

Business Practice Manual for Credit Management & Market Clearing

Version ~~44~~15

Last Revised: ~~3-1-2022~~X-XX-XXXX

Approval History

Approval Date: June 6, 2007

Effective Date: June 6, 2007

BPM Owner: Ryan Seghesio

BPM Owner's Title: Chief Financial Officer & Treasurer

Revision History

Version	PRR	Date	Description
<u>15</u>	<u>XXXX</u>	<u>XXXX</u>	<u>Revisions to Section 8.4.1 related to Market Participants Leaving the Market or Incurring Substantial Activity Level Changes</u>
14	1400	3-1-22	Revisions to Section 8.4.1 related to Market Participants Leaving the Market or Incurring Substantial Activity Level Changes
13	1264	1-1-21	Revisions to Section 6.1 and 6.2 related to updated Settlements Timeline
12	1204	1-1-20	Revisions related to updated language for RMR Contracts <ul style="list-style-type: none"> • Updates related to legacy RMR invoices and deviation interest calculations • Banking changes for RMR contracts vs legacy RMR contracts
11	944	12-31-16	Miscellaneous revisions to update and enhance the BPM <ul style="list-style-type: none"> • Updated credit contacts • Added clarifying language in regards to the Officer Certification Form due date (Section 2.1) • Added a footnote in regards to excluded charges codes related to the quarterly default allocation percentage calculation (Section 9.6) • Added language regarding shortfall and default loss allocation (section 9.6.1) • Added language regarding post-closing adjustments and dispute resolution (Section 9.8) • Added language regarding new Credit Portal reports (Section 11.2.3) • Other minor revisions and language clean up
10	879	12-31-15	Minor revisions and language clean up to Section 9 regarding payment defaults

Version	PRR	Date	Description
	827		Withdrawn
9	798	12-31-14	<p>Miscellaneous revisions to update and enhance the BPM</p> <ul style="list-style-type: none"> • Updated title of BPM to Credit Management & Market Clearing • Replaced references to “ISO” with “CAISO” to conform to company standards (all sections) • Replaced CAISO Finance with CAISO Credit (all sections) • Updated list of Business Practice Manuals (Section 1.1) • Added language regarding market clearing and the credit portal (Section 1.2) • Removed language regarding the Direct Participation Officer Certification Form (Section 2.1) • Added “penalty and perjury” to Officer Certification language (Section 2.1) • Added language regarding random verification (Section 2.1) • Added reference to Section Six of the Officer Certification form (Section 2.1) • Updated language to reflect written communication for ongoing verification (Section 2.1) • Added language regarding increases/decreases for minimum participation requirements (Section 2.1) • Updated the overview of the BPM to include updated sections, as needed (Section 2.4) • Added BPM reference for collateral calls (Section 3.4) • Updated language to reflect electronic communication (Section 3.4) • Updated language to include electronic notification to market participants (Section 4.2) • Updated link to Acceptable Forms of Financial Security (Section 5.1) • Updated language to include bank statement access information (Section 5.7) • Updated language to include notification by CAISO for expiring financial instruments (Section 5.8) • Updated the term “convergence” to “virtual” (Section 6) • Updated the extrapolated EAL component description to provide additional clarity (Section 6.2) • Updated extrapolated examples (Section 6.2) • Updated language for CRR Winning Bid to CRR Auction Awards to confirm to tariff (Section 6.2) • Update language for Estimated Aggregate Liability

Version	PRR	Date	Description
			<p>adjustments to include extraordinary adjustments (Section 6.2)</p> <ul style="list-style-type: none"> • Updated language regarding valuation of Market Participant's CRR portfolio (Section 6.2.2) • Updated EAL components to conform to Section 6.2 (Section 6.2.3) • Updated EAL components to conform to Section 6.2 (Section 6.2.4) • Moved Estimate Aggregate Liability Adjustments Section 6.2.4) and included language for Ordinary and Extraordinary Settlements Adjustments (Section 6.2.5 and 6.2.5.1) • Added language for alternative dispute resolution for Ordinary and Extraordinary Settlements Adjustments (Section 6.2.5.1) • Updated language to calculation of EAL for new Market Participants to conform to tariff (Section 6.3) • Moved Section 7.4 and 7.5 (CRR Holder and Virtual Bidding Financial Security Requirements) to their own respective BPM sections (Section 7) • Updated virtual bid reference price language to include quarterly price validation (Section 7.5.2) • Removed reference to credit requirements to CRRs (Section 8) • Updated language regarding recommended collateral requests (Section 8.1) • Updated the table to remove the reference to recommended collateral calls starting at 70% (Section 8.1) • Updated the table to reflect greater than 90% (Section 8.1) • Added language to reflect the credit margin calculation (Section 7.4.2) • Added "secured available" to the credit requirements for CRR auctions (Section 7.4.3) • Added in language regarding failure to satisfy CRR credit requirements (Section 7.4.4) • Removed outdated language for communication with CRR Holders (Section 7.5) • Added language to reflect the quarterly reference price validation (Section 7.5.2) • Updated Section 8 to include language for response to Financial Security requests (Section 8.2) • Relocated the language for enforcement actions for late posting of financial security (Section 8.3) • Updated language to include CAISOCredit email address and

Version	PRR	Date	Description
			<p>written communication for reducing Financial Security (Section 8.4)</p> <ul style="list-style-type: none"> Added additional language regarding declining/reducing a release of Financial Security (Section 8.4) Added section for Market Clearing (Section 9) Removed repetitive notification language (Section 9.1) Added footnote referencing the list of scheduling coordinators, CRR holders and convergence bidding entities (Section 9.1) Added footnote referencing the CAISO Payment Calendar (Section 9.3) Added in additional language for review of creditworthiness with delay of payment or default (Section 9.6.1) Relocated the language for enforcement actions for late payments (Section 9.7) Add tariff reference for non-compliant Market Participants (Section 10.1) Updated section title and summary information (Section 11) Updated footnote for monthly financial reports (Section 11.1) Added section for the CAISO Credit Portal (Section 11.2) Updated footnote referencing the pro-forma RMR agreement (Section 13.2)
8	677	9-4-13	<p>Revisions related to the financial and credit policy tariff amendment approved by FERC on January 29, 2013 (http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20130129-3019) as well as other cleanup items.</p> <ul style="list-style-type: none"> Replaced references to "CAISO" with "ISO" to conform to Company standards (all Sections) Updated the list of Business Practice Manuals (BPMs) to conform to the CAISO's website (Section 1.1) Renamed Moody's KMV to Moody's Analytics (Sections 1.3 and 4) Added criteria for direct participation in the CAISO Markets (Section 2.1) Updated the link to the CAISO's Application for Unsecured Credit (Section 3.1) Added minor clarifying language to the Rating Agency Reports section (Section 3.3) Included language restricting speculatively-graded Market Participants from having Unsecured Credit Limits (Section 4.2)

Version	PRR	Date	Description
			<ul style="list-style-type: none"> Updated language for affiliated entities and unsecured credit (Section 4.6) Updated the link to the CAISO's webpage where form Financial Security instruments may be found (Section 5.1) Updated the acceptable forms of Financial Security to eliminate certificates of deposit, surety bonds, payment bond certificates and escrow accounts (Sections 2.4 and 5.1) Removed guarantees from the list of Financial Security as it is not generally considered a type of Financial Security (Section 5.1) Updated the Enforcement Actions for Late Payments section to increase the number of late payments (Section 8.2) Updated the Enforcement Actions for Late Posting of Financial Security section to remove references to the effective date for this provision (Section 8.3) Updated the footnote and link to access CAISO financial reports to the Board of Governors (Section 9.3) Updated the link in the footnote to the Pro-Forma Reliability Must Run contract (Section 11.2)
7	539	2-28-12	<p>Updated Section 2.1 to describe the CAISO's certification and verification processes including an enhanced description of the components of the Officer Certification Form.</p> <p>Updated Sections 7.4.2 and 7.4.3.1 to establish criteria for which a federal agencies available credit for participating in any CRR Auction will be determined.</p>
6	473	10-1-11	<p>Revisions related to the implementation of FERC Order 741 credit reforms (effective October 1, 2011).</p> <ul style="list-style-type: none"> Update to Available Credit definition (Section 1.3) Update language for minimum participation requirements (Section 2.1) Updated language for material adverse change (Section 3.4) Additional language to include Market Participant Affiliates under the \$50 million Unsecured Credit Limit Cap (Section 4.1) Added language to state that a guarantor is subject to the maximum unsecured credit limits (Section 5.6) Updated three (3) business day collateral posting requirements to two (2) business days (Section 7.1, 7.3, 8.3, 9.1, 10.2) Added language to describe that candidate CRR holders must provide secured collateral for CRR credit requirements (Section 7.4, 7.4.2, 7.4.3) Update language in reference to credit related information

Version	PRR	Date	Description
			<p>published by the CAISO (Section 9.3)</p> <ul style="list-style-type: none"> Removed graph (Section 9.3) Updated number of unpaid obligations (Section 6.1) Updated language to reflect weekly settlements (Section 6.1) Removed outdated Estimated Aggregate Liability example (Section 6.1) Updated and modified EAL components to conform to FERC Order 741 (Section 6.2) Added examples for daily and monthly extrapolation formulas (Section 6.2) Updated valuation of Market Participant's CRR Portfolio (Section 6.2.2) Updated language to the wheeling access charge payment (Section 6.2.5) Updated language to calculation of EAL for new Market Participants (Section 6.3) Updated BPM Owner's Title
5	339	01-18-11	<p>Revisions related to the implementation of convergence bidding (effective February 1, 2011)</p> <ul style="list-style-type: none"> Updated affiliate disclosure information (Section 3.4) Added three Virtual Bid EAL components (Section 6.2) Added new section to describe how Virtual Bid EAL components are adjusted (Section 6.2.3) Added new sections to describe credit requirements for Virtual Bids (Sections 7.5, 7.5.1 and 7.5.2)
4	307	09-29-10	<p>Miscellaneous revisions to update the BPM to align with the tariff</p> <ul style="list-style-type: none"> Changed the maximum unsecured credit limit to \$50 million (Sections 4.1, 4.2, 4.3.3.1, 4.3.3.2, 4.3.3.3 and 4.4.2) Updated or deleted Tariff references (Section 3.1, 3.4, 4.5, 5.1, 5.2 and 5.7) Deleted the footnote pertaining to the reduction of the maximum Unsecured Credit Limit (Section 4.2) Corrected percentage in Step 5 to align with Step 3 (Section 4.3.3.1) Deleted footnote that pertained to pre-MRTU credit practices (Section 6.1) Modified EAL component descriptions to conform to tariff (Section 6.2) Deleted the section and associated footnote related to EAL components prior to the release of MRTU (Section 6.4) Changed the frequency of EAL calculations from weekly to

Version	PRR	Date	Description
			<p>daily (Section 7.1)</p> <ul style="list-style-type: none"> Changed the actions associated with different utilization levels to conform to tariff (Sections 7.1 and 9.1) Corrected the time required to post additional financial security to conform with tariff (Sections 7.3 and 9.1) Updated the Enforcement Actions for Late Payments section to conform to the tariff (Section 8.2) Updated the Enforcement Actions for Late Posting of Financial Security section to conform to the tariff (Section 8.3)
3	75	11-02-09	<p>Revisions resulting from the implementation of Payment Acceleration – Includes typo revisions from PRR 99.</p> <ul style="list-style-type: none"> Changed the maximum number of days of charges outstanding (Section 4.1) Updated the footnote regarding the maximum Unsecured Credit Limit (Section 4.1) Changed terminology to be consistent with MRTU naming conventions (Section 6.1) Added FERC fees and WAC as potential obligations due the CAISO (Section 6.1) Changed the range of trade days outstanding for daily Charge Codes and monthly Charge Codes. In addition, updated the graphs as well as the example (Section 6.1) Updated the descriptions of the Invoiced, Published, Estimated and Extrapolated Estimated Aggregate Liability components (Section 6.2) Updated the number of Trade Days to reflect the number of Trade Days of historical Settlements data required to properly calculate the Extrapolated Estimated Aggregate Liability component (Section 6.3)
2		03-31-2009	<p>Revisions reflecting the CAISO's Credit Policy Tariff Amendment filing on 1/29/2009: FERC Order 3/31/09</p> <ul style="list-style-type: none"> Unsecured credit limit calculation (Sections 1.3, 3.3, 4.3.1.1 – 4.3.1.3, 4.3.2, 4.3.3.1 – 4.3.3.3, 4.4.1, 4.4.1.1) Deleted the definition of several terms because the terms are no longer used in the revised unsecured credit limit calculation including Average Rating Default Probability, Base Default Probability, Credit Rating Default Probability, Combined Default Probability and MKMV Default Probability Introduced the term Moody's KMV Equivalent Rating as part of the revised unsecured credit limit calculation Definition of Tangible Net Worth (Sections 1.3, 4.3.1.3,

Version	PRR	Date	Description
			<p>4.3.2)</p> <ul style="list-style-type: none"> Maximum Unsecured Credit Limit (Sections 4.1, 4.2, 4.4.2) Time to post additional Financial Security (Sections 6.1, 7.1, 9.1, 10.2) Available credit for CRR auctions (Section 7.4.2) Enforcement actions for late payments (Section 8.2) Enforcement actions for late posting of Financial Security (Section 8.3) <p>Revisions to include other stakeholder approved credit policy enhancements:</p> <ul style="list-style-type: none"> Foreign Guarantees (new Sections 5.4, 5.5) Affiliate Guarantees (Section 5.6) <p>Other minor changes to this BPM to bring it into alignment with the Tariff and other BPMs including:</p> <ul style="list-style-type: none"> Elimination of the use of the abbreviation "UCL" as the short form for the defined term Unsecured Credit Limit Elimination of the use of the abbreviation "ACL" as the short form for the defined term Aggregate Credit Limit Elimination of the use of the abbreviation "EAL" as the short form for the defined term Estimated Aggregate Liability Elimination of the use of the abbreviation "TNW" as the short form for the defined term Tangible Net Worth Elimination of the use of the abbreviation "TNWP" as the short form for the phrase "Tangible Net Worth Percentage" and revise that phrase to read "percentage of Tangible Net Worth" Elimination of the use of the abbreviation "NAP" as the short form for the phrase "Net Assets Percentage" and revise that phrase to read "percentage of Net Assets" Elimination of the use of the abbreviation "NA" as the short form for the defined term Net Assets Elimination of the use of the abbreviation "NRSRO" for the defined term Nationally Recognized Statistical Rating Organization Elimination of the use of the abbreviation "WAC" as the short form for the defined term Wheeling Access Charge Replacement of the term Out of Control Area Load Serving Entity for the term Out-of-Balancing Authority Area Load Serving Entity

Version	PRR	Date	Description
			<ul style="list-style-type: none"> Substitute the defined term Joint Powers Authority for the undefined and incorrect term Joint Powers Agency Replace the phrase “high-quality market accounts” in Section 5.7.1 with the phrase “money market accounts” to be consistent with the CAISO’s current investment policy as adopted by the CAISO Governing Board Replace references to the word “collateral” with the more precise defined term Financial Security Replace the phrases “Annual FERC Fees” and “FERC Fees” in Section 6.2 with the more precise defined term FERC Annual Charges Add new enforcement section in Section 8 to distinguish enforcement actions regarding under-secured Market Participants from enforcement actions for late payments or the late posting of Financial Security Added Affiliate disclosure to the list of Other Qualitative and Quantitative Credit Strength Indicators (Section 3.4) to bring in line with the current CAISO Tariff. Updated the operators in the tables in Sections 7.1 and 9.1 to coincide with the Tariff and each other Replace BPM Owner Phil Leiber with Kevin King Remove Phil Leiber contact information Change 4.3.1.2 table to reflect Moody’s rating of C Added BPM for Transmission Planning Process to Exhibit 1-1
1.2		11-19-07	Addresses situations where Moody’s KMV EDF is not available or is not reasonably applicable in determining a Market Participant’s Unsecured Credit Limit. Updated sections include Section 4.2 (1 and 2), 4.3.1.2, 4.3.2 and 4.3.3.1.
1.1		09-12-07	<p>Revised Section 6.2.2 and 7.4.3.1 to reflect FERC’s 8/28/2007 order on the valuation of Long Term CRRs.</p> <p>Removed “DRAFT” from posted copy of this BPM.</p>
1		06-06-07	<p>Initial Version Release. This BPM is based on the Credit Policy and Procedures Guide that was last updated May 31, 2007. The updated Credit Policy & Procedures Guide was revised to reflect the CAISO’s compliance filing for FERC’s April 19, 2007 order on the CAISO’s June 2006 credit filing.</p> <p>This BPM reflects the following changes from the May 31, 2007 Credit Policy & Procedures Guide:</p>

Version	PRR	Date	Description
			<ul style="list-style-type: none">• Conform to BPM section numbering format.• Add CRR provisions (affecting Section 6, 7, 8, 9)• Revise Estimated Aggregate Liability calculation to include CRRs, availability of estimated settlements data in the CAISO's Settlements system, elimination of the "level posting period". Add provisions for Wheeling Access Charge prepayment for Out of Control Area Load Serving Entities to the Estimated Aggregate Liability calculation and as described in 6.2.4• List RMR financial requirements in Section 11• For new SCs, require 45 days of initial security rather than 14.• Reorganize Section 3-Unsecured Credit Limits.• Change references to "ISO" to "CAISO"• Provide for a transition period to the new Estimated Aggregate Liability calculation, described in Section 6.4.• Added to Enforcement Actions (Section 8) limit on transfer of CRRs through SRS for under-secured Market Participants.• Described in Section 9.3 credit information published monthly in the CAISO's monthly financial report.

