Draft Final Proposal on CRR Credit Policy Enhancements

Near-term Enhancements to Congestion Revenue Rights (CRR)

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1. Executive Summary

The ISO has released short-term and long-term CRRs for the start of its new market design through the annual and monthly allocation and auction processes for CRRs that have been in effect since April 1, 2009. The ISO's experience in conducting these processes provides an opportunity to consider refinements in some details of CRR and related processes. The ISO has identified several issues as candidates for further refinements. The ISO's stakeholder process has used the publication and discussion of, and comments on, an Issue Paper on CRR-related credit and non-credit issues, and a Straw Proposal and Update to Straw Proposal concerning the credit-related subset of issues. While the stakeholder process is continuing on other issues, specific CRR credit policy enhancements will be presented to the ISO's Board of Governors in December 2009.

The proposal addressed in this Draft Final Proposal revises the current credit requirements for participation in CRR auctions to improve the ISO's credit coverage and efficiency of collateral usage, to facilitate participation in the auctions. The collateral required for participating in the auction will be sufficient to cover both the payments due to the ISO for winning the auction and the credit requirement for holding the winning CRRs, without requiring the auction winner to post additional collateral in order to hold the winning CRRs.

2. Background

The Federal Energy Regulatory Commission's (FERC) approval of the February 2006 tariff filing in support of the California ISO's new market design, and several subsequent filings and associated orders, established the policy for Congestion Revenue Rights (CRRs) in the ISO's current market. The ISO has released short-term and long-term CRRs for the start of its new market design through the allocation and auction processes for CRRs that have been in effect since April 1, 2009. The ISO now conducts both annual and monthly CRR allocation and auction processes for the release of prospective CRRs. This experience provides an opportunity to consider refinements in some details of CRR and related processes.

The ISO has identified several issues as candidates for further refinements, through publication of an Issue Paper on CRR-related credit and non-credit issues, and a Straw Proposal and Update to Straw Proposal concerning the credit-related subset of issues, followed by discussions at stakeholder meetings and conference calls, and receipt of stakeholder comments. The areas under consideration for further refinements include:

- CRR-Related Credit Issues: (1) Implement CRR credit policy enhancements (which are the subject of this document), (2) define a process for re-selling CRRs of a defaulting CRR holder, and (3) establish the process for re-evaluation of holding credit requirements for extraordinary circumstances, and
- Non-Credit Policy and Business Process Issues: (1) Revise the current process for transferring CRRs due to load migration between LSEs to resolve data-handling issues, (2) revise modeling and treatment of trading hubs in CRR allocation to reduce needs for market participants to hold large numbers of small CRRs, (3) eliminate multi-point CRRs from CRR design to facilitate sale of CRRs in the auction and other new features as strongly desired by stakeholders, (4) improve the objective function for optimization to equitably distribute CRR allocations among participants, (5) improve the structure of sequential tier in the monthly CRR allocation, (6) allow sale of CRRs in the CRR auctions, (7) refine modeling approaches to reinforce CRR revenue adequacy, and (8) automate tracking of Long Term CRRs.

Among the CRR-Related Credit Issues, the proposal addressed in this Draft Final Proposal revises the current credit requirements for participation in CRR auctions to improve the ISO's credit coverage and efficiency of collateral usage, to facilitate participation in the auctions. The ISO is proceeding with implementation of this proposal as expeditiously as possible, to achieve this benefit. As the stakeholder process began, the ISO determined that the necessary software changes could not be implemented in time for the CRR auction for 2010, but the proposal will facilitate monthly auctions during 2010, after FERC approval and software implementation.

In comments on the ISO's Straw Proposal on CRR-Related Credit Issues, stakeholders requested further discussion of the process for re-selling CRRs of a defaulting CRR holder, before the ISO proceeds to publish a Draft Final Proposal, and the ISO will do so as it considers the non-credit-related issues. Through the stakeholder process, the ISO has refined its existing practices for re-evaluating credit requirements under extraordinary circumstances such as extended outages, and will establish the ongoing business process through the Business Practice Manual change management process.

The set of Non-Credit Policy and Business Process Issues is the subject of a continuing stakeholder process, and future Board presentations where policy changes are involved. Some issues involve software changes or tariff amendments, while others are process changes that will be documented in Business Practice Manuals.

