Requirement Calculation

The current MRTU Tariff (Section 12.6.3.2) defines the credit requirement for holding a Short-Term CRR (with a term of one year or less) as the following:

$$Credit\ Requirement = -CRR\ Auction\ Price + Credit\ Margin$$

That is, the credit requirement for holding a CRR is calculated based on its auction price plus a credit margin. The credit margin is calculated based on the distribution of historical values of the CRR.[2] In this formula, the auction price is used as a proxy for the expected value of the underlying CRR.

[1] As defined in MRTU Tariff Section 12.6.3.1 (b), "*If a CRR Holder owns more than one CRR, such CRR Holder shall be subject to an overall credit requirement that is equal to the sum of the individual credit requirements applicable to each of the CRRs held by such CRR Holder.*"

[2] The methodology of credit margin calculation is documented in a technical bulletin posted to the CAISO website at: http://www.caiso.com/1bb4/1bb4745611d10.html#1c20b49260210

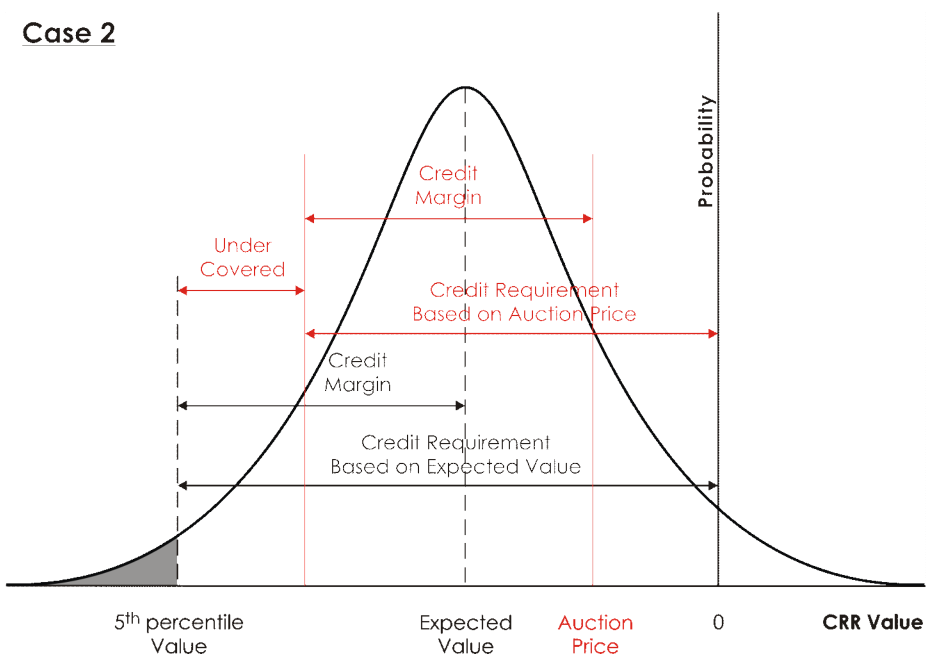
There are two available alternatives for predicting the expected value of a CRR: 1) the historical value of the CRR, and 2) the auction price. Following earlier discussions with stakeholders, the CAISO had previously concluded that, due to the lack of market operation data prior to the start of MRTU, auction prices were really the only realistic alternative.

Looking beyond the startup of MRTU, the CAISO is reviewing the existing CRR credit policy and evaluating approaches to improve the accuracy of holding credit requirement calculation after market operation data becomes available.

The CAISO has considered how historical expected value can also be used to calculate the expected value of a CRR and believes that it should be used when the auction price for a negatively-valued CRR is higher (i.e., less negative) than its historical value would indicate. Using historical expected values in this circumstance will reduce the risk of insufficient credit coverage based on auction prices. The CAISO has examined various scenarios that could happen for both positively-valued and negatively-valued rights. The analysis shows that in most scenarios the current credit policy provides sufficient coverage for the financial risks associated with CRRs. However, under one specific scenario the credit requirement calculated based on auction prices would be insufficient.