TABLE OF CONTENTS

1. Introduction	15
1.1. Purpose of California CAISO Business Practice Manuals	15
1.2. Purpose of this Business Practice Manual	15
1.3. References	17
2. Credit Policy Overview	20
2.1. Credit Policy Applicability and Goal	20
2.2. Principles	26
2.3. Contacts	26
2.4. Overview of this BPM	27
3. Unsecured Credit	29
3.1. Unsecured Credit Assessment Requirements	29
3.2. Financial Statements	30
3.3. Rating Agency Reports	31
3.4. Other Qualitative and Quantitative Credit Strength Indicators	32
4. Unsecured Credit Limit Calculation	35
4.1. Purpose of Unsecured Credit Limit	35
4.2. Classes of Entities That May Be Eligible for Unsecured Credit	35
4.3. Unsecured Credit Limit Calculation for Rated and Unrated Public/Private Corporations and Rated Governmental Entities	37
4.3.1. Definitions Used in Calculating Unsecured Credit Limits	37
4.3.2. Unsecured Credit Limit Calculation for Rated/Unrated Public/Private Corporations and Rated Governmental Entities	40
4.3.3. Unsecured Credit Limit Calculation Examples	41
4.4. Unsecured Credit Limit Calculation for Unrated Governmental Entities	45
4.4.1. Criteria for Unsecured Credit for Unrated Governmental Entities Other Than Those that Receive Appropriations from the Federal Government or a State Government	45
4.4.2. Unsecured Credit Limit for an Unrated Governmental Entity That Receives Appropriations from the Federal Government or a State Government	47
4.5. Unsecured Credit Limit Calculation for Local Publicly Owned Electric Utilities ...	47
4.5.1. Public Entities Operating Through Joint Power Agreements	48
4.6. Unsecured Credit Limit Issues for Affiliated Entities	49

5.	Approved Forms of Financial Security Instruments.....	50
5.1.	Forms of Financial Security.....	50
5.2.	Standard & Non-Standard Forms	50
5.3.	Minimum Debt Ratings.....	51
5.4.	Foreign Guarantees	51
5.5.	Canadian Guarantees	54
5.6.	Financial Security through Affiliates	55
5.7.	Prepayments as Financial Security.....	55
5.7.1.	Risk of Loss for Prepayments.....	55
5.8.	Expiration of Financial Instruments	56
6.	Estimated Aggregate Liability Calculation.....	57
6.1.	Estimated Aggregate Liability Overview	57
6.2.	Estimated Aggregate Liability Components	58
6.2.1.	Estimated Aggregate Liability Is Calculated for a Market Participant on an Aggregate Basis	61
6.2.2.	Valuation of a Market Participant's CRR Portfolio	62
6.2.3.	Valuation of a Market Participant's Virtual Bid Components	62
6.2.4.	Wheeling Access Charge Prepayment.....	64
6.2.5.	Estimated Aggregate Liability Adjustments.....	64
6.2.5.1.	Ordinary and Extraordinary Settlements Adjustments.....	65
6.3.	Calculation of the Estimated Aggregate Liability for New Market Participants ...	66
7.	Credit Requirements for CRR's and Virtual Bids.....	67
7.1.	CRR Holder and Candidate CRR Holder Financial Security Requirements.....	67
7.2.	Credit Requirements for CRR Allocations	67
7.5	Virtual Bid Financial Security Requirements.....	71
7.5.1	Credit Checking for Virtual Bids.....	71
7.5.2	Virtual Bid Reference Prices.....	72
8.	Comparison of Estimated Aggregate Liability to Aggregate Credit Limits and Requests for Additional Financial Security	73
8.1	Comparison of Estimated Aggregate Liability to Aggregate Credit Limits	73
8.2	Required Market Participant Response to Financial Security Requests	74
8.3	Enforcement Actions for Late Posting of Financial Security.....	75
8.4	Reducing the Amount of Financial Security	76
8.4.1	Debtor/Creditor Market Participants Leaving the Market or Incurring Substantial Activity Level Changes.....	77

9. Weekly Market Clearing.....	78
9.1 Overview of Market Clearing Process and Invoice Payment Options	78
9.2 Publishing of CAISO Market Invoices	79
9.3 Deviation Interest Calculation	79
9.4 One Day Prior to Market Clearing	80
9.5 Day of Market Clearing	80
9.6 Late Payments and Payment Defaults	81
9.6.1 Shortfall and Default Loss Allocation.....	82
9.6.2 Review of Creditworthiness	82
9.7 Enforcement Actions for Late Payments	83
9.8 Post-Closing Adjustments and Dispute Resolution	84
9.9 Banking Changes for RMR Contracts vs Legacy RMR Contracts.....	84
10. Credit Policy Enforcement Actions.....	85
10.1 Enforcement Actions for Under-Secured Market Participants.....	85
11. Credit Information Available to Market Participants	86
11.1 Credit Related Information Published by the CAISO	86
11.2 CAISO Credit Portal.....	86
11.2.1 The CAISO Credit Portal	86
11.2.2 Obtaining Access to the CAISO Credit Portal	87
11.2.3 Information Available on the CAISO Credit Portal	87
12. Dispute Procedures.....	89
12.1 Estimated Aggregate Liability Calculation Dispute Process	89
12.2 Timing for Dispute Procedure	90
13. Financial Responsibility Related to RMR Contracts	91
13.1 Responsibility for RMR Costs by New Responsible Utilities	91
13.2 Financial Responsibility by RMR Contract Holders	92

1. Introduction

Welcome to the CAISO *BPM for Credit Management & Market Clearing*. 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 CAISO Business Practice Manuals

The Business Practice Manuals (BPMs) developed by the 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 the CAISO and the markets. Each Business Practice Manual is posted in the BPM Library at: <http://bpmcm.caiso.com/Pages/BPMLibrary.aspx>. Updates to all BPMs are managed in accordance with the change management procedures included in the [BPM for Change Management](#).

1.2. Purpose of this Business Practice Manual

The *BPM for Credit Management & Market Clearing* describes the credit-related policies and processes used at the CAISO to protect the financial integrity and effectiveness of the CAISO markets. This BPM complements and further describes credit provisions primarily contained in Section 12 of the Tariff.

In this BPM you will find:

- The purpose of the credit management policy at the CAISO
- How unsecured credit is granted by the CAISO
- Forms of Financial Security the CAISO accepts
- How a Market Participant's Estimated Aggregate Liability is determined and how it is compared to the Aggregate Credit Limit for the purpose of requesting additional Financial Security
- Procedures the CAISO uses to request additional financial security

- An overview of the market clearing process
- Enforcement procedures the CAISO may use if a Market Participant fails to comply with the credit policy
- Overview of the CAISO Credit Portal which allows market participants to access selected credit data and reports

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 the 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 or any other BPM or instrument is intended to refer to the CAISO Tariff, that agreement or BPM or instrument as modified, amended, supplemented or restated.

Section number references refer to sections of this BPM unless specifically stated otherwise. 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* and in the following table.

TERM	DEFINITION
Affiliated Entities	Legally distinct business units that are Affiliates, as defined in the CAISO Tariff.
Aggregate Credit Limit	The sum of a Market Participant's Unsecured Credit Limit and its Financial Security Amount, as provided for in Section 12 of the CAISO Tariff.
Available Credit	Aggregate Credit Limit minus Estimated Aggregate Liability. For FERC Order 741, sufficient secured available credit must be available to back CRR liabilities.
Business Association Identification Number (BAID)	An identification code used by the CAISO to represent a Market Participant. A Market Participant may have more than one BAID.
Day or Trading Day	A reference to a day or Trading Day is to a calendar day unless otherwise specified.
Collateral	See Financial Security.
Credit Margin	The quantity equal to Expected CRR Congestion Revenue minus Fifth Percentile CRR Congestion Revenue. Credit Margin is used as a component of the value of each CRR in a CRR portfolio.
CRR Auction Price	The price paid for a CRR at auction.
Estimated Aggregate Liability	The sum of a Market Participant's known and reasonably estimated potential liabilities for a specified time period arising from charges described in the CAISO Tariff, as provided for in Section 12 of the CAISO Tariff.
Expected CRR Congestion Revenue	The amount of expected Congestion revenue associated with a CRR, as calculated by the CAISO.
Fifth Percentile CRR Congestion Revenue	The amount of Congestion revenue associated with a CRR that performs at the fifth percentile level with regard to a probabilistic determination of value for that CRR, as calculated by the CAISO.
Financial Security	Any of the types of financial instruments listed in Section 12 of the CAISO Tariff that may be posted by a Market Participant.
Financial Security Amount	The level of Financial Security posted in accordance with Section 12 of the CAISO Tariff by a Market Participant.
Material Change in Financial Condition	A change in or potential threat to the financial condition of a Market Participant that increases the risk that the Market Participant will be unlikely to meet some or all of its financial

	obligations as defined in Tariff Section 12.1.1.5.
Moody's Analytics Equivalent Rating	The rating derived by Moody's Analytics from the Moody's Analytics Estimated Default Frequency that effectively translates the Moody's Analytics Estimated Default Frequency into a comparable credit agency rating. The Moody's Analytics Equivalent Rating may correspond to the Moody's Analytics Spot Credit Rating (CreditEdge Plus) or Bond Default Rate Mapping or Dynamic Rating (RiskCalc) or other rating established by Moody's Analytics for this purpose.
Nationally Recognized Statistical Rating Organizations	National credit rating agencies as designated by the U.S. Securities & Exchange Commission.
Net Assets	For governmental or not-for-profit entities. For purposes of setting an entity's Unsecured Credit Limit, defined as total assets minus assets (net of any matching liabilities, assuming the result is a positive value) the CAISO reasonably believes to be restricted or potentially unavailable to settle a claim in the event of a default (examples include restricted assets) minus total liabilities.
Rated Governmental Entity	A municipal utility or state or federal agency that holds an issuer, counterparty or underlying credit rating by a Nationally Recognized Statistical Rating Organization.
Rated Public/Private Corporation	An investor owned or privately held entity that holds an issuer, counterparty or underlying credit rating by a Nationally Recognized Statistical Rating Organization.
Scheduling Coordinator	An entity certified by the CAISO for the purposes of undertaking the functions specified in Section 4.5.3 of the CAISO Tariff.
Scheduling Coordinator Identification Number (SCID)	A unique number assigned to each Scheduling Coordinator by the CAISO.
Tangible Net Worth	For purposes of setting an entity's Unsecured Credit Limit, Tangible Net Worth equals total assets minus assets (net of any matching liabilities, assuming the result is a positive value) the CAISO reasonably believes to be restricted or potentially unavailable to settle a claim in the event of a default (examples include restricted assets and Affiliate assets) minus intangible assets (i.e., those assets not having a physical existence such as patents, trademarks, franchises, intellectual property and goodwill) minus derivative assets (net of any matching liabilities, assuming the result is a positive value) minus total liabilities.
Unrated Governmental Entity	A municipal utility or state or federal agency that does not hold an issuer, counterparty or underlying credit rating by a Nationally Recognized Statistical Rating Organization.
Unrated Public/Private Corporation	An investor owned or privately held entity that does not hold an issuer, counterparty or underlying credit rating by a Nationally Recognized Statistical Rating Organization.

Unsecured Credit Limit	The level of credit established for a Market Participant that is not secured by any form of Financial Security, as provided for in Section 12 of the CAISO Tariff.
------------------------	--

Any term defined in the Master Definitions Supplement to the CAISO Tariff shall have the same meaning where used in this BPM. In any instances where a definition in this document conflicts with a definition in the CAISO Tariff, the CAISO Tariff definition will prevail.

Current versions of the CAISO Tariff and the other BPMs referenced in this document are posted on the CAISO Website.

2. Credit Policy Overview

In this section you will find the following information:

- Who is subject to the credit policy and the goal of the policy
- The principles of credit policy operation
- Who to contact with questions on the credit policy
- An overview of the sections of this BPM

2.1. Credit Policy Applicability and Goal

All Market Participants requesting transmission services with the CAISO must meet the direct participation requirements and minimum participation requirements set forth in this section and are subject to the credit policy as documented in Section 12 of the CAISO Tariff, and as further detailed in this BPM. The credit policy is designed to protect Market Participants from undue exposure to default risk by other Market Participants.

Each Market Participant that has a direct financial relationship with the CAISO is to maintain an Aggregate Credit Limit (Unsecured Credit Limit – See Section 4) plus Financial Security Amount (see Section 5) in excess of its Estimated Aggregate Liability (see Section 6).

Minimum Criteria for Direct Participation in the CAISO Markets

As further described in Tariff Section 12.1, to directly participate in the CAISO market, a prospective or existing Market Participant must be:

- (a) an “appropriate person,” as defined in sections 4(c)(3)(A) through (J) of the Commodity Exchange Act; or
- (b) an “eligible contract participant,” as defined in section 1a(18)(A) of the Commodity Exchange Act and in 17 CFR 1.3(m); or
- (c) in the business of generating, transmitting, or distributing electric energy as defined in the Final Order of the Commodity Futures Trading Commission at 78 Fed. Reg. 19879; or
- (d) an entity that participates as a Scheduling Coordinator only, and not as a CRR Holder, Candidate CRR Holder or a Convergence Bidding Entity, and is in the business of providing electric energy services that are necessary to support the reliable operation of the transmission system, as defined in the Final Order of the Commodity Futures Trading Commission at 78 Fed. Reg. 19879.

These requirements are in addition to the Minimum Participation Requirements described in this section.

Most entities will satisfy these requirements if they can attest to one or more of the following

- A net worth of \$1 million;
- Total assets of \$5 million; or
- Credit support in the form of a guaranty or Letter of Credit from another entity that qualifies as an “appropriate person”.

Market Participants who no longer satisfy the requirements for direct participation must immediately notify the CAISO and immediately cease all participation in the CAISO Markets.

Minimum Participation Requirements

In addition to the direct participation requirements described above, each prospective or existing with a direct financial relationship with the CAISO must satisfy all applicable minimum participation requirements regarding: (i) certified statements (Officer Certification Forms), (ii) risk management policies, procedures and controls, and (iii) capitalization requirements. These minimum participation requirements are described below.

Certified Statements (Officer Certification Forms)

An officer of each prospective and existing Market Participant with a direct financial relationship with the CAISO shall complete and provide to the CAISO, on an annual basis, an executed certified statement that follows the standardized format of the Officer Certification Form available on the CAISO’s website. The initial Officer Certification Form must be submitted to the CAISO during the Scheduling Coordinator certification process or the Candidate CRR Holder registration process for the prospective or existing Market Participant, as applicable. Thereafter, the Market Participant must submit the updated Officer Certification Form each subsequent calendar year by no later than April 30 of that calendar year. If April 30th falls on a weekend or CAISO Holiday, the updated Officer Certification Form is due on the subsequent Business Day. A Market Participant that fails to timely provide its Officer Certification Form shall be ineligible to participate in the CAISO Markets and the CAISO will suspend the Market Participant’s ability to participate in the CAISO Markets until such time as the CAISO receives the Officer Certification Form.

Each executed Officer Certification Form must certify, under penalty of perjury, that the prospective or existing Market Participant has met the following criteria and any other relevant requirements set forth in this BPM:

- (a) Has undergone training commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the prospective or existing Market Participant, including but not limited to any applicable CAISO training requirements as specified in Sections 4.5.1.1.10.1 and 36.5.2 of the CAISO Tariff;

- (b) Has and maintains written policies, procedures and controls approved by the appropriate officer or corporate authority of the prospective or existing Market Participant's governing body which provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which the prospective or existing Market Participant is exposed, including but not limited to credit risk, liquidity risk and market risk and related transaction controls;
- (c) To the extent the Market Participant engages in the CRR market, the Market Participant must demonstrate that it has policies in place that are consistent with generally accepted industry risk management standards; and
- (d) Has appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all CAISO communications and directions, including but not limited to the CAISO's issuance of invoices and collateral requests to the prospective or existing Market Participant.

Risk Management Policies, Procedures and Controls Applicable to CRR Trading Activities

Each prospective or existing Market Participant that is a CRR Holder or a Candidate CRR Holder is also required to provide additional summary information and attestations relating to their risk management policies, procedures and controls as set forth in Section 6 of the Officer Certification Form. Each prospective or existing Market Participant that is a CRR Holder or a Candidate CRR Holder and that meets the net portfolio value criterion contained in the Officer Certification Form is additionally required to submit to the CAISO, at the time it submits its Officer Certification Form, a copy of its current governing risk management policies, procedures and controls applicable to its CRR trading activities. The CAISO or its designated third party will review such documentation to verify that it broadly conforms to generally accepted practices for entities trading in CRR-type markets.

In conducting this review and verification process, the CAISO may choose to apply generally accepted principles or best practices relating to risk management in CRR-type markets or updates to such standards. If a material modification is subsequently made to the risk management policies, procedures or controls applicable to the CRR trading activities of a Market Participant that is required to submit a copy of its risk management policies, procedures and controls, the Market Participant shall submit the modified documentation to the CAISO for review and verification within five (5) Business Days of the modification. A Market Participant's eligibility to participate in the CRR markets is conditioned on the CAISO notifying such Market Participant that its annual certification, including the submission of its risk management policies, procedures and controls, has been accepted by the CAISO.

Capitalization Requirements

- (ii) Each prospective or existing Market Participant must satisfy the following capitalization requirements:

- (a) Pursuant to Sections 12.1 and 12.1.1 of the CAISO Tariff, the prospective or existing Market Participant or its guarantor must have at least \$1 million in Tangible Net Worth or \$10 million in total assets, or post Financial Security using one or more of the forms specified in Section 5.1 of this BPM, in the amounts set forth below in part (b)
 - i. In the event the prospective or existing Market Participant must post Financial Security, that financial security will not be added to Market Participant's Aggregate Credit Limit and, therefore, cannot be used to meet Market Participant's minimum credit requirements to participate in a Congestion Revenue Rights auction or to offset any market obligations as reflected in Market Participant's Estimated Aggregate Liability. However, all Financial Security in any form may be used to satisfy any financial obligation of the Market Participant.
- (b) \$500,000 for a prospective or existing Market Participant with fewer than six (6) months of CAISO Market activity; \$100,000 for an existing Market Participant with six (6) months or more of CAISO Market activity and whose highest Estimated Aggregate Liability for the preceding six (6) months is less than or equal to \$100,000; or \$500,000 for an existing with six (6) months or more of market activity and whose highest Estimated Aggregate Liability for the preceding six (6) months is greater than \$100,000.