3. Key Features of Proposal

The ISO proposes to determine the pre-auction credit requirement such that the collateral required for participating in the auction should be sufficient to cover both the payments due to the ISO for winning the auction and the credit requirement for holding the winning CRRs. In other words, the auction winner should not need to post any additional collateral in order to hold the winning CRRs.

The proposal changes two portions of the calculation of credit requirement for participating in CRR auction:

- First, the minimum credit requirement for participating in an auction, which serves primarily as a threshold to prevent possible misuse of the auction opportunities, will be reduced in the monthly CRR auction to more accurately reflect its smaller volumes relative to the annual auction. The minimum credit requirement for a bid portfolio

submitted by a bidder will be $500,000 in the annual auction or $100,000 in the monthly auction.

- Second, the proposal revises the calculation of the maximum credit exposure to determine the pre-auction credit requirement for a bid, for MW values within the range from zero to the maximum MW value of the bid. The revised calculation limits bid prices to non-negative values for purposes of calculating credit exposure.

The pre-auction credit requirement for a bid portfolio submitted by a bidder will be the greater of the minimum credit requirement and the sum of calculated pre-auction credit requirements for all bids in the portfolio. The existing ISO tariff also requires auction winners of negative-valued CRRs to post sufficient collateral to meet the holding credit requirements before they are paid for winning the auction. With the proposed method, the value the bidder won in the auction (market clearing price times the cleared MW value) will be used to meet the credit requirement for holding the winning CRR, rather than being paid to the bidder.

Two examples show circumstances in which the pre-action credit requirements determined by the proposed method are lower than that based on the existing method, while, together with the auction winning values, remaining sufficient to cover the credit requirement for holding the winning CRRs. (There are other situations where both methods will produce the same pre-action credit requirements and provide the same coverage for the auction.)

4. Details of Proposal

This Draft Final Proposal describes the issues that need to be addressed concerning credit requirements and processes associated with CRRs, and the solutions that the ISO believes will resolve the issues. In general, the ISO has concluded that the preliminary solutions discussed in its Straw Proposal are workable and resolve the identified issues, but the ISO continues to invite feedback from stakeholders regarding whether the ISO has appropriately identified solutions that resolve the issues that need to be addressed, before the ISO presents its recommendations to its Board of Governors.

4.1. CRR-Related Credit Issues

4.1.1. CRR Credit Policy Enhancements

4.1.1.1. Purpose of Revisions

The ISO's credit policy for Congestion Revenue Rights (CRR) is designed to protect the financial interests of market participants against risks associated with CRRs. On the other hand the credit policy must not create unnecessary barriers to entry for participating in the ISO's CRR market. To balance these factors, based on the outcomes of market operation and the feedback from stakeholders, the ISO proposes to revise the calculation of pre-auction credit requirement. The enhancement may reduce pre-auction credit requirements for some market participants. It will, however, not compromise the credit coverage for the CRR auction.

4.1.1.2. Existing Pre-auction Credit Requirement

The pre-auction credit requirement is designed such that the collateral required for participating in the auction should be sufficient to cover both the payments due to the ISO for winning the auction and the credit requirement for holding the winning CRRs. In other words, the auction winner should not need to post any additional collateral in order to hold the winning CRRs.

According to the existing ISO tariff, the credit requirement for participating in CRR auction is calculated as:

$$Pre-Auction\ \ Credit\ \ Requirement = \max[\$500{,}000, \sum_i (|bid_i| + Credit\ Margin_i \times \overline{MW}_i)]$$

where $\overline{MW}_i$ is the maximum MW value of the bid for CRR_i.[1]

In the ISO's CRR Business Practice Manual, $|bid_i|$ is defined as the maximum bid credit exposure based on the bid curve for CRR_i.[2] This definition ensures that the pre-auction credit requirement will be sufficient to cover both the auction payment due to the ISO (for positive-valued CRRs) and the holding credit requirement when the bidder wins the auction for CRR_i. The maximum bid credit exposure, $|bid_i| = \max_{MW_i} |Bid\ \mathrm{Price}_i \times MW_i|$ ($0 \le MW_i \le \overline{MW}_i$), is often found at MW_i that is different from $\overline{MW}_i$. Two different values of MW used in the calculation could result in an excessive pre-auction credit requirement.