Figure 1 demonstrates the scenario of a negatively-valued CRR, for which the auction price is higher (less negative) than the historical expected value. In this case, the credit requirement based on the auction price would be less than that based on the historical expected value. When this occurs, the CAISO may not have sufficient credit coverage to protect against a default. In this circumstance, the CAISO believes that it should use the historical expected value rather than the auction price to establish the credit requirements for holding the CRR.

Figure 1. Scenario of Insufficient Credit Requirement



To reduce the risk associated with relying exclusively on the auction prices, the CAISO proposes to consider also the historical expected values of CRRs in determining credit requirements for holding CRRs when that would reduce credit risk. Specifically, the CAISO proposes to modify the formula for calculating the credit requirement for holding a Short-Term CRR defined in Tariff Section 12.6.3.2

$$Credit\ Requirement = -CRR\ Auction\ Price + Credit\ Margin$$

to

$$\begin{aligned} Credit\ Requirement = & -\min(CRR\ Auction\ Price, Historical\ \ Expected\ Value) \\ & + Credit\ Margin \end{aligned}$$

With this enhancement, when historical market data suggest that the auction prices are undervalued, the CAISO will use the more conservative of the two values, and establish the credit requirement based on the historical expected value of the CRR derived from actual historical market data. This will provide additional assurance that CRR holders have sufficient credit coverage to meet CRR payment obligations.

Although the CAISO proposed to file tariff language for the authority to use historical expected value, it will not be able to calculate such value until one year after the start-up of MRTU when seasonal market operation data becomes available.[3] While the CAISO collects and analyzes seasonal CRR data, auction values will be used for the first year of MRTU operation.

The CAISO proposes to calculate historical expected values in a manner consistent with the credit margin calculation, i.e. at a daily level ($/MW-Day) for each month and for both peak, off-peak, and Sunday. The calculation of both historical excepted value and credit margin of a specific month will be based on the same historical market operation data of the same month of the most recent years (up to 3 years).

Some stakeholders suggest marking the CRR contracts to market based on actual congestion costs. The CAISO system depends heavily on hydro generation, which has an obvious seasonal pattern. As such, the power flow on the grid may change direction from one season to the next, and the value of CRRs (congestion costs) changes accordingly. Thus, the CRR congestion cost in the most recent month is not necessarily the best indicator of the congestion cost in the upcoming period.

The CAISO believes that the best indicator should be the CRR congestion cost of the same months of the most recent years. The proposed revision will then actually provide the most realistic "mark to market" approach possible taking seasonality into

[3] Due to the seasonal pattern of power flows CRR values may change significantly from one season to another. Therefore historical expected values and credit margins should be calculated based on seasonal historical data.

account given that holding requirements for seasonal and monthly CRRs will be updated monthly.

Some stakeholders also suggest using the LMP Study data as an interim solution before the historical expected values become available one year after the MRTU startup. The LMP study data are simulated prices based on zonal market prices from the pre-MRTU supplemental energy market, which has different rules than the MRTU market. As such, using the expected CRR value based on the LMP Study data in the calculation of credit holding requirement may not necessarily improve the accuracy.[4]

3.3 Pre-Auction Credit Margin Requirement

The current CAISO Tariff specifies the credit requirement for participating in the CRR auction as the greater of $500,000 or the sum of the absolute values of the bids.[5] The purpose of this requirement is to ensure that auction participants bidding for positively-priced CRRs have sufficient credit to cover the bid price and to ensure that auction participants bidding for negatively-valued CRRs have sufficient available credit (through Unsecured Credit and/or posted collateral) to take on such negatively valued CRRs.