The CAISO will review whether the prospective or existing Market Participant continues to satisfy the capitalization requirements set forth in Section 12.1(iii)(a) of the CAISO Tariff. The CAISO will conduct such a review every six (6) months, when new financial statements are posted for the prospective or existing Market Participant, or when an increase in CAISO Market activity causes the Market Participant's Estimate Agreement Liability to exceed \$100,000. In the event there is a change in the capitalization requirement, the CAISO will send a written notification to the Market Participant notifying them of the increase or decrease. If an increase is required, the Market Participant will have two (2) business days to post the additional funds, as per Section 8.2 of this BPM. Each prospective Market Participant that does not satisfy all of the minimum participation requirements set forth in Section 12.1 of the CAISO Tariff will be prohibited from participating in the CAISO Markets

Each prospective Market Participant taking part in the Scheduling Coordinator certification process pursuant to Section 4.5.1 of the CAISO Tariff or the Candidate CRR Holder application process pursuant to Section 4.10.1 of the CAISO Tariff that does not satisfy all of the minimum participation requirements set forth in Section 12.1 of the CAISO Tariff will be ineligible to become a Market Participant or CRR Holder. Each existing Market Participant that does not satisfy all of the minimum participation requirements set forth in Section 12.1 of the CAISO Tariff will be out of compliance with the CAISO Tariff. Any failure of a Market Participant to satisfy the minimum participation requirements set forth in Section 12.1 of the CAISO Tariff that is not

cured within thirty (30) days of CAISO notification that a failure occurred will subject the Market Participant to CAISO enforcement actions as set forth in Section 12.5 of the CAISO Tariff. Disputes arising out of a Market Participant's failure to satisfy all minimum participation requirements within the specified cure period and subsequent enforcement action are subject to the dispute resolution provisions as set forth in Section 13 of the CAISO Tariff.

Ongoing CAISO Review and Verification Process

The CAISO, at any time, may request information and documents from Market Participants through written communication, regarding their risk management policies, procedures and controls, including but not limited to information and documents relating to the liquidity of their financial resources and their settlement procedures.

Additionally, the CAISO will annually select, on a random basis, up to ten (10) percent of the Market Participants that are not already subject to annual verification as set forth in Section 12.1(b)(ii) of the CAISO Tariff. This random verification selection is completed on a quarterly basis and Market Participants will be notified through written communication upon selection. The CAISO will request risk policies, procedures and guidelines from those randomly selected Market Participants to review and verify that such Market Participants continue to satisfy the minimum participation requirements set forth in this Section 2.1 of this BPM.

Each Market Participant that is randomly selected for annual verification and is satisfactorily verified will be exempt from such random verification for the subsequent two (2) years, unless within that two-year period the Market Participant undergoes a Material Change in Financial Condition as per Section 3.4 of this BPM. In such case, the Market Participant will remain subject to random verification within the two (2) year period. In addition, the CAISO may at any time select any Market Participant for review to determine whether the Market Participant continues to satisfy the minimum participation requirements set forth this Section 2.1 of this BPM. Such verification is based on identified risk factors that include, but are not limited to:

- a) the CAISO Markets in which the Market Participant is transacting or seeks to transact
- b) the magnitude of the Market Participant's transactions or potential transactions
- c) the volume of the Market Participant's open positions in the CAISO Markets

Such review by the CAISO that is based on the identified risk factors will not be subject to the two-year period of exemption from random verification.

The Market Participant shall respond to any verification request within five (5) Business Days from the date of such request. Failure to provide the requested information within this time period may result in the CAISO taking enforcement actions pursuant to Section 12.5 of the CAISO Tariff.

The CAISO may review and verify the information provided by the Market Participant either with or without the assistance of a third party, at the CAISO's discretion, subject to confidentiality and non-disclosure restrictions, as applicable. Any documentation provided by a prospective or existing Market Participant in compliance with such review shall be treated as confidential and

the CAISO shall maintain the confidentiality of all such documents. If there are any deficiencies in the information provided, the CAISO will provide the Market Participant with a written notice.

Any CAISO review and verification of the Market Participant's risk management policies, procedures and controls will be conducted according to generally accepted industry risk management standards that may be developed from time to time and shall include but not be limited to confirmation that:

- The Market Participant's risk management framework is documented in a risk policy addressing market, credit and liquidity risks that has been approved by the Market Participant's risk management governance function, which includes appropriate corporate persons or bodies that are independent of the Market Participant's trading functions, such as a risk management committee, a designated risk officer or a board or board committee, or a board or committee of the Market Participant's parent company;
- The Market Participant maintains an organizational structure with clearly defined roles and responsibilities that segregate front-, middle- and back-office functions to as high a level as is practicable;
- Delegations of Authority specify the transactions into which traders are allowed to enter;
- The Market Participant ensures that traders have adequate training and experience relative to their Delegations of Authority in systems and the markets in which they transact;
- As appropriate, risk limits are in place to control risk exposures;
- Reporting is in place to ensure risks are adequately communicated throughout the organization;
- Processes are in place for independent confirmation of executed transactions; and
- As appropriate, there is periodic valuation or mark-to-market of risk positions.

2.2. Principles

The CAISO intends to maintain the confidence of Market Participants in the CAISO Markets and to sustain the CAISO's mission of ensuring an adequate supply of power at a reasonable cost, by equitably, consistently and strictly enforcing these credit procedures.

The CAISO recognizes that Market Participants want credit-related practices that are appropriate and transparent. The CAISO endeavors to maintain an accurate Business Process Manual that describes credit-related practices and administrative procedures. The CAISO invites and appreciates feedback of Market Participants to further improve the efficiency and effectiveness of the CAISO's credit policy.

2.3. Contacts

Please direct comments and inquiries about the CAISO's credit policy to:

CHRISTINA BILLING: LEAD TREASURY AND CREDIT ANALYST
PHONE: (916) 351-2204 EMAIL: cbilling@caiso.com

JAKE THAI: LEAD TREASURY AND CREDIT ANALYST
PHONE: (916) 351-2240 EMAIL: jthai@caiso.com

2.4. Overview of this BPM

➤ **Section 3: Unsecured Credit**

Provides an overview of the CAISO procedures for determining Unsecured Credit Limits for new and existing Market Participants.

➤ **Section 4: Unsecured Credit Limit Calculation**

Provides an overview of the calculation of Unsecured Credit Limit for Rated/Unrated Public/Private Corporations and for Rated/Unrated Governmental Entities.

➤ **Section 5: Approved Forms of Financial Security Instruments**

Provides information about the two types of financial instruments that may be used to provide Financial Security.

➤ **Section 6: Estimated Aggregate Liability Calculation**

Provides an overview how the CAISO calculates the outstanding position of each Market Participant.

➤ **Section 7: Credit Requirements for CRRs & Virtual Bids**

Provides an overview of the credit requirements for CRR allocations and auctions as well as credit checking for virtual bids and the calculation of the virtual bid reference prices.

➤ **Section 8: Comparison of Estimated Aggregate Liability to Aggregate Credit Limits and Requests for Additional Financial Security**

Describes the process for determining when additional Financial Security is required and how requests for additional Financial Security are communicated to Market Participants.

➤ **Section 9: Weekly Market Clearing**

Provides an overview of how the CAISO processes invoice payments to and from Market Participants.

➤ **Section 10: Credit Policy Enforcement Actions**

Describes the actions that may be taken by the CAISO when a Market Participant's Estimated Aggregate Liability exceeds its Aggregate Credit Limit.

➤ **Section 11: Credit Information Available to Market Participants**

Summarizes credit information available from the CAISO to Market Participants.

➤ **Section 12: Dispute Procedures**

Describes the process for Market Participants to dispute Financial Security requests related to the CAISO's comparison of the Estimated Aggregate Liability with their Aggregate Credit Limit

➤ **Section 13: Financial Responsibility Related to RMR Contacts**

Describes the financial requirements related to RMR contracts.

3. Unsecured Credit

In this section you will find the following information:

- A description of the information that is needed to apply for unsecured credit
- A discussion of the Financial Statements that are needed for unsecured credit evaluation
- A discussion of the Rating Agency reports that are needed for unsecured credit evaluation
- A description of the other credit strength indications needed for unsecured credit evaluation

3.1. Unsecured Credit Assessment Requirements

As provided in Section 12.1.1 of the CAISO Tariff, an approved Application for Unsecured Credit must be on file with the CAISO for those Market Participants seeking an Unsecured Credit Limit with the CAISO. Market Participants must only file an Application for Unsecured Credit once. A Market Participant should subsequently inform the CAISO of changes to their contact or other relevant information contained in the Application. A copy of the Application for Unsecured Credit can be found on the CAISO's Website at, <http://www.caiso.com/Documents/ISOCreditApplication.doc>.

As provided in Section 12.1 of the CAISO Tariff, each Market Participant must cover its outstanding financial obligations to the CAISO market by maintaining an Unsecured Credit Limit and/or by posting Financial Security. The combination of the Unsecured Credit Limit and the Financial Security Amount represents the Market Participant's Aggregate Credit Limit. The CAISO periodically calculates a Market Participant's liabilities and notifies it in the event its Aggregate Credit Limit needs to be increased through posting of additional Financial Security (Section 8 of this BPM). It is the Market Participant's responsibility to maintain a sufficient Aggregate Credit Limit to cover its estimated financial obligations.

As provided in Section 12.1.1 of the CAISO Tariff, each Market Participant requesting or having unsecured credit is required to submit to the CAISO or its designee financial statements and other information related to the overall financial health of the Market Participant market participant. These are reviewed by the CAISO or its agent in determining the Market Participant's creditworthiness and its ability to meet its financial obligations. Market Participants are responsible for the timely submission of their latest financial statements either directly or by indicating where the material can be located on their company website and/or on the U.S. Security Exchange Commission's website as well as other information that may be reasonably

necessary for the CAISO to conduct its evaluation. The CAISO may also rely on financial reporting agencies and the financial press as part of the credit evaluation process.

As provided in Sections 12.1.1 of the CAISO Tariff, a Market Participant may be denied an Unsecured Credit Limit with the CAISO as a result of the credit evaluation. Market Participants who are denied an Unsecured Credit Limit may submit other forms of Financial Security acceptable to the CAISO that are sufficient to cover their Estimated Aggregate Liabilities. See Section 5, Approved Forms of Financial Security Instruments, for more information.

3.2. Financial Statements

As provided in Section 12.1.1 of the CAISO Tariff, Market Participants requesting unsecured credit are required to provide financial statements to be used by the CAISO in its credit assessment process.

Based on availability, the Market Participant must submit a financial statement for the most recent financial quarter, as well as audited financial statements for the most recent three fiscal years, or the period of existence of the Market Participant, if shorter, to the CAISO or the CAISO's designee. If audited financial statements are not available, financial statements, as described below, should be submitted, signed and attested to by an officer of the Market Participant as a fair representation of the financial condition of the Market Participant in accordance with generally accepted accounting principles.

The information should include, but is not limited to, the following:

- a. If publicly traded:
 - i. Annual and quarterly reports on Form 10-K and Form 10-Q, respectively
 - ii. Form 8-K reports, if any
- b. If privately held or governmentally owned:
 - i. Management's Discussion & Analysis (if available)
 - ii. Report of Independent Accountants (if available)
 - iii. Financial Statements, including:
 - Balance Sheet
 - Income Statement
 - Statement of Cash Flows
 - Statement of Stockholder's Equity
 - iv. Notes to Financial Statements

If the above information is available electronically on the Internet, the Market Participant may indicate in written or electronic communication where such statements are located for retrieval by the CAISO or the CAISO's designee.

3.3. Rating Agency Reports

Rating agency reports and credit ratings are utilized from those entities designated by the U.S. Securities & Exchange Commission as Nationally Recognized Statistical Rating Organizations on their website: <http://www.sec.gov/divisions/marketreg/ratingagency.htm>

One or more of the following Nationally Recognized Statistical Rating Organizations provide ratings that the CAISO generally relies upon:

- A.M. Best Company, Inc. (A.M. Best)
- Dominion Bond Rating Service Limited (DBRS)
- Fitch, Inc. (Fitch)
- Moody's Investors Service Inc. (Moody's)
- Standard & Poor's Ratings Services (S&P)

The ratings utilized are the long-term credit ratings for the entity as a whole, on a stand-alone basis. These ratings are known as "issuer" or "underlying" ratings and are without the benefit of third-party credit support.

Project financing ratings or insured bond ratings are not utilized, since those credit ratings are based on revenue streams or third-party funding available to bond holders but not necessarily available to trade creditors such as the suppliers to the CAISO Markets. Moreover, the CAISO is advised by the credit rating agencies that these project financing ratings or insured bond ratings cannot be considered as valid measures of an entity's ability to meet its non-bond obligations.

If a Market Participant has only a "senior long-term unsecured rating" instead of an issuer rating, the rating is deemed acceptable. However, for the Unsecured Credit Limit calculation, this rating is lowered by one rating level to account for the risk that the obligations to the CAISO have a lower claim priority.

If a Market Participant has only a "short-term rating" instead of an issuer rating, the CAISO utilizes an equivalent long-term rating based on the lowest rating in the long- and short-term rating correlation table, Exhibit 3-1: Long-Term - Short-Term Equivalency Ratings.

S&P		Moody's	
Short Term Rating	Equivalent Long Term Ratings	Short Term Rating	Equivalent Long Term Ratings
A-1+	AAA/AA+/AA/AA-/ A+	P1	Aaa/Aa1/Aa2/AA3/A1/A2/ A3
A-1	A+/A/ A-	P2	A3/Baa1/Baa2/ Baa3
A-2	A-/BBB+/ BBB	P3	Baa3/Ba1/Ba2/ Ba3
A-3	BBB/ BBB-	NP	B1/B2/B3/Caa1/Caa2/Caa3/Ca/ C
B	BB+/BB/ BB-		
C	B+ / B / B- / CCC+ / CCC / CCC- / CC / C		
D	D		

Equivalent ratings from other rating agencies may also be considered. If the short-term rating is noted as being under a credit watch with negative implications, the CAISO will use the next lowest long-term equivalent rating for its assessment. For example, if a Market Participant has a Moody's short-term rating of P1 and is under credit watch with negative implications, an equivalent long-term rating of Baa1 will be used for the assessment; i.e., the next lowest long-term equivalent rating.

Rating agency reports, particularly credit ratings, are reviewed and updated minimally on a quarterly basis for those Market Participants with an Unsecured Credit Limit. They are also reviewed as needed if questions arise as to changes to a Market Participant's financial health or credit standing. Additionally, credit rating agency reports of downgrade/upgrades are reviewed upon notice from a rating agency to determine if the Unsecured Credit Limit should be correspondingly decreased/increased.

3.4. Other Qualitative and Quantitative Credit Strength Indicators

As provided in Section 12.1.1 of the CAISO Tariff, the CAISO may rely on information gathered from financial reporting agencies, the general/financial/energy press, and provided by the Market Participant to assess an entity's overall financial health and its ability to meet its financial

obligations. Information considered by the CAISO in this process may include the qualitative factors noted in FERC's Policy Statement on Electric Creditworthiness¹ :

- a) Applicant's history;
- b) Nature of organization and operating environment;
- c) Management;
- d) Contractual obligations;
- e) Governance policies;
- f) Financial and accounting policies;
- g) Risk management and credit policies;
- h) Market risk including price exposures, credit exposures and operational exposures;
- i) Event risk;
- j) The state or local regulatory environment; and
- k) Affiliate disclosure information provided pursuant to the CAISO Tariff, including Sections 4.14.2.1, 12.1.1, 39.9, and/or 39.11.1.

Material negative information in these areas may result in a reduction of up to 100% in the Unsecured Credit Limit that would otherwise be granted based on the methodology described in Section 4 of this BPM and Section 12.1.1 of the CAISO Tariff. The CAISO will provide a Market Participant a written analysis as to how the provisions of this section and Section 12.1.1 of the CAISO Tariff were applied in setting its Unsecured Credit Limit.

Notwithstanding the considerations described above, Market Participants are obligated to provide the CAISO timely information regarding any Material Change in Financial Condition, i.e., an adverse change that could affect its or one of its affiliated entities ability to pay its debt or meet its Financial Security obligations as they become due. Examples of Material Changes in Financial Condition may include but are not limited to:

- a) A credit agency or Moody's Analytics equivalent rating downgrade to below investment grade;
- b) Being placed on a negative credit watch list by a major rating agency;

¹ Footnote 13 of "Policy Statement on Credit Related Issues for Electric OATT Transmission Providers, Independent System Operators and Regional Transmission Organizations" (Order E-40, Docket PL05-3-000, November 19, 2004).

- c) A bankruptcy filing;
- d) Insolvency;
- e) The filing of a material lawsuit that could significantly and adversely affect past, current or future financial results;
- f) Restatement of one or more financial statements for a prior year in a way that reduces the amount of unsecured credit that was previously provided;
- g) A default in another organized market for which any cure period has expired; or
- h) Any change in the financial condition of the Market Participant that exceeds a five percent (5%) reduction in the Market Participant's Tangible Net Worth or Net Assets for the Market Participant's preceding fiscal year, calculated in accordance with generally accepted accounting practices.

A Material Change in Financial Condition may lead the CAISO to reduce or revoke a Market Participant's Unsecured Credit Limit or Guaranty. Doing so may lead to an immediate collateral request that must be satisfied according to the provisions in Section 12.4.1 of the CAISO Tariff and Section 8.2 of this BPM.

In the event the CAISO determines that the Unsecured Credit Limit of a Market Participant must be reduced as a result of a subsequent review due to a Material Change in Financial Condition, the CAISO shall notify the Market Participant of the reduction in writing and shall provide the Market Participant with a written explanation of the reasons for the reduction, either in advance of the reduction, if reasonably practicable, or after the reduction was made if providing the written notification and explanation in advance is not reasonably practicable, as set forth in the applicable Business Practice Manual.