The existing ISO tariff also requires auction winners of negative-valued CRRs to post sufficient collateral to meet the holding credit requirements before they are paid for winning the auction. This requirement is reflected in the calculation of pre-auction credit requirement. That is, the bidder for a negative-valued CRR must post collateral to cover both bid credit exposure and credit margin credit exposure. Based on this rule, there is money swap at the auction settlement process that may not be necessary. For example, the auction winner of a -$100,000 CRR needs to post a collateral of $100,000 plus credit margin (say $50,000) before he is paid the $100,000 winning bid. The $100,000 takes a round trip between the winner and the ISO at the auction settlement. As discussed below, changing $|bid_i|$ to $\max(0, bid_i)$ in the pre-auction credit requirement calculation could avoid the money swap and lower the credit requirement for bidding for negative-valued CRRs, without weakening the credit coverage for the auction.

4.1.1.3. Proposed Enhancement

The ISO proposes to change the calculation of credit requirement for participating in CRR auction to:

$$Pre-Auction\ \ Credit\ \ Requirement = \max[MinReq, \sum_i \max_{MW_i}(\max(0, BidPrice_i \times MW_i) + Credit\ Margin_i \times MW_i)]$$

where,

[1] The ISO Tariff Section 12.6.2.

[2] The ISO Business Practice Manual for Congestion Revenue Rights, Version 5, Attachment H.

MW_i - the MW value within the range of the bid curve for CRR_i, i.e., $0 \le MW_i \le \overline{MW}_i$

$BidPrice_i$ - the bid price ($/MW) corresponding to MW_i on the bid curve for CRR_i

$MinReq$ - the minimum credit requirement for participating in a CRR auction.

Based on the proposed pre-auction credit requirement, all bids that are accepted are fully collateralized. The change in the calculation can be considered in two parts.

First, the minimum credit requirement for participating in an auction serves primarily as a threshold to prevent possible misuse of the auction opportunities. Some participants could submit negative priced bids to create profitable opportunities for other associated parties and then default at the end of the auction. Similar situations have happened to other ISOs. The minimum requirement should be set to a value that is considered as a significant penalty to such participants, without unnecessarily burdening other participants. Currently the minimum credit requirement for participating in a CRR auction (annual or monthly) is $500,000. Stakeholder comments suggested that the ISO consider a different minimum pre-auction credit requirement for monthly auctions since the volumes are smaller in the monthly auctions. To determine the minimum credit requirement for participating in a monthly CRR auction, the ISO reviewed the results of monthly auctions from April to September of 2009. About 60% of the auction participants had either payment due to the ISO or holding credit requirements less than $100,000 at the end of the auctions. The ISO believes this is an appropriate value and proposes to set the minimum credit requirement for participating in a monthly CRR auction at $100,000.

This proposal does not change the minimum credit requirement for participating in an annual CRR auction, which will remain at $500,000. Thus, the value of $MinReq$ will be $500,000 for annual auction and $100,000 for monthly auction.

Second, the term $\max_{MW_i}(\max(0, BidPrice_i \times MW_i) + Credit\,Margin_i \times MW_i))$ finds the maximum credit exposure of this bid for CRR_i by varying MW_i value within the range between 0 and $\overline{MW}_i$. The maximum credit exposure will be the pre-auction credit requirement for this bid. The pre-auction credit requirement for a bid portfolio submitted by a bidder will be the greater of $500,000 and the sum of calculated pre-auction credit requirements for all bids in the portfolio.

The next section presents two examples, which demonstrate that with the proposed method, the pre-auction credit requirement could be lowered while still providing sufficient credit coverage for the CRR auction.

4.1.1.4. Numerical Examples

The following examples illustrate the differences between the existing and proposed methods in the calculation of pre-auction credit requirement. The sufficiency of the pre-auction credit requirement calculated based on the proposed method is also analyzed based on the examples.

Example 1: Pre-auction credit requirement for a positive-valued CRR bid

In this example of a portion of its participation in the CRR auction, the bidder submits a bid curve for a positive-valued (monthly or seasonal) CRR. The bid curve has four segments, as shown in Table 1. The credit margin of the CRR in this example is assumed to be $4/MW over

the month or season. The total credit exposures calculated using the existing method and the proposed method are listed in Table 1.