However, this requirement is not intended to provide coverage for potential losses due to the volatility of the underlying value of the rights. For example, if an auction participant only bids for zero-priced CRRs, the submitted bids would be zero, and the only credit support posted would be $500,000, which may be insufficient to cover the default risk associated with these rights if these rights turn out to be negative. While the participant would be required to post collateral sufficient to cover the auction price and the credit margin subsequent to the auction, a market participant may be unable to do so, because of intervening events that occur between the auction and the establishment of the ongoing credit requirements, or due to a misunderstanding by the market participant about the ongoing credit requirements.

Both NYISO and MISO have also recently recognized the default risks associated with negative, zero, and low-positive priced CRRs. For example, based on a study conducted by the NYISO, low-positive transmission rights run a disproportionately greater risk of reversing, thereby becoming negative and requiring the customer to make payments.[6] Both NYISO and MISO have recently filed enhancements to their credit policies by requiring minimum dollar-per-MW credit posting requirements for submitting bids in auctions. The minimum posting requirements address the risk associated with a market participant who obtains a significant number of negative, zero-priced, or low-positive transmission rights during an auction but is unable to satisfy the credit

[4] The LMP Study data were only used for credit margin calculation to capture the volatility of the CRR congestion revenue.

[5] Specifically, Tariff Section 12.6.2 states that “Each Candidate CRR Holder that participates in a CRR Auction shall ensure that its Aggregate Credit Limit in excess of its Estimated Aggregate Liability is the greater of $500,000 or the sum of the absolute values of all of its bids for CRRs submitted in the relevant CRR Auction.”

[6] The NYISO study was conducted based on TCC auction data through 2006.

requirements for holding those rights following the close of the auction. It is the CAISO's understanding that both NYISO and MISO will be making further enhancements to their credit policies to ensure that holding requirements are also similarly adjusted.

The CAISO's credit policies do address this risk as part of the CRR holding requirements. That is, the CAISO requires the CRR Holder to post a Credit Margin in addition to any credit requirements derived from the auction price (and/or historical expected value, as proposed elsewhere in this paper for a Tariff amendment.) To date, the CAISO has not required that auction participants establish credit coverage for the Credit Margin related to their bids during the auction.

Accordingly, there is a risk that an auction participant could win CRRs that have a credit holding requirement in excess of their available credit during the auction, and they would be unable to post additional collateral.

Most stakeholders who submitted written comments on April 8th support the inclusion of the full Credit Margin in the bidding requirement, and the CAISO agrees that this is the preferred approach. This would provide coverage commensurate with the risk of the CRRs, in that more volatile CRRs would need higher coverage and less volatile rights would require lower coverage. Any excess collateral coverage posted for auction participation in excess of holding requirements can be released to the Market Participants after the close of the auction.

There are two aspects of the current policy that may, in some cases, already provide some excess collateral coverage that could be used to meet the subsequent holding requirement including the credit margin. These include the $500,000 minimum credit required to participate in the auction, and the fact that a participant is unlikely to be the winning bidder for all CRRs that they bid on. However, these may not provide sufficient coverage in all cases to ensure that the market participant is able to meet the subsequent CRR holding requirement established by the CAISO after the close of the auction. While the CAISO does have the ability to "repossess" CRRs and resell them in a subsequent auction if a participant does not meet a collateral call, this is an imperfect solution, as the CAISO may not be able to sell the CRRs that were defaulted upon and prices of other CRRs may have been affected by the bids of the defaulting party.

With the inclusion of the full Credit Margin, the credit requirement for participating in the CRR auction would be the greater of $500,000 or the sum of the absolute values of the bids plus the amount contributed by Credit Margin.

$$\begin{aligned} &Pre-Auction\ \ Credit\ \ Requirement \\ &\qquad = \max[\$500{,}000,\ \sum_{CRR\,i}(|bid\,price_i| + Credit\,Margin_i \times MW_i)] \end{aligned}$$

4 Other CRR Credit Policy Enhancement Issues to Be Addressed In Future Stakeholder Processes

Based on stakeholder feedback, the CAISO will consider the following issues in future stakeholder processes and will not be asking for Board approval of these issues at the May 2008 CAISO Board meeting.