4. Unsecured Credit Limit Calculation

In this section you will find the following information:

- The purpose of the Unsecured Credit Limit
- A description of the components of the Unsecured Credit Limit calculation
- An explanation of the Unsecured Credit Limit calculation for each category of Market Participant

4.1. Purpose of Unsecured Credit Limit

The Unsecured Credit Limit is the level of credit established for a Market Participant that is not secured by any form of Financial Security. A maximum Unsecured Credit Limit of \$50 million for any Market Participant, and group of Market Participant Affiliates, has been specified in the CAISO Tariff. The purpose of this limit is to protect the CAISO and its participants from undue exposure caused by the default of an individual Market Participant.

4.2. Classes of Entities That May Be Eligible for Unsecured Credit

The calculation of a Market Participant's Unsecured Credit Limit depends on the entity's classification:

- **1. Rated Public/Private Corporation** - the Unsecured Credit Limit is the lesser of \$50 million or an amount equal to the Market Participant's Tangible Net Worth multiplied by a calculated percent of Tangible Net Worth. The percent of Tangible Net Worth is comprised of fifty percent (50%) of the Market Participant's lowest credit agency issuer rating and fifty percent (50%) of the Moody's Analytics Equivalent Rating. If a Moody's Analytics Equivalent Rating is not reasonably applicable, the percent of Tangible Net Worth is comprised of one hundred percent (100%) of the Market Participant's lowest credit agency issuer rating. See Section 4.3.2 for a detailed description of the calculation steps.
- **2. Unrated Public/Private Corporation** - the Unsecured Credit Limit is the lesser of \$50 million or an amount equal to the Market Participant's Tangible Net Worth multiplied by a calculated percent of Tangible Net Worth. The percent of Tangible Net Worth is comprised of one hundred percent (100%) of the Moody's Analytics Equivalent Rating. See Section 4.3.2 for a detailed description of the calculation steps.

- **3. Rated Governmental Entity** - the Unsecured Credit Limit is the lesser of \$50 million or an amount equal to the Market Participant's Net Assets multiplied by a calculated percent of Net Assets. The percent of Net Asset is comprised of one hundred percent (100%) of the Market Participant's lowest credit agency issuer rating. See Section 4.3.2 for a detailed description of the calculation steps.
- 4. (a) Unrated Governmental Entities Other Than Those that Receive Appropriations from the Federal Government or a State Government** – The Unsecured Credit Limit is the lesser of \$50 million or an amount equal to a specified percentage of the Market Participant's Net Assets if the Market Participant has a minimum of \$25 million in Net Assets and its Times Interest Earned, Debt Service Coverage and Equity to Assets ratios meet or exceed minimums specified in Section 4.4 of this BPM.
- (b) Unrated Governmental Entities that Receive Appropriations from the Federal Government or a State Government** – The Unsecured Credit Limit is the lesser of \$50 million dollars or the amount appropriated by the federal or relevant state government for the purpose of procuring energy and energy-related products and services for the applicable fiscal year. The Unrated Governmental Entity seeking to establish an Unsecured Credit Limit pursuant to this section shall provide documentation establishing its annual appropriations.
- 5. Local Publicly Owned Electric Utilities** – A Local Publicly Owned Electric Utility with a governing body having ratemaking authority that has submitted an application for an Unsecured Credit Limit shall be entitled to an Unsecured Credit Limit of \$1 million dollars without regard to its Net Assets. Additional details of this provision are provided in Section 4.5 of this BPM.

If either the Moody's Analytics Equivalent Rating or the credit agency rating, at any time, falls below investment grade, a Market Participant will be denied unsecured credit or have their existing unsecured credit revoked until the CAISO's next quarterly review of the Market Participant's creditworthiness or thirty (30) calendar days, whichever is longer. Under Section 12.1.1 of the CAISO Tariff, the CAISO will provide the Market Participant a written explanation as to why their unsecured credit limit was being revoked. If the Market Participant has a positively-valued Estimated Aggregate Liability, the Market Participant will be required to post a form of acceptable Financial Security to the CAISO within two (2) business days. Forms of acceptable Financial Security are set forth in Section 5.1 of this BPM. Additionally, in the event there is a change to a Market Participant's Unsecured Credit Limit, a written notification is sent to notify the Market Participant of such change and any reasons for that change. Unsecured Credit Limits established pursuant to this Section shall be subject to the CAISO's consideration of the same qualitative factors that apply to all Market Participants as set forth in Section 3.4 and, accordingly, the CAISO may adjust a Market Participant's Unsecured Credit Limits pursuant to Section 3

4.3. Unsecured Credit Limit Calculation for Rated and Unrated Public/Private Corporations and Rated Governmental Entities

This section documents the procedures used to set unsecured credit limits for the entities in classes 1, 2, 3 as listed in Section 4.2.

4.3.1. Definitions Used in Calculating Unsecured Credit Limits

4.3.1.1. Maximum Percentage of Tangible Net Worth or Net Assets

For Rated and Unrated Public/Private Corporations or Rated Governmental Entities, the maximum percentage of Tangible Net Worth or Net Assets is seven and a half percent (7.5%) for the highest quality entities; that is, those Market Participants who maintain the highest Moody's Analytics Equivalent Rating and/or credit agency issuer ratings. The percentage a Market Participant qualifies for will be reduced as its credit risk increases as determined by having a lower Moody's Analytics Equivalent Rating and/or credit agency issuer rating.

A lesser amount of unsecured credit may be granted if the CAISO becomes aware of information related to a Material Change in Financial Condition or other significant information that presents a significant risk to the creditworthiness of the entity. For more information, see Section 3.4, Other Qualitative and Quantitative Credit Strength Indicators.

4.3.1.2. Determining the Percent of Tangible Net Worth or Net Assets

The calculation of Unsecured Credit Limit is based in part on determining the percent of Tangible Net Worth or Net Assets for an entity. This involves the blending of an entity's Moody's Analytics Equivalent Rating and the lowest credit agency issuer rating according to the following rules established for different entity types:

- Percent of Tangible Net Worth for Rated Public/Private Corporations = (Percent of Tangible Net Worth for the lowest credit agency issuer rating * 50%) + (Percent of Tangible Net Worth for the Moody's Analytics Equivalent Rating * 50%) or (Percent of Tangible Net Worth for the lowest credit agency issuer rating * 100%) if the Moody's Analytics Equivalent Rating is not reasonably applicable.

- Percent of Tangible Net Worth for Unrated Public/Private Corporations =
Percent of Tangible Net Worth for the Moody's Analytics Equivalent Rating *
100%
- Percent of Net Assets for Rated Governmental Entities = Percent of Net
Assets for the lowest credit agency issuer rating * 100%
- The calculation of Unsecured Credit Limit for Unrated Governmental Entities
does not involve the use of Moody's Analytics Equivalent Ratings or credit
agency issuer ratings

4.3.1.3. Determining an Entity's Tangible Net Worth or Net Assets

For purposes of setting an entity's Unsecured Credit Limit, Tangible Net Worth is defined as equaling total assets minus assets (net of any matching liabilities, assuming the result is a positive value) the CAISO reasonably believes to be restricted or potentially unavailable to settle a claim in the event of a default (examples include restricted assets and affiliate assets) minus intangible assets (i.e., those assets not having a physical existence such as patents, trademarks, franchises, intellectual property and goodwill) minus derivative assets (net of any matching liabilities, assuming the result is a positive value) minus total liabilities.

Net Assets are used for governmental and not-for-profit entities instead of Tangible Net Worth. For purposes of setting an entity's Unsecured Credit Limit, Net Assets is defined as total assets minus assets (net of any matching liabilities, assuming the result is a positive value) the CAISO reasonably believes to be restricted or potentially unavailable to settle a claim in the event of a default (examples include restricted assets) minus total liabilities.

Because the assets being excluded from the Tangible Net Worth or Net Assets calculation can vary substantially from one financial reporting period to the next – sometimes making the difference of an entity receiving unsecured credit one reporting period and not the next – the CAISO may also exercise its good, prudent business judgment in reducing an entity's Unsecured Credit Limit as a result of assessing Other Qualitative and Quantitative Credit Strength Indicators (Step 6 of the six-step process) as described in Section 3.4 of this BPM.

The following table provides the Percent of Tangible Net Worth or Net Assets, used in the unsecured credit limit calculation, for the different Moody's Analytics Equivalent Ratings and credit agency issuer ratings:

Grade	Moody's Analytics Equivalent Rating ²	Credit Agency Issuer Rating			Percent of Tangible Net Worth or Net Assets
		Moody's	S&P	Fitch	
Investment Grade	Aaa	Aaa	AAA	AAA	7.50
	Aa1	Aa1	AA+	AA+	7.50
	Aa2	Aa2	AA	AA	7.00
	Aa3	Aa3	AA-	AA-	7.00
	A1	A1	A+	A+	6.00
	A2	A2	A	A	5.00
	A3	A3	A-	A-	4.00
	Baa1	Baa1	BBB+	BBB+	3.00
	Baa2	Baa2	BBB	BBB	2.00
	Baa3	Baa3	BBB-	BBB-	1.00
Speculative Grade	Ba1	Ba1	BB+	BB+	0.00
	Ba2	Ba2	BB	BB	0.00
	Ba3	Ba3	BB-	BB-	0.00
	B1	B1	B+	B+	0.00
	B2	B2	B	B	0.00
	B3	B3	B-	B-	0.00
	Caa1	Caa1	CCC+	CCC+	0.00
	Caa2	Caa2	CCC	CCC	0.00
	Caa3	Caa3	CCC-	CCC-	0.00
	Ca	Ca	CC	CC	0.00
	C	C	C	C	0.00
			D	D	0.00

² Moody's Analytics Equivalent Rating is the rating derived by Moody's Analytics from the Moody's Analytics Estimated Default Frequency that effectively translates the Moody's Analytics Estimated Default Frequency into a comparable credit agency rating. The Moody's Analytics Equivalent Rating may correspond to the Moody's Analytics Spot Credit Rating (CreditEdge™) or Bond Default Rate Mapping or Dynamic Rating (RiskCalc®) or other rating established by Moody's Analytics for this purpose.

4.3.2. Unsecured Credit Limit Calculation for Rated/Unrated Public/Private Corporations and Rated Governmental Entities

A six-step process is used to determine unsecured credit limits for Market Participant's that are Rated Public/Private Corporations, Unrated Public/Private Corporations and Rated Governmental Entities.

Step 1 – If the Market Participant has an issuer rating (also known as “counterparty” of “underlying” rating) from one or more of the Nationally Recognized Statistical Rating Organizations, verify the rating(s) with the appropriate Nationally Recognized Statistical Rating Organization. If issuer ratings are unavailable, see Section 3.3 for alternative ratings that may be used. Regardless of the number of ratings available, the lowest rating will be used for purposes of determining the percent of Tangible Net Worth or Net Assets.

Step 2 – Using Moody's Analytics CreditEdge™ software for Rated Public/Private Corporations for which securities are publicly traded or RiskCalc® software for subsidiaries of Rated Public/Private Corporations for which securities are publicly traded and Unrated Public/Private Corporations (if reasonably applicable), obtain the Market Participant's Moody's Analytics Equivalent Rating. RiskCalc was not designed for some types of Market Participants and the CAISO will consult with Moody's Analytics as to its applicability for a particular entity type. Accordingly, a Moody's Analytics Equivalent Rating may not be available for certain CAISO Market Participants.

Step 3 – Calculate the percent of Tangible Net Worth or Net Assets based on the type of entity as described in Section 4.3.1.2.

Step 4 – Calculate the Market Participant's Tangible Net Worth or Net Assets:

1. Tangible Net Worth for Rated or Unrated Public/Private Corporations equals total assets minus assets (net of any matching liabilities, assuming the result is a positive value) the CAISO reasonably believes to be restricted or potentially unavailable to settle a claim in the event of a default (examples include restricted assets and affiliate assets) minus intangible assets (i.e., those assets not having a physical existence such as patents, trademarks, franchises, intellectual property and goodwill) minus derivative assets (net of any matching liabilities, assuming the result is a positive value) minus total liabilities.

2. Net Assets for Rated Governmental Entities equals total assets minus assets (net of any matching liabilities, assuming the result is a positive value) the CAISO reasonably believes to be restricted or potentially unavailable to settle a claim in the event of a default (examples include restricted assets) minus total liabilities.

Step 5 – Calculate the Market Participant’s intermediate Unsecured Credit Limit:

1. For Rated or Unrated Public/Private Corporations: Intermediate Unsecured Credit Limit equals Tangible Net Worth (from Step 4) times the percent of Tangible Net Worth (from Step 3)
2. For Rated Governmental Entities: Intermediate Unsecured Credit Limit equals Net Assets (from Step 4) times percent of Net Assets (from Step 3).

Step 6 – Adjust the intermediate Unsecured Credit Limit downward, if warranted based on the CAISO’s review of factors described in Section 3.4, Other Qualitative and Quantitative Credit Strength Indicators:

Final Unsecured Credit Limit equals intermediate Unsecured Credit Limit from Step 5 * adjustment factor (0 - 100%) where the adjustment factor is determined by the CAISO Credit Department based on the qualitative and quantitative credit strength indicators discussed in Section 3.4.

4.3.3. Unsecured Credit Limit Calculation Examples

This section provides example Unsecured Credit Limit calculations for Rated/Unrated Public/Private Corporations and Rated Governmental Entities.

4.3.3.1. Rated Public/Private Corporations

Example 1:

A Rated Public/Private Corporation has a Moody’s issuer rating of “A2”, an S&P issuer rating of “BBB+”, a Fitch issuer rating of “A” and a Moody’s Analytics equivalent rating of “Baa2”. In addition, the Rated Public/Private Corporation’s latest financial report states:

Total assets = \$10,000,000,000

Restricted assets (less matching liabilities) = \$1,000,000,000

Intangible assets = \$500,000,000

Derivative assets (less matching liabilities) = \$2,500,000,000

Total liabilities = \$2,000,000,000

The CAISO would calculate the Unsecured Credit Limit as follows:

Step 1: Lowest agency credit rating: S&P issuer rating of “BBB+”

Step 2: Moody’s Analytics equivalent rating of “Baa2”

Step 3: Percent of Tangible Net Worth = (Percent of Tangible Net Worth or Net Assets for the Moody’s Analytics equivalent rating * 50%) + (Percent of Tangible Net Worth or Net Assets for the lowest credit agency issuer rating * 50%) = $(2.00\% * 50\%) + (3.00\% * 50\%) = 1.00\% + 1.50\% = 2.50\%$

Step 4: Tangible Net Worth = total assets minus restricted assets minus intangible assets minus derivative assets minus total liabilities = $\$10,000,000,000 - \$1,000,000,000 - \$500,000,000 - \$2,500,000,000 - \$2,000,000,000 = \$4,000,000,000$

Step 5: Intermediate Unsecured Credit Limit = Tangible Net Worth times Percent of Tangible Net Worth = $\$4,000,000,000 * 2.50\% = \$100,000,000$ which is reduced to \$50,000,000 so as not to exceed the maximum amount of unsecured credit allowed.

Step 6: Final Unsecured Credit Limit = intermediate Unsecured Credit Limit times a factor of 0% - 100% based on other qualitative and quantitative credit strength indicators = $\$50,000,000 * 100\% = \$50,000,000$

Example 2:

Same as Example 1 except a Moody’s Analytics equivalent rating does not exist or is not judged by the CAISO to be reasonably applicable:

Step 1: Lowest agency credit rating: S&P issuer rating of “BBB+”

Step 2: Moody’s Analytics equivalent rating not available or not reasonable applicable

Step 3: Percent of Tangible Net Worth = (Percent of Tangible Net Worth or Net Assets for the lowest credit agency issuer rating * 100%) = (3.00% * 100%) = 3.00%

Step 4: Tangible Net Worth = total assets minus restricted assets minus intangible assets minus derivative assets minus total liabilities = \$10,000,000,000 - \$1,000,000,000 - \$500,000,000 - \$2,500,000,000 - \$2,000,000,000 = \$4,000,000,000

Step 5: Intermediate Unsecured Credit Limit = Tangible Net Worth times Percent of Tangible Net Worth = \$4,000,000,000 * 3.00% = \$120,000,000 which is reduced to \$50,000,000 so as not to exceed the maximum amount of unsecured credit allowed

Step 6: Final Unsecured Credit Limit = intermediate Unsecured Credit Limit times a factor of 0% - 100% based on other qualitative and quantitative credit strength indicators = \$50,000,000 * 100% = \$50,000,000

4.3.3.2. Unrated Public/Private Corporations

An Unrated Public/Private Corporation has a Moody's Analytics equivalent rating of "Baa2". In addition, the Unrated Public/Private Corporation's latest financial report states:

Total assets = \$10,000,000,000

Restricted assets (less matching liabilities) = \$1,000,000,000

Intangible assets = \$500,000,000

Derivative assets (less matching liabilities) = \$2,500,000,000

Total liabilities = \$2,000,000,000

The CAISO would calculate the Unsecured Credit Limit as follows:

Step 1: Not applicable for an Unrated Public/Private Corporation

Step 2: Moody's Analytics equivalent rating of "Baa2"

Step 3: Percent of Tangible Net Worth = (Percent of Tangible Net Worth or Net Assets for the Moody's Analytics equivalent rating * 100%) = (2.00% * 100%) = 2.00%

Step 4: Tangible Net Worth = total assets minus restricted assets minus intangible assets minus derivative assets minus total liabilities = \$10,000,000,000 - \$1,000,000,000 - \$500,000,000 - \$2,500,000,000 - \$2,000,000,000 = \$4,000,000,000

Step 5: Intermediate Unsecured Credit Limit = Tangible Net Worth times Percent of Tangible Net Worth = \$4,000,000,000 * 2.00% = \$80,000,000 which is reduced to \$50,000,000 so as not to exceed the maximum amount of unsecured credit allowed

Step 6: Final Unsecured Credit Limit = intermediate Unsecured Credit Limit times a factor of 0% - 100% based on other qualitative and quantitative credit strength indicators = \$50,000,000 * 100% = \$50,000,000

4.3.3.3. Rated Governmental Entities

A Rated Governmental Entity has a Moody's issuer rating of "A2", an S&P issuer rating of "BBB+", a Fitch issuer rating of "A". In addition, the Rated Governmental Entity's latest financial report states:

Total assets = \$10,000,000,000

Restricted assets (less matching liabilities) = \$1,000,000,000

Total liabilities = \$2,000,000,000

The CAISO would calculate the Unsecured Credit Limit as follows:

Step 1: Lowest agency credit rating: S&P issuer rating of "BBB+"

Step 2: Moody's Analytics equivalent ratings are not available for governmental entities

Step 3: Percent of Tangible Net Worth = (Percent of Tangible Net Worth or Net Assets for the lowest credit agency issuer rating * 100%) = (3.00% * 100%) = 3.00%

Step 4: Tangible Net Worth = total assets minus restricted assets minus total liabilities = \$10,000,000,000 - \$1,000,000,000 - \$2,000,000,000 = \$7,000,000,000

Step 5: Intermediate Unsecured Credit Limit = Tangible Net Worth times Percent of Tangible Net Worth = \$7,000,000,000 * 3.00% = \$210,000,000 which is

reduced to \$50,000,000 so as not to exceed the maximum amount of unsecured credit allowed

Step 6: Final Unsecured Credit Limit = intermediate Unsecured Credit Limit times a factor of 0% - 100% based on other qualitative and quantitative credit strength indicators = \$50,000,000 * 100% = \$50,000,000

4.4. Unsecured Credit Limit Calculation for Unrated Governmental Entities

4.4.1. Criteria for Unsecured Credit for Unrated Governmental Entities Other Than Those that Receive Appropriations from the Federal Government or a State Government

An Unrated Governmental Entity is eligible for Unsecured Credit if it meets the requirements set forth in the Table below.