Table 1. Comparison of Credit Exposures

Bid Curve		Existing Method			Proposed Method		
Bid Segment (MW)	Bid Price ($/MW)	Bid Segment Credit Exposure ($)	Credit Margin Credit Exposure ($)	Total Credit Exposure ($)	Bid Segment Credit Exposure ($)	Credit Margin Credit Exposure ($)	Total Credit Exposure ($)
0~5	15	75	200	275	75	20	95
5~20	13	260	200	**460**	260	80	340
20~35	7	245	200	445	245	140	**385**
35~50	3	150	200	350	150	200	350

Both methods calculate bid segment credit exposure in the same way. It is the product of the maximum MW value and the bid price of each bid curve segment.

With the existing method, credit margin credit exposure is calculated as the product of the maximum MW value of the bid curve and credit margin (50x4). Total credit exposure is the sum of bid segment credit exposure and credit margin credit exposure. In this example, the maximum total credit exposure is $460, which occurs at the 20 MW value on the bid curve. The pre-auction credit requirement for this bid curve is set to $460 in order to cover the largest possible credit exposure of this bid curve.

The proposed method calculates credit margin credit exposure for each segment of the bid curve as the product of the maximum MW value of the segment and credit margin. Therefore, the bid segment credit exposure and credit margin credit exposure are calculated using the same MW value. The maximum total credit exposure is $385 at the 35 MW value on the bid curve. It is also the pre-auction credit requirement for this bid. The proposed method produces a lower pre-auction credit requirement than the existing method does in this example.

Table 2 confirms that the $385 pre-auction credit requirement is sufficient to cover both the auction payment due to the ISO and the holding credit requirement if the bidder wins the auction.

Table 2. Pre-auction Credit Requirement vs. Holding Credit Requirement

Bid Curve		Market Clearing Price ($/MW)	Payment Due to the ISO ($)	Holding Credit Requirement ($)	Pre-Auction Credit Requirement ($)	Additional Collateral Needed ($)
Bid Segment (MW)	Bid Price ($/MW)					
0~5	15	15	75	0	385	0
5~20	13	12	240	0	385	0
20~35	7	7	245	0	385	0
35~50	3	2	100	100	385	0

Assuming the auction market clearing price for the CRR is $15/MW, this bid will clear 5 MW. The auction payment due to the ISO is $75 and the credit requirement for holding this 5 MW CRR is $0.[3] The total collateral required at the auction settlement is $75. The $385 pre-auction credit requirement is sufficient for that purpose.

If the market clearing price is $2/MW, the auction payment due to the ISO is $100 and the holding credit requirement is $100. The total collateral required at the auction settlement is $200, which is fully covered by the $385 pre-auction credit requirement. There is no need for any additional collateral.

Example 2: Credit requirement for a negative-valued CRR bid

In this example, the bid curve has the same four segments as in Example 1, but with negative bid prices (see Table 3). The credit margin of the CRR in this example is $4/MW, the same as in Example 1.

Table 3. Comparison of Credit Exposures

Bid Curve		Existing Method			Proposed Method		
Bid Segment (MW)	Bid Price ($/MW)	Bid Segment Credit Exposure ($)	Credit Margin Credit Exposure ($)	Total Credit Exposure ($)	Bid Segment Credit Exposure ($)	Credit Margin Credit Exposure ($)	Total Credit Exposure ($)
0~5	-3	15	200	215	0	20	20
5~20	-7	140	200	340	0	80	80
20~35	-13	455	200	655	0	140	140
35~50	-15	750	200	**950**	0	200	**200**

The existing method calculates bid segment credit exposure as the absolute value of the product of the maximum MW value and the bid price of each bid curve segment. The proposed

[3] Based on $Holding\ Credit\ Requirement = (-Auction\ Price + Credit\ Margin) \times MW$ and no negative credit requirement.

method has zero segment credit exposure because the auction winning value will be counted toward the holding credit requirement.

The calculation of credit margin credit exposure is the same as in Example 1 for both methods.

The maximum bid credit exposure is $950 with the existing method and $200 with the proposed method, which are also the pre-auction credit requirements determined by the two methods. The proposed method produces a lower pre-auction credit requirement than the existing method does.

Table 4. Pre-auction Credit Requirement vs. Holding Credit Requirement

Bid Curve		Market Clearing Price ($/MW)	Auction Winning Value ($)	Holding Credit Requirement ($)	Pre-Auction Credit Requirement ($)	Additional Collateral Needed ($)
Bid Segment (MW)	Bid Price ($/MW)					
0~5	-3	-4	20	40	200	0
5~20	-7	-9	180	260	200	0
20~35	-13	-13	455	595	200	0
35~50	-15	-20	1000	1200	200	0

With the proposed method, the value the bidder won in the auction (market clearing price times the cleared MW value) will not be paid to the bidder. Instead it will be used to meet the credit requirement for holding the winning CRR. The analysis of the sufficiency of pre-auction credit requirement calculated based on the proposed method is summarized in Table 4.