4.1 Reassessment of Credit Requirement for Long-Term CRRs

The CAISO conducted a stakeholder process in summer 2007 and obtained the CAISO Board of Governors' approval for full-term credit coverage for LT-CRRs. The CAISO filed this proposal with FERC. FERC instead approved only a one year credit requirement for LT-CRRs, finding that "multiplying by ten (or by the remaining number of years in the long-term CRR's term) the auction price of a one-year CRR does not accurately forecast the expected value of a long-term CRR for the duration of its term."[7]

Based on this concern, FERC found it was "reasonable under the circumstances to choose lower barriers to entry over the risk of potentially burdensome over-collateralization. Nevertheless, we encourage the CAISO to develop an appropriate method for estimating the value of allocated long-term CRRs that is representative of the financial risk associated with the long-term CRR, and takes into account all years covered by the long-term CRR."[8]

In the March 25, 2008 "*CRR Credit Policy Enhancement Issue Paper*", the CAISO discussed its intent to re-file the full-term credit coverage for LT-CRRs with a modified credit requirement calculation formula to include the "one year historical expected value" of the LT-CRR.[9] Most stakeholders submitting comments on April 8th supported enhancing the credit requirement for LT-CRRs, but several commentators suggested the proposal would benefit from additional stakeholder discussion. Thus, to allow more time to develop an appropriate methodology to assess the credit requirement for LT-CRRs, the CAISO will defer this issue to a future stakeholder process.

4.2 Requirement for Corporate Parent Credit Backing of Affiliated Market Participants Aggregated Liability

In the March 25 *Issue Paper*, the CAISO suggested entities might be required to provide corporate guaranties to multiple affiliated market participants in order to provide

[7] "Order Conditionally Accepting in Part and Rejecting in Part Tariff Revisions." 120 FERC ¶ 61,192 at P 45 (2007)
[8] *Id.*
[9] The March 25, 2008 CRR Credit Policy Enhancement Issue Paper and stakeholder comments are posted to the CAISO website at: http://www.caiso.com/1b8c/1b8cdf25138a0.html

a single guarantee backing the aggregate liabilities of the affiliated entities in the event of a default by any covered market participant.

Most stakeholders who submitted written comments on April 8th suggested additional time to understand the potential legal and regulatory consequences of this proposal. Several commentators recommended this issue be decoupled from the current stakeholder process. Thus, the CAISO will address this issue within the upcoming stakeholder process for other general credit policy issues later this year.

4.3 Allow the CAISO to Increase Credit Requirements for CRRs Based on Extended Transmission Outages and other Circumstances that Could Shift or Increase CRR Liabilities

Extraordinary circumstances such as extended transmission outage or other abnormal grid conditions could dramatically increase the payment obligations for a CRR. Although, over time, the CAISO will be able to incorporate historical outage information in the calculations of historical expected value, that calculation is necessarily historical and may not adequately cover near-term anticipated prospective obligations associated with extended transmission outages or, possibly, other events that could dramatically change the risk profile of a CRR.

Accordingly, in the March 25 Issue Paper, the CAISO suggested it might clarify its tariff authority so that the CAISO could impose additional credit requirements if it finds that neither the auction value nor historical expected values adequately cover the anticipated exposure of the CRR.

Most stakeholders submitting written comments on April 8th favored the concept for adjusting CRR credit holding requirements due to extraordinary circumstances, but several commentators also recommended that the CAISO clearly establish in advance the methodology it would use to calculate the increased credit requirements.

As previously stated, the CAISO believes that it has the authority to request additional security in the event it finds that existing credit coverage is not sufficient to cover the prospective liabilities. Nevertheless, the CAISO agrees that it is reasonable and appropriate to engage in additional discussions with stakeholders in the future stakeholder process to develop a methodology for calculating credit requirement under such circumstances.