Financial Metric	Calculation	Minimum Accepted Value
Net Assets	Total Assets – Restricted Assets – Total Liabilities	\$25 million
Times Interest Earned	(Long-Term Debt Interest Expense + Change in Net Assets) / Long-Term Debt Interest Expense	1.05
Debt Service Coverage	(Depreciation & Amortization Expense + Long Term Debt Interest Expense + Change in Net Assets) / Debt Service Billed (Debt Service Interest and Principal).	1.00
Equity to Assets	Total Equity / Total Assets	0.15

For those Unrated Governmental Entities that meet all of the above criteria, the maximum amount of unsecured credit is calculated as five percent (5%) of Net Assets (i.e., five percent of total assets minus restricted assets (less any matching liabilities if the result is greater than zero) minus total liabilities). That percentage may be adjusted downward by up to 100% if the CAISO becomes aware of significant negative information regarding the Market Participant's operations as determined through trade publications and/or the financial press.

4.4.1.1. Example Unsecured Credit Limit Calculations for Unrated Governmental Entities Other Than Those that Receive Appropriations from the Federal Government or a State Government

The Unsecured Credit Limit calculation for an Unrated Governmental Entity not receiving appropriations requires financial data as set forth in the table above.

Assume the following for purposes of this example:

Long-Term Debt Interest Expense = \$7,900,000

Change in Net Assets = \$4,100,000

Depreciation & Amortization Expense = \$5,900,000

Debt Service Billed = \$9,900,000

Total Assets = \$283,600,000

Restricted assets (less matching liabilities if greater than zero) = (\$1,000,000)
(since this value is less than zero, zero will be used in the calculation)

Total Liabilities = \$232,500,000

Based on the above information, the following financial metrics are calculated to determine if an Unsecured Credit Limit can be granted:

Net Assets = Total Equity = Total Assets – Restricted Assets – Total Liabilities = \$51,100,000 (**Acceptable**)

Times Interest Earned = (Long-Term Debt Interest Expense + Change in Net Assets) / Long-Term Debt Interest Expense = (\$7,900,000 + \$4,100,000) / \$7,900,000 = 1.52 (**Acceptable**)

Debt Service Coverage = (Depreciation and Amortization Expense + Long-Term Debt Interest Expense + Change in Net Assets) / Debt Service Billed = (\$5,900,000 + \$7,900,000 + \$4,100,000) / \$9,900,000 = 1.81 (**Acceptable**)

Equity to Assets = Total Equity / Total Assets = \$51,100,000 / \$283,600,000 = 0.18 (**Acceptable**)

Based on each of the financial metrics exceeding the Minimum Accepted Value as defined in Section 4.4.1, the Unsecured Credit Limit is calculated as follows:

Intermediate Unsecured Credit Limit = Net Assets * 5% = \$51,100,000 * 0.05 = \$2,555,000

Unsecured Credit Limit = intermediate Unsecured Credit Limit * adjustment factor based on qualitative factors = \$2,555,000 * 100% = \$2,555,000

It should be noted that the adjustment factor based on qualitative factors can vary between 0 – 100% based on the same qualitative factors used to assess other entity types. These qualitative factors are further described in Section 3.4 of this BPM. In addition, the entity would not be eligible for an Unsecured Credit Limit if any of the above financial metrics had not met the Minimum Accepted Value as defined in Section 4.4.1.

4.4.2. Unsecured Credit Limit for an Unrated Governmental Entity That Receives Appropriations from the Federal Government or a State Government

An Unrated Governmental Entity that receives appropriations from the federal government or a state government that has submitted an Application for Unsecured Credit shall be entitled to an Unsecured Credit Limit of the lower of the cap of \$50 million or the amount appropriated by the federal or relevant state government for the purpose of procuring energy and energy-related products and services for the applicable fiscal year. The Unrated Governmental Entity seeking to establish an Unsecured Credit limit pursuant to this section shall provide documentation establishing its annual appropriations. Unsecured Credit Limits established pursuant to this section or through Section 12.1.1 of the CAISO Tariff shall be subject to the CAISO's consideration of the same qualitative factors that apply to all other Market Participants and, accordingly, the CAISO may adjust their Unsecured Credit Limits pursuant to Section 12.1.1 of the CAISO Tariff.

4.5. Unsecured Credit Limit Calculation for Local Publicly Owned Electric Utilities

A Local Publicly Owned Electric Utility with a governing body having ratemaking authority that has submitted an application for an Unsecured Credit Limit shall be entitled to an Unsecured Credit Limit of \$1 million dollars without regard to its Net Assets.

Such Local Publicly Owned Electric Utility shall be entitled to request an Unsecured Credit Limit based on Net Assets as provided in Section 4.3 or 4.4 of this BPM (see Tariff Section 12.1.1.1) in order to establish an Unsecured Credit Limit as the greater of \$1 million dollars or the amount determined as provided in this Section (see Tariff Section 12.1.1.1(5)).

A public entity that is not a Local Publicly Owned Electric Utility is not entitled to an Unsecured Credit Limit of \$1 million dollars under Tariff Section 12.1.1.1(5) but may

seek to establish an Unsecured Credit Limit as provided in any other provision of the CAISO Tariff that may apply.

4.5.1. Public Entities Operating Through Joint Power Agreements

Public entities, including Local Publicly Owned Electric Utilities, that operate through a Joint Powers Agreement, or a similar agreement acceptable to the CAISO with the same legal force and effect, shall be entitled to aggregate or assign their Unsecured Credit Limits subject to the following limitations and requirements. A public entity that is a party to a Joint Powers Agreement or similar agreement and that is also participating independently in the CAISO's markets with an established Unsecured Credit Limit shall not be entitled to assign or aggregate any portion of its Unsecured Credit Limit that the public entity is using to support financial liabilities associated with its individual participation in the CAISO's markets. A Local Publicly Owned Electric Utility that operates through a Joint Powers Agreement or similar agreement that desires to aggregate a portion of its Unsecured Credit Limit that is equal to or less than \$1 million dollars with one or more other Local Publicly Owned Electric Utilities that operate through that Joint Powers Agreement or similar agreement or to assign a portion of its Unsecured Credit Limit that is equal to or less than \$1 million dollars to the Joint Powers Authority shall be entitled to do so. A Local Publicly Owned Electric Utility that operates through a Joint Powers Agreement or similar agreement that desires to aggregate its Unsecured Credit Limit with one or more other Local Publicly Owned Electric Utilities that operate through that Joint Powers Agreement or similar agreement or to assign a portion of its Unsecured Credit Limit to the Joint Powers Authority that exceeds \$1 million dollars, and any public entity that is not a Local Publicly Owned Electric Utility that operates through a Joint Powers Agreement or similar agreement that desires to aggregate its Unsecured Credit Limit with one or more other Local Publicly Owned Electric Utilities that operate through that Joint Powers Agreement or similar agreement or to assign any portion of its Unsecured Credit Limit to the Joint Powers Authority, shall provide documentation that is acceptable to the CAISO and that demonstrates the Local Publicly Owned Electric Utility or public entity will assume responsibility for the financial liabilities of the Joint Powers Authority associated with the assigned or aggregated portion of the Unsecured Credit Limit. Such documentation may include a guaranty or similar instrument acceptable to the CAISO.

4.6. Unsecured Credit Limit Issues for Affiliated Entities

As provided in Section 12.1.1.1 of the CAISO Tariff, if any Market Participant requesting or maintaining an Unsecured Credit Limit is affiliated with one or more other entities subject to the credit requirements of Section 12 of the CAISO Tariff, the CAISO may consider the overall creditworthiness and financial condition of these Affiliated Entities when determining the applicable Unsecured Credit Limit. The maximum Unsecured Credit Limit calculated in accordance with Section 4 of this BPM applies to the combined activity of these Affiliated Entities.

In those cases where a Market Participant is a subsidiary or Affiliate of another entity and would like to utilize the consolidated financial statements and other relevant information of that entity for obtaining an Unsecured Credit Limit, a signed corporate guaranty is required. A guarantor would be considered reasonably acceptable and a corresponding Unsecured Credit Limit would be set based on the guarantor's credit evaluation according to the procedures that apply to the credit evaluation of a Market Participant pursuant to Section 12.1.1.

5. Approved Forms of Financial Security Instruments

In this section you will find information on the following topics:

- A list of the forms of Financial Security instruments the CAISO accepts
- How the CAISO uses the standard and non-standard forms
- A description of the acceptable debt ratings of issuing banks, financial institutions and insurance companies
- How the CAISO uses Credit from Affiliates
- Issues related to prepayments
- Responsibility for losses of funds held by the CAISO as a prepayment
- How the CAISO treats the expiration of financial instruments

5.1. Forms of Financial Security

In accordance with Section 12.1.2 of the CAISO Tariff, a Market Participant, at its own expense, may submit one or more forms of Financial Security to meet or increase its Financial Security posting requirement. Pro-forma templates of Financial Security acceptable to the CAISO may be found at: <http://www.caiso.com/market/Pages/Settlements/Default.aspx> . Acceptable forms of Financial Security include:

- a) An irrevocable and unconditional letter of credit issued by a bank or financial institution that is reasonably acceptable to the CAISO (listed as “ISO Form Letter of Credit” on the CAISO website)
- b) A prepayment to the CAISO (a specific agreement related to a prepayment is not required. Prepayments are governed by Section 11.29.3 of the CAISO Tariff).

5.2. Standard & Non-Standard Forms

The CAISO maintains standard agreement forms related to the types of Financial Security listed in Section 5.1, Forms of Financial Security. In accordance with Section 12.1.2.2 of the CAISO Tariff, the CAISO evaluates non-standard agreement forms for these types of Financial Security on a case-by-case basis. For those Market Participants that propose the use of a non-standard agreement form, the form is subject to review and approval by the CAISO Credit and Legal

Departments. A Market Participant is required to justify any proposed departures from the CAISO standard agreement form.

Within ten (10) Business Days from receipt of any form of Financial Security, the CAISO evaluates it and determines whether it is reasonably acceptable and approved. Significant departures from the CAISO standard agreement forms may not be accepted. The request is denied if the CAISO does not respond within ten (10) Business Days. If the need to post additional Financial Security is prompted by an additional Financial Security request based upon the latest Estimated Aggregate Liability calculation, the review process does not defer the Market Participant's obligation to post additional Financial Security.

5.3. Minimum Debt Ratings

The standard that the CAISO uses in establishing reasonable acceptability for issuing banks, financial institutions or insurance companies is that the institution has and maintains a minimum corporate debt rating of an "A-" by S&P, "A3" by Moody's, "A-" by Duff & Phelps, "A-" by Fitch or an equivalent short-term debt rating by any of these agencies.

5.4. Foreign Guarantees

A Foreign Guaranty is a Guaranty that is provided by an Affiliate entity that is domiciled in a country other than the United States or Canada. The entity providing a Foreign Guaranty on behalf of a Market Participant is a Foreign Guarantor. A Market Participant may provide a Foreign Guaranty in satisfaction of part of its obligations to the CAISO provided that all of the following conditions are met. The CAISO reserves the right to deny, reject, or terminate acceptance of any Foreign Guaranty at any time, including for material adverse circumstances or occurrences.

a. A Foreign Guaranty:

- i. Must contain provisions equivalent to those contained in the CAISO's standard form Guaranty with any modifications subject to review and approval by the CAISO;
- ii. Must be denominated in US currency;
- iii. Must be written and executed solely in English, including any duplicate originals; and
- iv. Will not be accepted towards an Market Participant's Unsecured Credit Limit for more than the following limits, depending on the Foreign Guarantor's credit rating:

Rating of Foreign Guarantor (S&P/Moody's Rating)	Maximum Guaranty Amount
AA+/Aa1 or above	US \$25 million
AA/Aa2 to AA-/Aa3	US \$15 million
A+/A1 to A-/A3	US \$5 million
BBB+/Baa1 or below	None

b. A Foreign Guarantor:

- i. Must satisfy all provisions of the CAISO's Credit Policy applicable to domestic Guarantors;
- ii. Must be an Affiliate of the Market Participant;
- iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the State of California, absent legal constraint;
- iv. Must be rated by at least one of the Nationally Recognized Statistical Rating Organizations; the credit strength of a Foreign Guarantor may not be determined based on an evaluation of its financials without an actual credit rating as well;
- v. Must have an issuer rating (or equivalent, in the CAISO's sole discretion) rating of A- or greater by any and all agencies that provide rating coverage of the entity;
- vi. Must provide the CAISO financials in GAAP format or using international accounting standards with clear representation of net worth, intangible assets, and any other information the CAISO may require in order to determine the entity's Tangible Net Worth;
- vii. Must provide a Secretary's Certificate certifying the adoption of Corporate Resolutions:
 1. Authorizing and approving the Guaranty; and
 2. Authorizing the Officers to execute and deliver the Guaranty on behalf of the Guarantor;
- viii. Must be domiciled in a country with a minimum long-term sovereign (or equivalent) rating of AA+/Aa1, with the following conditions:
 1. Sovereign ratings must be available from at least two of the Nationally Recognized Statistical Rating Organizations;
 2. Each agency's sovereign rating for the domicile will be considered to be the lowest of: country ceiling, senior unsecured government debt, long-term foreign currency sovereign rating, long-term local currency sovereign rating, or other equivalent measures, at the CAISO's sole discretion; and

3. Whether ratings are available from two or three agencies, the lowest of the two or three will be used;
- ix. Must be domiciled in a country that recognizes and enforces judgments of US courts;
 - x. Must demonstrate financial commitment to activity in the United States as evidenced by one of the following:
 1. American Depositary Receipts (ADR) are traded on the New York Stock Exchange, American Stock Exchange, or NASDAQ; and
 2. Equity ownership worth over US \$100,000,000 in wholly owned or majority owned subsidiaries in the United States;
 - xi. Must satisfy all other applicable provisions of the CAISO Tariff and this Credit Policy;
 - xii. Must pay for all expenses incurred by the CAISO related to reviewing and accepting a foreign guaranty beyond nominal in-house credit and legal review; and
 - xiii. Must, at its own cost, provide the CAISO with independent legal opinion from an attorney/solicitor of the CAISO's choosing and licensed to practice law in the United States and/or Guarantor's domicile, in form and substance acceptable to the CAISO in its sole discretion, confirming the enforceability of the Foreign Guaranty, the Guarantor's legal authorization to grant the Guaranty, the conformance of the Guaranty, Guarantor, and Guarantor's domicile to all of these requirements and such other matters as the CAISO may require in its sole discretion.

5.5. Canadian Guarantees

A Canadian Guaranty is a Corporate Guaranty that is provided by an Affiliate entity that is domiciled in Canada and satisfies all of the provisions below. The entity providing a Canadian Guaranty on behalf of a Market Participant is a Canadian Guarantor. A Market Participant may provide a Canadian Guaranty in satisfaction of its obligations to the CAISO provided that all of the following conditions are met. The CAISO reserves the right to deny, reject or terminate acceptance of any Canadian Guaranty at any time for reasonable cause, including adverse material circumstances.

a. A Canadian Guaranty:

- i. Must contain provisions equivalent to those contained in the CAISO's standard form Guaranty with any modifications subject to review and approval by the ISO;
- ii. Must be denominated in US currency; and
- iii. Must be written and executed solely in English, including any duplicate originals.

b. A Canadian Guarantor:

- i. Must satisfy all provisions of the CAISO Credit Policy applicable to domestic Guarantors;
- ii. Must be an Affiliate of the Market Participant;
- iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the State of California, absent legal constraint;
- iv. That is a provincial utility must waive any claims of sovereign immunity and submit to the jurisdiction of U.S. courts;
- v. Must be rated by at least one of the Nationally Recognized Statistical Rating Organizations; the credit strength of a Canadian Guarantor may not be determined based on an evaluation of its financials without an actual credit rating as well;
- vi. Must provide financials in GAAP format or other format acceptable to the CAISO with clear representation of net worth, intangible assets and any other information the CAISO may require in order to determine the entity's Tangible Net Worth; and
- vii. Must satisfy all other applicable provisions of the CAISO Tariff and this Credit Policy.