If the auction market clearing price for the CRR is -$4/MW, this bidder will clear 5 MW. The winning value the ISO will hold is $20. The credit requirement for holding this 5 MW CRR is $40. The total collateral required at the auction settlement is $20 (40-20) that will be covered by the $385 pre-auction credit requirement. The $365 remaining collateral will be returned to the bidder.

If the auction price is -$20/MW, the winning value by the bidder is $1000. The holding credit requirement for the 50 MW winning CRR is $1200. The total collateral required at the auction settlement is $200 that will come from the $200 pre-auction credit requirement. This is the only situation the pre-auction credit requirement will be fully used, in conjunction with the CRR revenues that will be withheld, to meet the holding credit requirement. In each of the cases above, under the proposed methodology, the CRR revenue that the bidder would have been paid, plus the $200 of posted collateral for the credit margin, is sufficient to cover the holding credit requirement.

4.1.1.5. Summary of the Examples

In both examples, the pre-action credit requirements determined by the proposed method are lower than that based on the existing method. The pre-auction credit requirements, together with the auction winning values, are sufficient to cover the credit requirement for holding the winning CRRs.

There are other situations where both methods will produce the same pre-action credit requirements and provide the same coverage for the auction.

5. Stakeholder Process and Comments

The ISO's stakeholder process began with the publication of its Issue Paper, and stakeholder discussion of the Issue Paper, in August 2009 for the purpose of identifying in collaboration with stakeholders the priority of the issues and to begin identifying and evaluating alternatives. The ISO received initial written comments from stakeholders, which the ISO considered in formulating its Straw Proposal, which it published and discussed in a stakeholder meeting in September 2009, which also continued discussion of the non-credit issues at the level of the Issue Paper. Stakeholder comments identified additional issues, which the ISO addressed in an update to the Straw Proposal.

The schedule for issue identification on all issues, and resolution of CRR-related credit issues, has been as follows:

Date	**Activity or milestone**
August 14	Publish Issue Paper
August 21	Stakeholder conference call on CRR-Related Credit Issues in Issue Paper, and preliminary questions on other issues
August 28	Stakeholder comments on Issue Paper
September 1	Straw Proposal on CRR-Related Credit Issues
September 8	Stakeholder meeting on CRR-Related Credit Issues Straw Proposal and on Issues Paper for other issues
September 15	Stakeholder comments on CRR-Related Credit Issues Straw Proposal and on Issues Paper for other issues
September 25	Update to Straw Proposal on CRR-Related Credit Issues
October 5	Stakeholder conference call on Update to Straw Proposal on CRR-Related Credit Issues
October 12	Stakeholder comments on Update to Straw Proposal on CRR-Related Credit Issues
November 2	Draft Final Proposal on CRR Credit Policy Enhancements
Week of November 16	Stakeholder Conference Call on Draft Final Proposal on CRR Credit Policy Enhancements
December	Board decision on CRR-Related Credit Issues
January	FERC Filing on CRR-Related Credit Issues
Implementation dates will vary depending on policy resolution and software development.	

The CRR Credit Policy Enhancements addressed in this Draft Final Proposal have received essentially unanimous support in the stakeholders' submitted comments. The ISO initially proposed the revised calculation of credit exposure in its Issue Paper, and received positive comments. Stakeholder comments further suggested that the ISO consider a different minimum pre-auction credit requirement for monthly auctions since the volumes are smaller in the monthly auctions. As described in previous sections, the ISO determined that it will be appropriate to set the minimum credit requirement for participating in a monthly CRR auction at $100,000.

Southern California Edison requested the ISO provide additional information on the settlement implication of using the negatively valued auction revenues as collateral. The ISO will provide the stakeholders with this information during the review of business requirements, during the implementation process for these changes.

Silicon Valley Power asked the ISO to develop a timeline for implementing an enhancement that allows netting between allocated CRRs and auctioned CRRs in holding credit requirement calculation. The implementation of this feature will require considerable changes to the current software. It would be difficult to commit to a specific plan at this time, but the ISO will consider this comment further in the future.