5.6. Financial Security through Affiliates

In those cases where a Market Participant is a subsidiary or affiliate of another entity and prefers to utilize the consolidated financial statements and other relevant financial information of that entity for obtaining credit, a signed corporate guaranty is required. A guarantor is subject to maximum unsecured credit limits specified in Section 4.1 of this BPM and Section 12.1.1 of the CAISO Tariff. A guarantor is considered reasonably acceptable and a corresponding Financial Security Amount is set based on the guarantor's credit evaluation according to the same procedures that a Market Participant undergoes as described in Section 3.1, Unsecured Credit Assessment Requirements. If the guarantor has two or more subsidiaries or affiliates participating in the CAISO market, the guaranty must back the obligations of each subsidiary or affiliate.

5.7. Prepayments as Financial Security

The CAISO Tariff (Section 11.29.3) also permits Market Participants to make a prepayment of an upcoming bill due to the CAISO. A prepayment may be used as a form of Financial Security. Prepayments are held in an interest-bearing account where interest accrues to the Market Participant's benefit and is added to the Market Participant's prepayment account on a monthly basis. Should a Market Participant become delinquent in payments, the Market Participant's outstanding account balance is satisfied using the prepayment, as per Section 9.6 of this BPM. The Market Participant must take care to replenish used funds to ensure that it maintains a suitable level of cash to meet future financial obligations. Due to the additional administrative effort involved in tracking and posting interest on prepayments, the prepayment option is not encouraged.

For those Market Participants who post prepayments as Financial Security and would like to obtain access to their monthly bank statements for accounting purposes, please contact CAISOCredit@caiso.com. After the proper documentation has been completed, signed and returned to the CAISO, access is typically granted within five (5) business days.

5.7.1. Risk of Loss for Prepayments

The CAISO is not held liable for any losses of funds held and invested by the CAISO on the Market Participant's behalf. Market Participants agree to bear any risk of loss of principal and/or interest of these funds. Funds are only invested in bank accounts, money market accounts or U.S. Government securities according to the Board approved the CAISO investment policy, unless otherwise agreed to by the Market Participant and the CAISO.

5.8. Expiration of Financial Instruments

Each Market Participant must ensure that the financial instruments it uses for the purpose of providing Financial Security does not expire and thereby cause the Market Participant's Aggregate Credit Limit to fall below the Market Participant's Estimated Aggregate Liability. The CAISO may notify the Market Participant through written communication approximately one (1) month prior to expiration to ensure that the financial security remains in compliance with the Section 12.1.2.3 of the CAISO Tariff.

The CAISO may treat a financial instrument that does not have an automatic renewal provision, and/or that is not renewed or replaced within seven (7) calendar days of its date of expiration, as being out of compliance with the standards for Financial Security. At this time, the CAISO will deem the value of that financial instrument to be zero, and may draw upon the Financial Security prior to its stated expiration if deemed necessary by the CAISO.

6. Estimated Aggregate Liability Calculation

In this section you will find the following information:

- A description of the Estimated Aggregate Liability calculation
- How the Estimated Aggregate Liability is determined for Market Participants
- How CRRs are valued in the Estimated Aggregate Liability calculation
- How Virtual Bids are valued in the Estimate Aggregate Liability calculation

This section describes the approach used by the CAISO to determine the outstanding position of each Market Participant, known as the Estimated Aggregate Liability. The charges the CAISO shall use to calculate Estimated Aggregate Liability shall be charges described or referenced in the CAISO Tariff. Market Participants must maintain an Aggregate Credit Limit in excess of their Estimated Aggregate Liability at all times. The process the CAISO uses to make this comparison is described in the Section 8 of this BPM.

6.1. Estimated Aggregate Liability Overview

The CAISO will periodically calculate a Market Participant's Estimated Aggregate Liability which is the estimate of unpaid obligations for a specified time period arising from charges described in the CAISO Tariff. The Estimated Aggregate Liability calculation includes invoiced amounts (that are current but outstanding or past-due), settlement charges on statements that have been published but not invoiced, estimated settlement charges for trade days that are not yet on statements, FERC fees and the prospective value of CRR and WAC obligations (if they are due to the CAISO).

Based on the published CAISO payment calendar, there are at any given time approximately 19-27 trade days for Daily Charge Codes and 24-54 trade days for Monthly Charge Codes of unpaid obligations to the CAISO depending on the date of the last cash settlement. The Estimated Aggregate Liability calculation will also include an additional 6 days of extrapolated transactions (in Estimated Aggregate Liability Component #4) to provide appropriate credit coverage in recognition of the two (2) business days that Market Participants have to post any additional required Financial Security under Section 8 of this BPM (corresponding to Section 12.4 of the Tariff).

Under the weekly settlement cycle, the daily Charge Codes and monthly Charge Codes will effectively be invoiced using different frequencies. The daily Charge Codes will be invoiced

every Wednesday for the previous Monday to Sunday. Daily Charge Codes get invoiced every Wednesday while monthly Charge Codes get invoiced once per month.

6.2. Estimated Aggregate Liability Components

The CAISO shall calculate the Estimated Aggregate Liability for each Market Participant by aggregating the following obligations:

Estimated Aggregate Liability Component #	Short Description	Description
1	Invoiced	Any published but unpaid amounts on Invoices.
2	Published	Amounts for Trading Days for which Settlement Statements have been issued.
3	Estimated	Reasonably anticipated liabilities that are not captured by any other component.
4	Extrapolated	<p>The extrapolation EAL component is intended to estimate ongoing liabilities during periods in which a market participant continues to accrue liabilities but those liabilities are not yet reflected in any other component of the market participant's EAL. This so called "blind spot" is the result of the nine (9) business day lag between the Trade Date and the date Settlement Statements are first published. Should the published Settlements Statement result in the need for the CAISO to make a collateral call, the extrapolation must cover a larger blind spot to include the two (2) business days that the market participant has to post the additional collateral. As such, the CAISO has elected to base the daily extrapolation component on a nineteen (19) day blind spot (see Daily Charge Code Extrapolation example below). A blind spot of seventeen (17) to fifty (50) days exists for monthly charge codes (see Monthly Extrapolation example below). Therefore, the Extrapolated EAL component will be calculated as follows:</p> <p>For Daily Charge Codes:</p> <ul style="list-style-type: none"> Daily Extrapolated = (Daily Charge Code Settlement Amount * 19) / 61 <p>The Monthly Extrapolated value represents the average monthly charge code settlements amount based on the month end charge codes on the two (2) most recent month-end statements (initial and recalculation statements). The blind spot for month-end charge</p>

codes is seventeen (17) to fifty (50) days..

For Monthly Charge Codes:

$$\text{Monthly Extrapolated} = (\text{Monthly Charge Code Settlement Amount} * ((\text{Today's Date} - \text{Recent Month End Trade Date Published}) + 6)) / 61$$

5	CRR Portfolio Value	Prospective value of the CRR portfolio, if negative. The CRR obligation is valued as described in Section 6.2.2 of this BPM (and Section 12.6.3 of the Tariff)
6	CRR Bid Liability	Accepted Bids from the Credit Tracking System (CTS) – These bids are accepted based on the Available Credit at the time of CRR bids submitted.
7	CRR Bidding Reservation	CRR minimum participation requirement is \$100K of available secured credit for monthly auctions and \$500K of available secured credit for annual auctions: $\text{Monthly CRR Bidding Reservation} = \text{Max}(0, \$100\text{K} - \text{Total CRR Bid Liability})$ $\text{Annual CRR Bidding Reservation} = \text{Max}(0, \$500\text{K} - \text{Total CRR Bid Liability})$
8	CRR Auction Awards (prior to invoicing)	A Market Participant's positively valued winning bids at the completion of the CRR auction, but prior to publishing on a settlements statement.
9	Virtual Bid	The amount of Available Credit necessary to cover the sum of the estimated value of all Virtual Bids submitted by a Scheduling Coordinator in the Day-Ahead Market that have passed the SIBR Bid validation rules. The estimated value of a Virtual Bid is the product of the MW volume of the Virtual Bid and the applicable Virtual Bid Reference Price. When a Scheduling Coordinator submits both Virtual Supply Bids and Virtual Demand Bids at the same Eligible PNode or Eligible Aggregated PNode for the same Trading Hour, the greater of the estimated values of the two bids will be used in the calculation of Virtual Bid Reservation.
10	Virtual Day-Ahead	The amount of Available Credit necessary to cover the updated estimated values of Virtual Awards after the close of the Day-Ahead Market. The updated estimated value of a Virtual Bid is the product of the MW value of the Day-Ahead Market Virtual Award and the applicable Virtual Bid Reference Price. Virtual Day-Ahead replaces Virtual Bid.
11	Virtual Real-Time	The amount of Available Credit necessary to cover the estimated liability of a Virtual Award after the close of HASP or the Real-time

		<p>Market, as applicable.</p> <p>For a Virtual Award at an intertie, the liability is determined by the MW amount of the Day-Ahead Market Virtual Award MW and the difference between the Day-Ahead Market LMP and the hourly average of the 15-minute HASP LMPs. For a Virtual Award on internal Eligible PNode or Eligible Aggregated Pnode, the liability is determined by the MW amount of the Day-Ahead Market Virtual Award and the difference between Day-Ahead Market LMP and the hourly average RealTime LMPs at the applicable location.</p> <p>Virtual Real-Time replaces Virtual Day-Head. Virtual Real-Time is subject to adjustment as a result of any price corrections to the applicable LMPs resulting from the CAISO's price validation process.</p>
12	Past-due	Any unpaid/past due invoice amounts.
13	FERC Annual Charges	FERC Annual Charges for participants that have elected to pay such amounts on an annual basis that are owed and outstanding, which are not included in Estimated Aggregate Liability Components 1-4.
14	Wheeling Access Charge – Future	WAC amounts for the future year as specified in Section 36.9.2 of the Tariff
15	Wheeling Access Charge – Current	WAC amounts for the current year as specified in Section 39.9.2 of the Tariff
16	Estimated Aggregate Liability Adjustments	Estimated Aggregate Liability Adjustments that may be necessary for a Market Participant based on an analysis performed by the CAISO or as a result of a dispute by a Market Participant according to Section 12 of this BPM. Additionally, extraordinary adjustments may be made to settlement amounts related to FERC proceedings, if known and estimated by the CAISO.

Daily Charge Code Extrapolation Example:

Daily Extrapolation for T+9B																				
Trade Date		WkEnd	WkEnd							WkEnd	WkEnd						Holiday	Holiday	WkEnd	WkEnd
Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	
14-Nov-19	15-Nov-19	16-Nov-19	17-Nov-19	18-Nov-19	19-Nov-19	20-Nov-19	21-Nov-19	22-Nov-19	23-Nov-19	24-Nov-19	25-Nov-19	26-Nov-19	27-Nov-19	28-Nov-19	29-Nov-19	30-Nov-19	1-Dec-19	2-Dec-19	3-Dec-19	
Trade Date Nov 14, 2109		Week End	Week End						Week End	Week End			Published Nov 14th Initial Statement (T+9B)	Holiday	Holiday	Week End	Week End		Collateral Due within 2 Business Day	
													Issue Collateral Request							
Business Day	1			2	3	4	5	6			7	8	9					1	2	
Calendar Day - Maximum 19 days of blind spot	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	

Monthly Extrapolation Example:

T+9B blind spot range is from 17 to 50 days (based from 2019 Calendar)																								
January		February		March		April		May		June		July		August		September		October		November		December		
Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
13-Feb-19	12-Mar-19	13-Mar-19	10-Apr-19	11-Apr-19	12-May-19	13-May-19	12-Jun-19	13-Jun-19	11-Jul-19	12-Jul-19	12-Aug-19	13-Aug-19	12-Sep-19	13-Sep-19	10-Oct-19	11-Oct-19	12-Nov-19	13-Nov-19	11-Dec-19	12-Dec-19	13-Jan-20	14-Jan-20	13-Feb-20	
31-Jan-19	31-Jan-19	28-Feb-19	28-Feb-19	31-Mar-19	31-Mar-19	30-Apr-19	30-Apr-19	31-May-19	31-May-19	30-Jun-19	30-Jun-19	31-Jul-19	31-Jul-19	31-Aug-19	31-Aug-19	30-Sep-19	30-Sep-19	31-Oct-19	31-Oct-19	30-Nov-19	30-Nov-19	31-Dec-19	31-Dec-19	
13	40	13	41	11	42	13	43	13	41	12	43	13	43	13	40	11	43	13	41	12	44	14	44	
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
19	46	19	47	17	48	19	49	19	47	18	49	19	49	19	46	17	49	19	47	18	50	20	50	
61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	

Blind spot range for monthly extrapolation is from seventeen (17) to fifty (50) days

- A: Today Date
- Recent Month End Trade Date Published (Initial
- B: Statement)
- Number of days between Today Date and Recent Month End Trade Date published
- C: (dynamic range).
- Two (2) Business Days to fulfill a collateral call is equal to six (6) Calendar Days
- D: based on a four (4) day holiday weekend, such as Thanksgiving
- E: Numerator - Extrapolation Days Range (dynamic)
- F: Denominator - (fixed)

6.2.1. Estimated Aggregate Liability Is Calculated for a Market Participant on an Aggregate Basis

For a Market Participant that maintains multiple BAID numbers, the Estimated Aggregate Liability of the Market Participant as a legal entity will be calculated by summing the Estimated Aggregate Liabilities for all such BAID numbers and comparing the sum of the Estimated Aggregate Liabilities to the Aggregate Credit Limit of the Market Participant.

6.2.2. Valuation of a Market Participant's CRR Portfolio

This section provides additional detail related to the calculation of Estimated Aggregate Liability component #5, CRR Portfolio Value, in the table above. The value of a Market Participant's CRR portfolio, if negative, is a component of the Estimated Aggregate Liability. Each CRR in the portfolio is valued separately, but the MW amount is netted within the CRR group and then the credit requirement is calculated for each of the CRR groups. There are six CRR Groups: short-term auction group, short-term allocation group, long-term allocation group 1, long-term allocation group 2, long-term allocation group 3, and the financial group. For more details on the CRR groups, please refer to the Business Practice Manual for Congestion Revenue Rights, Attachment H, Section 2.2. The credit requirements of one allocation group may offset the negative values from the other allocation groups, but the credit requirement from the auction and from SRS trades will never be offset with negative values from any of the allocation groups. The credit requirement is calculated as the negative of the minimum of the clearing prices from the CRR Auction process and the Historical Expected value for such CRR plus the Credit Margin for such CRR and Short-term and longer term CRRs are valued in a similar manner:

Credit Margin for CRRs will be calculated based on the probability distribution of Congestion revenues as follows: Expected CRR Congestion Revenue minus Fifth Percentile CRR Congestion Revenue. Expected CRR Congestion Revenue and Fifth Percentile CRR Congestion Revenue will be based on the most current 36 months of historical LMP data with the details of such calculation published in the Business Practice Manual for Congestion Revenue Rights, Attachment G. The credit margins are updated annually. The CAISO may reassess its determinations regarding Expected CRR Congestion Revenue and Fifth Percentile CRR Congestion Revenue at any time and as a result, recalculate the CRR valuations in the Estimated Aggregate Liability.

6.2.3. Valuation of a Market Participant's Virtual Bid Components

After each Scheduling Coordinator's Virtual Bids are validated in accordance with the SIBR rules, and an estimate of the value of each Virtual Bid is calculated utilizing the MW volume of the Virtual Bid and the applicable Virtual Bid Reference Price, the Virtual Bids of a Scheduling Coordinator will be assessed to determine if the Scheduling Coordinator has sufficient Available Credit according to the process set forth in Section 7.5.1 of this BPM to permit those Virtual Bids to be passed to the IFM. If sufficient Available Credit exists and the Virtual Bids are passed to the IFM,

the Scheduling Coordinator's Virtual Bid Reservation amount (EAL component #9) will be set to reflect the aggregate value of all accepted Virtual Bids.

If the CAISO is unable to conduct credit checking for the Virtual Bids due to outage of the system at the time of close of the Day-Ahead Market, all Virtual Bids submitted and in the queue for credit checking will be accepted and passed to the IFM. See CAISO Tariff Section 12.8.1.2 for further information on the CAISO's authority to suspend virtual bidding.

After the Day-Ahead Market closes, but before the Real-Time Market closes, the CAISO will adjust the estimate of the values of Virtual Bids based on the Virtual Awards and applicable Virtual Bid Reference Prices, as described in Section 7.5.2, zero out the Scheduling Coordinator's Virtual Bid Reservation amount, and set the Scheduling Coordinator's Virtual Bid Day-Ahead amount (EAL component #10) to reflect the adjusted values of the Virtual Awards.

After the HASP closes, the CAISO will calculate the liabilities (Virtual Bid Real-Time, EAL Component #11) of the Virtual Awards at the interties based on the MW value of the Virtual Awards and the difference between Day-Ahead and hourly average HASP LMPs according to the process set forth in Section 7.5.2. The Scheduling Coordinator's Virtual Bid Real-Time amount will replace the Virtual Bid Day-Ahead amount for virtual awards at intertie locations. This update will occur hourly as HASP results are available.

After the Real-Time Market closes, the CAISO will calculate the liabilities (Virtual Bid Real-Time, EAL Component #11) of the Virtual Awards submitted at any eligible internal Pnodes or APnodes based on the MW value of the Virtual Awards and the difference between Day-Ahead and hourly average Real-Time Market LMPs according to the process set forth in Section 7.5.2. The Scheduling Coordinator's Virtual Bid Real-Time amount will replace the Virtual Bid Day-Ahead amount for virtual awards at internal Pnode or APnode locations. This update will occur hourly as Real Time results are available.

Scheduling Coordinator's Virtual Bid Real-Time amounts are subject to revision if the applicable LMPs have been corrected in the price validation process.

Adjusting any of the Virtual Bid EAL components will result in the Scheduling Coordinator's Available Credit to be adjusted which may result in less Available Credit for additional Virtual Bids and other market activity.

6.2.4. Wheeling Access Charge Prepayment

This section describes components 14 and 15 of the Estimated Aggregate Liability components shown in Section 6.2 of this BPM. This Estimated Aggregate Liability component is discussed in Tariff Section 36.9.2.

Out-of-Balancing Authority Area Load Serving Entities who are allocated short-term CRRs will be subject to the same credit requirements for holding short-term CRRs as other market participants. Additionally, Out-of-Balancing Authority Area Load Serving Entities will be required to either pre-pay the WAC charges on a monthly basis, assuming they meet the credit requirements of Section 12 and the further requirements as noted in Tariff Section 36.92.2.2 or, if the OBAALSE does not meet the credit and other requirements noted above they will be required to pre-pay the full required amount based on the pre-allocation request amounts (adjusted based on final awarded values). Should the OBAALSE choose the monthly payment election and fulfill the described requirements in the sections noted above, they will be required to prepay the Wheeling Access Charge on a monthly basis in advance of the trade month, consistent with the FERC April 20, 2007 Order.

Component 15 of the Estimated Aggregate Liability shown in Section 6.2 of this BPM is the current year credit requirement that decreases with the passing of each month. During the current year, when the CRRs are allocated for the subsequent year, an additional one year of Wheeling Access Charge requirements is added to the Estimated Aggregate Liability, as shown in Component 14 of the Estimated Aggregate Liability shown in Section 6.2 of this BPM. If the OBAALSE has chosen the monthly prepayment option they will have the liability reflected for the entire terms of the awarded CRRs and the prepayment made prior to the beginning of the operating month. If the OBAALSE has not chosen the monthly prepayment option or has not met the requirements for this option, then the full amount of the WAC prepayment will be made and held in escrow.

This treatment applies to all CRRs allocated to Out-of-Balancing Authority Area Load Serving Entities.

6.2.5. Estimated Aggregate Liability Adjustments

When the CAISO or a Market Participant observes that the Estimated Aggregate Liability calculation may be producing a liability estimate that appears to be inaccurate, the CAISO may review and revise the calculation generally, and/or manually adjust the results for specific Market Participants to reflect known issues. Adjustments to a specific Market Participant's Estimated Aggregate Liability are a

component of the Estimated Aggregate Liability as shown in the Table in Section 6.2, in row 16.

Other situations where the CAISO may also adjust the Estimated Aggregate Liability calculation for a specific Market Participant include the occurrence of a Market Participant bankruptcy where a new Business Association Identification Number (BAID) is established. In that case, the available settlements data for the previous BAID may be representative of ongoing activities levels, but this data is not normally accessible to the Estimated Aggregate Liability calculation to estimate liabilities for the new post-bankruptcy BAID.

Market Participants may also recommend changes to their liability estimates through the dispute procedure noted in Section 12, Dispute Procedures.

6.2.5.1. Ordinary and Extraordinary Settlements Adjustments

The CAISO's goal is to ensure that active as well as inactive Market Participants maintain an Aggregate Credit Limit sufficient to cover all known and reasonably estimated potential liabilities. Various charges sometimes arise which require special consideration in the Estimated Aggregate Liability calculation. The CAISO intends to include the following charges in the Estimated Aggregate Liability calculation, if and when such data is available, and will require Market Participants to post Financial Security accordingly.

The following two types of adjustments will be included in normal settlements statements as contained in components 1 and 2 of the Estimated Aggregate Liability calculation shown in Section 6.2:

- **Daily Adjustments and Disputes** – Charges associated with daily adjustments and disputes that are regularly calculated by the settlement system will be included in the liability estimation calculations as the charges are calculated. There should generally be no need to attempt to forecast these amounts since they are typically relatively small and usually affect many Market Participants.
- **Good Faith Negotiations** – In general, Good Faith Negotiations (GFN) tend to affect the transactions of an individual Market Participant, which in turn may affect a few or many other Market Participants. Transactions associated with GFNs will be handled in the same manner as transactions associated with Refund Orders.

The following type of adjustments may be known to the CAISO prior to being included in components 1 and 2 of the Estimated Aggregate Liability calculation shown in Section 6.2. The CAISO may include such amounts as a separate

component of the Estimated Aggregate Liability calculation, as shown in component 16 of the Estimated Aggregate Liability calculation shown in Section 6.2.

- **Refund Orders** – The CAISO will assess its ability to reasonably calculate the charges associated with a refund before the CAISO's settlement system is rerun. If the CAISO can reasonably apportion the refund to specific Market Participants, it will include the amounts in the liability estimation process and request security accordingly. If the CAISO deems that complexities of a refund order preclude it from reasonably assessing the liabilities, it will not make a security request until the refund is processed through the settlement system. However, the CAISO will make available an aggregate forecast of the refund liabilities, if at all possible, to Market Participants for informational purposes only.
- **Alternative Dispute Resolution (ADR)** - The CAISO will handle all transactions associated with the CAISO ADR procedures in the same manner as the transactions associated with Refund Orders, as stated above.

6.3. Calculation of the Estimated Aggregate Liability for New Market Participants

Each new Market Participant (and each Market Participant that has previously been inactive) is required to establish an initial Aggregate Credit Limit sufficient to cover a minimum of 45 Trading Days of estimated obligations. The Market Participant may then establish additional Aggregate Credit as obligations are incurred. This initial credit requirement is based on anticipated scheduling/trading practices and overall volumes, and shall be considered by the CAISO to be equal to the Market Participant's Estimated Aggregate Liability until CAISO obtains data from its automated Estimated Aggregate Liability calculation as described in Section 6.2. At all times during participation in the CAISO market the Market Participant has an obligation to maintain an Aggregate Credit Limit in excess of its Estimated Aggregate Liability.

7. Credit Requirements for CRR's and Virtual Bids

In this section you will find the following information:

- Credit requirements for CRRs
- Credit Requirements for Virtual Bids

7.1. CRR Holder and Candidate CRR Holder Financial Security Requirements

A Market Participant must maintain an Aggregate Credit Limit in excess of their Estimated Aggregate Liability. CRR obligations are a component of the Estimated Aggregate Liability calculation, as specified in Section 6.1 of this BPM.

An entity that intends to acquire CRRs (a Candidate CRR Holder) must demonstrate prior to acquiring the CRRs that they are capable of meeting the ongoing credit requirements for holding CRRs. Candidate CRR Holders or CRR Holders must provide a secured form of Financial Security to meet their pre-auction and holding requirements for any CRRs acquired.

7.2. Credit Requirements for CRR Allocations

Subject to applicable requirements of Section 36.9.2 of the Tariff concerning the prepayment of Wheeling Access Charges, Load-Serving Entities eligible to participate in any CRR Allocation are not required to provide additional Financial Security in advance of a CRR Allocation.

7.3. Credit Requirements for CRR Auctions

To establish available credit for participating in any CRR Auction, each CRR Holder or Candidate CRR Holder that is not a federal agency must satisfy the credit requirements in Section 12.1 of the Tariff and have Financial Security in a form consistent with Section 5 of this BPM (Section 12.1.2 of the Tariff) that is either prepayment or a letter of credit. Unsecured Credit Limits and guaranties may not be used for this purpose.

In order to participate in a CRR Auction, a CRR Holder or Candidate CRR Holder that is not a federal agency must have sufficient credit available to them. In order to participate in an annual CRR Auction, the CRR Holder or Candidate CRR Holder must have a of Financial Security, as noted above, in an amount that is the greater of \$500,000 or the sum of the maximum credit exposures of all of the CRR Holder's or Candidate CRR Holder's bids for CRRs submitted in the annual CRR Auction. In order to participate in a

monthly CRR Auction, the CRR Holder or Candidate CRR Holder must have Financial Security, as noted above, in an amount that is the greater of \$100,000 or the sum of the maximum credit exposures of all of the CRR Holder's or Candidate CRR Holder's bids for CRRs submitted in the monthly CRR Auction.

To establish available credit for participating in any CRR Auction, each CRR Holder or Candidate CRR Holder that is a federal agency must provide to the CAISO a letter, executed by an officer of the CRR Holder or Candidate CRR Holder, that satisfies all of the following requirements: (1) attests that the federal agency is lawfully authorized to participate in the CRR Auction and that any debt the federal agency incurs due its participation in the CRR Auction is a debt of the United States; (2) identifies the current year's appropriations for the federal agency from the United States Congress; and (3) verifies that the amount of the current year's appropriations for the federal agency from the United States Congress meets or exceeds the amount required to satisfy the credit requirements set forth in Section 12.1 of the Tariff. The provision of such an executed letter to the CAISO shall constitute sufficient Financial Security for the federal agency to participate in the CRR Auction.

7.4. Credit Requirements for Holding CRRs

7.4.1 Credit Requirements, Generally

Each CRR Holder that is not a federal agency, whether it obtains CRRs through a CRR Allocation or a CRR Auction, must meet the ongoing credit requirements for holding CRRs. Each CRR Holder shall be required to ensure that its Aggregate Credit Limit is in excess of its Estimated Aggregate Liability and it has sufficient Financial Security as noted above in Section 7.3 that exceeds the value of the CRR portfolio.

Each CRR Holder shall be required to ensure that its Financial Security is sufficient to satisfy the credit requirements described in Section 7 of this BPM. CRRs are evaluated on a portfolio basis as follows. 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, will be netted as described in Attachment "H", Section 2.2 of the BPM for Congestion Revenue Rights. If this sum is positive, the amount will be added to the CRR Holder's Estimated Aggregate Liability, as per Estimated Aggregate Liability component #6, CRR Portfolio

Value. However, if the sum is negative, the CRR Holder's Estimated Aggregate Liability shall not be reduced.

The CAISO shall reevaluate the CRR portfolio not less frequently than once per month. The CAISO may adjust the credit requirements for holding CRRs with terms of one (1) year or less more frequently than annually at the CAISO's discretion to account for changes in auction prices for CRRs in monthly auctions, as per Section 12.6.3.2 of the CAISO Tariff

As provided for in Section 12.6.3.3 of the CAISO Tariff, the CAISO may adjust the value of long-term CRRs included in the Estimated Aggregate Liability calculation not less than annually to reflect:

- a) changes in auction prices of one-year CRRs in annual auctions, and;
- b) updates to Credit Margins based on most current three (3) years of Locational Marginal Price data derived from market operations

7.4.2 Calculation of Credit Margin

The Credit Margin (\$/MW) for a CRR is equal to the expected congestion revenue minus the fifth percentile congestion revenue of such CRR. Both values will be based on the probability distribution of the congestion revenue of such CRR calculated using the historical Locational Marginal Price studies conducted by the CAISO, until such time as historical Locational Marginal Price data is available. Additional information on this calculation can be found in the BPM for Congestion Revenue Rights.

The CAISO may reassess the determinations regarding the Credit Margin at any time and shall require additional Financial Security if the reassessment results in an increase in a CRR Holder's CRR credit requirements that are not covered by the CRR Holder's Financial Security. This additional Financial Security is subject to the posting requirements as stated in Section 8.2 of this BPM.

For additional information on the calculation and use of Congestion Revenue Rights Credit Margin data, please see Attachment "G" of the BPM for Congestion Revenue Rights.

7.4.3 Credit Check on Proposed Transfers and Sales of CRRs

As provided for in Section 12.6.3.1 of the Tariff, in cases where the ownership of a CRR is to be transferred through the Secondary Registration System, the CAISO shall, if necessary, evaluate and adjust the credit requirements for both the current owner of the CRR and the prospective owner of the CRR as appropriate.

Accordingly, prior to implementing the transfer, the CAISO will check to ensure:

- a) that the transferor has sufficient Financial Security, as stated in Section 7.3, and an Estimated Aggregate Liability excluding the CRR to be transferred that is less than its Aggregate Credit Limit; and
- b) that the transferee has sufficient Financial Security in the appropriate form and an Estimated Aggregate Liability including the CRR to be transferred that is less than its Aggregate Credit Limit.

If these conditions are not met, the CAISO will not process the transfer until the conditions are met. The CAISO will contact the appropriate party (transferor or transferee, or both) to post sufficient additional secured Financial Security. The CAISO will then process the transfer when the conditions above are met.

To the extent that the credit requirements of an Load Serving Entity, as specified in Section 12.6.4 of the CAISO Tariff, are updated by the allocation of new CRRs to reflect load migration or sale of allocated CRRs, the Load Serving Entity will have its respective credit requirements updated and any changes will be included in the Estimated Aggregate Liability of the Load Serving Entity.

7.4.4 Failure to Satisfy CRR Credit Requirements

A CRR Holder or CRR Candidate that fails to satisfy the credit requirements as set forth in Section 7 of this BPM, as applicable, will not be permitted to participate in the relevant CRR Auction or will have their bids or bid portfolio (consisting of one more CRR bids), exceeding its available CRR Financial Security, rejected on a last-in, first-out basis.

Additionally, the CAISO will retain the CRR Auction proceeds for the negatively valued CRR's and will apply them to the credit requirements of the CRR Holder. This amount, if applicable, can be seen on the Market Participant's settlement statement(s) and invoice(s) under Charge Code 6799, on a monthly basis. Once the invoices have been paid for the period in which such charges appear, the

amount for Charge Code 6799 will be invested in each respective Market Participant's prepayment investment account. This amount is deemed as Financial Security which is available for market activity, as stated in Section 5.7 of this BPM.

For additional information on the settlement of negatively valued CRRs and Charge Code 6799, please see the BPM for Settlements and Billing.

7.5 Virtual Bid Financial Security Requirements

7.5.1 Credit Checking for Virtual Bids

The credit requirements for MW amounts of Virtual Bids and Virtual Awards will be determined based on a Virtual Reference Price as follows:

$$\left(\sum_i \text{Reference Price}_i * \text{abs}(\text{VBMW}_i) \right) \leq \text{Available Credit Limit}$$

where the calculation of Reference Price is described in Section 7.5.2 of this BPM.

The absolute value of the MWs of all Virtual Bids (Virtual Supply Bids and Virtual Demand Bids) will be counted for credit checking. The only exception is when a Scheduling Coordinator submits both Virtual Supply Bids and Virtual Demand Bids at the same location for the same Trading Hour. Then the greater of the dollar value of the virtual supply (the absolute value of the bid-in virtual supply MW times the reference price of virtual supply at the location) and the dollar value of the virtual demand will be used for credit checking.

Virtual Bids passing the credit check will be fed into the market clearing process. The value of the Virtual Bids will be added to the Scheduling Coordinator's Virtual Bid Reservation EAL component and the amount of Available Credit will be adjusted accordingly.

If a Virtual Bid fails the credit check, the Virtual Bid will be rejected based on its timestamp on a last in, first out basis and the Scheduling Coordinator will be notified accordingly by SIBR. If a batch of Virtual Bids is rejected due to insufficient Available Credit, all Virtual Bids received in that batch will also be rejected as all individual Virtual Bids within the batch are evaluated simultaneously. However, if Virtual Bids are submitted in multiple batches, the Virtual Bids in the batches submitted before the batch that fails the credit check may be accepted. All Virtual Bids submitted in and after the failed batch will be rejected. The Scheduling Coordinator may adjust the amount of Financial Security they have posted with the CAISO and/or may submit revised Virtual Bids after failing the credit check, subject to the CAISO's bidding timelines.

7.5.2 Virtual Bid Reference Prices

Reference Price (\$/MWh) is an estimate of the value of a Virtual Bid in a one MW volume. For virtual supply, the Reference Price is the 95th percentile value of the price difference between the HASP and Day-Ahead Market for intertie Virtual Bids and Awards, and the Real-Time and Day-Ahead Markets for Virtual Bids and Awards at internal PNodes and APNodes. For virtual demand, the Reference Price is the 95th percentile value of price difference between the HASP and Day-Ahead Market for intertie Virtual Bids and Awards, and the Day-Ahead and Real-Time Markets for Virtual Bids and Awards at internal PNodes and APNodes. The CAISO will calculate the two reference prices for each of the CAISO Pricing Nodes. The reference prices are calculated for every three-month period (Jan-Mar, Apr-Jun, Jul-Sep, and Oct-Dec) of each year using the hourly actual LMPs of the same period from the previous year.

Virtual Bid Reference Prices are validated by the CAISO Credit Department on a quarterly basis not less than seven (7) calendar days before the first trading day of the following quarter.

8. Comparison of Estimated Aggregate Liability to Aggregate Credit Limits and Requests for Additional Financial Security

In this section you will find the following information:

- How the CAISO compares the Estimated Aggregate Liability to the Aggregate Credit Limit for each Market Participant is determined for existing Market Participants
- Actions the CAISO takes if the Estimated Aggregate Liability approaches or exceeds the Aggregate Credit Limit of a Market Participant

8.1 Comparison of Estimated Aggregate Liability to Aggregate Credit Limits

The CAISO calculates the Estimated Aggregate Liability for each Market Participant and compares the Estimated Aggregate Liability to each Market Participant's Aggregate Credit Limits on a daily basis. This comparison is performed by aggregating the balances of each individual BAID if a Market Participant maintains multiple accounts with the CAISO. If the Estimated Aggregate Liability exceeds a Market Participant's Aggregate Credit Limit, the Market Participant must post additional Financial Security.

A Market Participant must provide additional Financial Security when its Estimated Aggregate Liability exceeds 100% of its Aggregate Credit Limit. However, the CAISO recommends, but does not require, additional Financial Security to be posted when the Estimated Aggregate Liability exceeds 90%. The Estimated Aggregate Liability calculated by the CAISO for a Market Participant may fluctuate, and at times, this may result in swings in Financial Security posting requirements. To the extent that the Estimated Aggregate Liability exceeds the Aggregate Credit Limit at any time, a Market Participant may be subject to enforcement actions as described in Section 10 of this BPM. Thus the CAISO recommends that Market Participants maintain some excess Available Credit (Aggregate Credit Limit above their maximum anticipated Estimated Aggregate Liability) to avoid the enforcement actions noted in Section 10 of this BPM.

Based on a Market Participant's Aggregate Credit Limit utilization level (which is the Estimated Aggregate Liability divided by Aggregate Credit Limit), the following actions will be taken at each level listed:

<u>Estimated Aggregate Liability / Aggregate Credit Limit</u>	<u>Action</u>
>90% and ≤100%	Market Participant will be notified of a <i>recommended</i> security increase. The CAISO recommends, but does not require, that an additional posting is made to maintain the Estimated Aggregate Liability /Aggregate Credit ratio at or below 90%.
>100%	<p>The CAISO requires that a Market Participant increase the posting amount within two (2) Business Days so that the security utilization does not exceed 100 percent. Failure to post within the prescribed posting period may lead to enforcement actions as described in Section 8.3 of this BPM.</p> <p>The Market Participant is subject to any of the credit related enforcement provisions of the CAISO Tariff Section 12.5 described in Section 10 of this BPM.</p>

8.2 Required Market Participant Response to Financial Security Requests

The CAISO's Estimated Aggregate Liability calculation is used to determine Financial Security posting requirements and adjustments in a Market Participant's posted Financial Security. As per Section 12.4.1 of the CAISO Tariff, within two (2) Business Days of a CAISO Financial Security request, a Market Participant must either:

- a) Post the required Financial Security Amount calculated by the CAISO.
- b) Demonstrate to the CAISO's satisfaction that the CAISO's Financial Security request is all or partially unnecessary through the dispute procedure in Section 12 of this BPM.

Furthermore, any Market Participant that is not in compliance with the requirement that the Estimated Aggregate Liability be less than the Aggregate Credit Limit will be subject to enforcement procedures as described in Section 10 of this BPM.

8.3 Enforcement Actions for Late Posting of Financial Security

Each Market Participant that is late in posting Financial Security within two (2) Business Days as required by Section 12.4 of the CAISO Tariff will be subject to the following enforcement actions:

- (a) After each of the first two (2) times during a rolling twelve (12) month period that a Market Participant is late in posting additional Financial Security within two (2) Business Days as required by Section 12.4, the CAISO will send the delinquent market participant a warning notice via email.
- (b) After the third time during a rolling twelve (12) month period that a Market Participant is late in posting additional Financial Security, the CAISO may require the market participant to post an additional Financial Security Amount that is as high as the highest level of the market participant's Estimated Aggregate Liability during the preceding twelve (12) months. The CAISO will hold such additional Financial Security Amount for no fewer than twelve (12) months following the month in which the Market Participant's third delinquency occurs, and the CAISO may then return to the Market Participant all or a portion of such additional Financial Security Amount if, during the intervening time, the market participant has timely posted all further additional Financial Security Amounts requested by the CAISO and has timely paid all of the amounts set forth in the Invoices from the CAISO.
- (c) After the third time and each subsequent time during a rolling twelve (12) month period that a Market Participant is late in posting additional Financial Security, the CAISO will assess a penalty to the Market Participant equal to the greater of \$1,000 or two percent (2%) of the additional Financial Security Amount that the Market Participant has been late in posting, up to a maximum amount of \$20,000 per each late posting for which the CAISO assesses a penalty pursuant to Tariff Section 12.5.2(c). This penalty will be included in the next Invoice to the Market Participant. Penalty amounts collected by the CAISO pursuant to this Section 12.5.2(c) will be treated as set forth in Tariff Section 11.29.9.6.4.
- (d) After the fourth and any subsequent times during a rolling twelve (12) month period that a Market Participant is late in posting additional Financial Security, the CAISO may extend the time period that it holds all or a portion of the additional Financial Security Amount resulting from the Market Participant's third delinquency during a rolling twelve (12) month period as described in Tariff Section 12.5.2(b).
- (e) After the fifth time during a rolling twelve (12) month period that a Market Participant is late in posting additional Financial Security, the CAISO may, notwithstanding any other provision of the CAISO Tariff, (i) suspend any and all rights of the Market Participant under the CAISO Tariff, effective immediately after the CAISO sends written notice of the suspension to the Market Participant, and (ii) terminate any agreement entered into between the CAISO and the Market Participant that allows the Market Participant to participate in the CAISO Markets, effective upon the date the CAISO sends written notice of the termination to the market participant or upon the date established in accordance with FERC rules if FERC rules require the CAISO to file the notice of termination with FERC. If the CAISO sends a notice of

suspension or termination to a market participant pursuant to Tariff Section 12.5.2(e), the Market Participant will not have the right to prevent such suspension or termination by curing its late posting of additional Financial Security. The CAISO will, following termination of an agreement pursuant to Tariff Section 12.5.2(e) and within thirty (30) days of being satisfied that no sums remain owing by the Market Participant under the CAISO Tariff, return or release to the Market Participant, as appropriate, any money or credit support provided by such Market Participant to the CAISO under Tariff Section 12.

- (f) Any time that a Market Participant is late in posting additional Financial Security, the CAISO may also take other enforcement actions as described in Tariff Section 12 and in the applicable Business Practice Manual, if deemed necessary by the CAISO to protect the financial integrity of the CAISO Markets.

8.4 Reducing the Amount of Financial Security

A Market Participant may request a reduction in its Financial Security through written communication to CAISOCredit@caiso.com by giving the CAISO not less than fifteen (15) calendar days' notice of the reduction, provided that the Market Participant is not then in breach of Section 12.3 of the CAISO Tariff. The CAISO will review such request, notify the Market Participant after such review and then, unless the request is declined as described below, proceed to release or reduce in the amount of Financial Security according to the Market Participant's request.

The CAISO may decline to reduce or release a Financial Security amount or may release a lesser amount for any of the following reasons:

- a) The Estimated Aggregate Liability for the Market Participant cannot be accurately determined due to lack of supporting settlement charge information
- b) The most recent liabilities of the Market Participant are volatile to a significant degree and/or a reduction or release of such amount would most likely cause an additional collateral request
- c) The Market Participant has provided notice that it is terminating or significantly reducing its participation in the CAISO markets. Please see Section 8.4.1 for additional information.

8.4.1 Debtor/Creditor Market Participants Leaving the Market or Incurring Substantial Activity Level Changes

Those Market Participants that are exiting the CAISO markets, or that have changed their business practices resulting in substantially reduced participation in the CAISO markets, will be required to maintain an Aggregate Credit Limit at least equal to the highest Estimated Aggregate Liability in the last rolling 24 months or the longest settlement rerun. Should the highest Estimated Aggregate Liability in the last rolling 24 month be a de minimis amount, the CAISO may use discretion on the final amount to be held based on, but not limited to settlement data, legal matters and/or other financial information related to the Market Participant. Should the Market Participant wish to terminate their CAISO agreement(s), please contact SCRequests@caiso.com via email to initiate this process.

Upon completion and approval of the termination documents, and after the termination becomes effective in Master File, the CAISO Credit Team will review a return of Financial Security in light of these requirements. It is the Market Participants responsibility to contact CAISOCredit@caiso.com via email on or after the effective termination date to request a return of Financial Security.

9. Weekly Market Clearing

In this section you will find information on the following topics:

- Overview of Market Clearing Process and Invoice Payment Options
- Publishing of CAISO Market Invoices
- When Interest Deviation is calculated
- What happens the day prior to Market Clearing
- What happens the day of Market Clearing
- Issues related to late payment of market invoices
- Enforcement actions for late payments
- Post-closing Adjustments and Dispute Resolution
- Shortfall and Default Loss Allocation

9.1 Overview of Market Clearing Process and Invoice Payment Options

Market Participants transact in the CAISO Market in a number of ways. The CAISO tracks such transactions and, on a weekly basis, issues invoices and/or payment advices to Market Participants depending on whether they are net debtors (*i.e.*, Market Participants that owe money to the market) or net creditors (*i.e.*, Market Participants who are owed money by the market). The process of collecting money and distributing it to the Market Participants who are owed money by the Market is referred to as the CAISO's Market Clearing process. According to the CAISO Tariff, acceptable forms of payment to the CAISO include Automated Clearing House (ACH) or Fed Wire payments. Additionally, a Market Participant can opt for an ACH direct debit, which allows the CAISO to directly pull the invoice amount from the Market Participant's bank account. Market Participants interested in signing up for ACH or the ACH direct debit for invoice payments, can contact their respective CAISO Customer Service Representative³. Regardless of which payment option is selected, all payments must be received by the CAISO no later than 10 a.m. Pacific Standard Time (PST) on the invoice due date. Timely invoice payments allow the CAISO sufficient time to clear the market by paying net creditors in the Market by 2 p.m. PST. Methods to handle late payments and payment defaults are covered in more detail in Section 9.6 of this BPM.

³ http://www.caiso.com/Documents/List-SchedulingCoordinators_CRRHoldersandConvergenceBiddingEntities.pdf

9.2 Publishing of CAISO Market Invoices

CAISO Market Invoices are published once a week by CAISO Settlements and are loaded into CAISO systems accordingly. Typically, invoices are published every Wednesday and payment is due the following Tuesday according to the schedule in CAISO Payment Calendar⁴. If the invoice due date falls on a holiday, all invoices will be published on the next available business day and due five (5) business days from the date the invoice was published. Invoices are published at the Scheduling Coordinator ID (SCID) level. A Market Participant can pay one lump sum payment for multiple invoices, but the CAISO does not allow netting of invoices and payment advices across SCIDs. Each invoice can be viewed and downloaded through the Market Results Interface – Settlements (MRI-S) on the CAISOs Market Participant Portal using a CAISO issued certificate. For assistance obtaining a CAISO Certificate or using MRI-S, please contact your respective Customer Service Representative³.

For additional information on the Invoicing Process, please see Sections 2.1.3 and 2.1.4 of the BPM for Settlements and Billing.

9.3 Deviation Interest Calculation

The purpose of the Deviation Interest calculation is to provide financial incentives to submit reasonable estimates of Meter Data and ensure that the time value of money is accounted for when Market Participants initial overcharge or undercharge due to estimated Meter Data. These interest charges are based on deviations between the total dollar amount of true-ups and the initial invoices for a given bill period. Interest is calculated on the true-up invoices and will appear on the next available market invoice. Only market invoices will have interest deviation calculations performed. Annual FERC and Legacy RMR invoices are exempt from this calculation. All RMR contracts becoming effective on or after 9/1/2018 are subject to interest deviation calculations.

Following the publication of the weekly CAISO Market Invoices, the interest deviation calculations are generated by the CAISO Accounting and are submitted to CAISO Settlements each Friday. If Friday is a holiday, the interest deviation calculations are submitted on the following business day. These interest charges will appear on the next available market invoice.

For additional information on Deviation Interest, please see Section 6.3.3 of the BPM for Settlements and Billing.

⁴ <http://www.caiso.com/market/Pages/Settlements/Default.aspx>

9.4 One Day Prior to Market Clearing

For customers who have elected the Automated Clearing House (ACH) direct debit option, the CAISO will generate and submit to its bank an ACH direct debit file one day prior to the invoice due date. The invoice amount debited is redeemed from the Market Participant's account one (1) day after the direct debit is made by the CAISO. If the account lacks sufficient funds at the time of the direct debit, the Market Participant will be required to Fed Wire any outstanding amounts to the CAISO by the 10 a.m. PST deadline on the invoice due date.

One (1) business day prior to the invoice due date, a payment status email is sent by CAISO Accounting to the CAISO Customer Service and CAISO Credit Departments to notify each group of any pending invoices. Customer Service Representatives may contact their customers to provide them a reminder of any upcoming invoices that are due to be paid and to remind them of the payment deadline. This contact, while not required by the CAISO Tariff, may come in the form of an e-mail, phone call or both. It is done as a courtesy to ensure timely market clearing and to allow Market Participants to avoid any late payment penalties.

9.5 Day of Market Clearing

On the morning of an invoice due date, payment status emails are sent to the CAISO Customer Service and CAISO Credit Departments at 8 a.m. PST and 9 a.m. PST, to notify them of those Market Participants who have yet to send the CAISO their respective invoice payments. At this time, a Customer Services Representative will contact their customers to inform them of their payment due the CAISO. All invoice payments due to the CAISO must be received by 10 a.m. PST on the invoice due date.

Payments received after 10 a.m. PST, based on the timestamp as to when the payment was received by the CAISO's bank, are considered late. CAISO Accounting will send the CAISO Customer Services and CAISO Credit Departments an email noting all such late payers.

Once all payments have been received by the CAISO, outgoing payments will generally be made to all net creditors by 2 p.m. PST on the invoice due date⁵. CAISO Tariff Section 11.29.9.6.1 provides additional detail as to the rules governing how the CAISO clears the market.

⁵ As per the tariff, CAISO has up to five (5) Business Days from the date of collection to remit invoice payments

9.6 Late Payments and Payment Defaults

If a Market Participant is unable to meet the 10 a.m. PST payment deadline, the Market Participant will receive a notice of late invoice payment and may be subject to late payment penalties as described in CAISO Tariff Section 11.29.14 and Section 9.7 of this BPM. Repeated instances may result in the CAISO taking other enforcement actions as described in the CAISO Tariff and in the applicable Business Practice Manual. Additionally, any time that a Market Participant is unable to meet the 10 a.m. PST payment deadline, the CAISO will assess interest to the Market Participant and will apply interest payments as set forth in CAISO Tariff Section 11.29.13.1. These interest charges will appear on the next available invoice.

If a Market Participant is unable to meet the 10 a.m. PST payment deadline, but provides adequate assurance that they are in the process of paying their invoice(s), the CAISO may draw upon the Market Participant's Financial Security, as set forth in Tariff Section 11.29.13.3. The CAISO may also temporarily cover a late payment by drawing from the CAISO Reserve Account and/or the CAISO Penalty Reserve Account. Once the Market Participant has made payment of their invoice amount(s), the CAISO accounts drawn upon to cover such amount(s) will be replenished, with interest, in the reverse order in which they were drawn from.

In the event CAISO does not receive adequate assurance that a payment will be late or if a Market Participant is unable or unwilling to pay an invoice amount by 10 a.m. on the invoice due date, the CAISO will take the appropriate steps against the Market Participant to recover all amounts due. The CAISO will first draw on any available Financial Security, including any funds posted to satisfy the CAISO's minimum capitalization requirements. Should there still be outstanding amounts due, the CAISO will draw upon the CAISO Reserve Account and the CAISO Penalty Reserve Account as described in CAISO Tariff Section 11.29.9.6. Any remaining outstanding amounts due to the CAISO will be considered in default and subject to CAISO's default allocation process as described in CAISO Tariff Section 11.29.17.2 and the following paragraph.

In a payment default, the default amount will initially be allocated to net creditors, with credit amounts greater than \$5,000, by reducing payments owed to them on a pro rata basis. On a subsequent invoice, the default amount will be allocated to all Market Participants according to the Market Participant's published, quarterly default allocation percentage⁶. The CAISO will attempt to recover any and all default payment amounts plus interest from the defaulting Market Participant. Any default amounts and interest recovered from a defaulting Market Participant will be returned to Market Participants on a pro rata basis. The CAISO will apply payments received in regards to amount owing to the creditors to repay the relevant debts in the order they were created. Once Market Participants have been made whole, any remaining recovered amounts will be used to replenish the CAISO Reserve Account and CAISO Penalty Reserve Account.

⁶ Applies to all defaults within a calendar quarter as described in CAISO Tariff Section 11.29.17.2.1. For charge codes that are not included in the quarterly default allocation percentage calculation, please see <http://www.caiso.com/market/Pages/Settlements/Default.aspx>

9.6.1 Shortfall and Default Loss Allocation

In the event of a payment default and insufficient funds in the CAISO Reserve Account or the CAISO Penalty Reserve Account, or by enforcing any Financial Security, the CAISO will run the Shortfall Loss allocation process. A Pass Thru Bill (PTB) of the defaulting invoice amount will be submitted to the Settlements Department. Settlements will allocate the defaulted amount, after deducting the Grid Management Charge and FERC Annual Charges, to all Net Creditor invoices with amounts greater than \$5,000. A batch of Shortfall Loss Type invoices will be generated by the Settlements system and sent back to Market Clearing within two (2) hours of the PTB submission. Market Clearing will then apply the shortfall loss invoices against all Net Creditor invoices and clear the market.

On the next practicable invoice run, the remaining unpaid defaulted amount(s) are allocated against Net Debtors (excluding the CAISO Debtor who has not paid the payment default amount) and Net Creditor through a percentage share calculated. Market Clearing will generate the unpaid defaulted amount and all shortfall hold amounts in a PTB to Settlements. Settlements will then take this data and publish it on the next available market invoice run. Settlements will also load the default loss allocation amounts onto Default Loss Type invoice and send the amounts back to Market Clearing. Market Clearing will release the shortfall hold from the original Net Creditor invoices and apply the new default loss allocation invoice amount to all Net Debtor and Net Creditor invoices. These invoices will remain in the Market Clearing system until the original defaulted invoice is paid.

9.6.2 Review of Creditworthiness

At any time a Market Participant delays or defaults in making payments to the CAISO, the CAISO may review the creditworthiness of that Market Participant. Subject to such review, the Market Participant may be required to provide additional credit support, regardless if it has an Unsecured Credit Limit or not, in the form of any of the types of Financial Security listed in Section 5.1 of this BPM. Additionally, the CAISO may require the Market Participant to maintain such Financial Security for at least one (1) year from the date of such delay in payment or default, as per Section 12.2 of the CAISO Tariff.

9.7 Enforcement Actions for Late Payments

Each Market Participant that is late in paying the amount set forth in an Invoice from the CAISO is subject to the following enforcement actions:

- (a) After each of the first four (4) times during a rolling twelve (12) month period that a Market Participant is late in paying the amount set forth in an Invoice from the CAISO, the CAISO will send the delinquent Market Participant a warning notice via email.
- (b) After the fifth time during a rolling twelve (12) month period that a Market Participant is late in paying the amount set forth in an Invoice, the CAISO may revoke the Market Participant's Unsecured Credit Limit and require the Market Participant to post cash or another form of Financial Security reasonably acceptable to the CAISO in lieu of unsecured credit or any other form of Financial Security to secure the Market Participant's financial obligations. The CAISO will require such a cash posting or other form of Financial Security for no fewer than twelve (12) months following the month in which the Market Participant's fifth delinquency occurs, and the CAISO may then return to the Market Participant all or a portion of the posted cash or other form of Financial Security, reinstate the Market Participant's ability to use an Unsecured Credit Limit, and reinstate the Market Participant's ability to use unsecured credit or other form of Financial Security to secure the Market Participant's financial obligations if, during the intervening time, the Market Participant has timely paid all of the amounts set forth in its Invoices from the CAISO, and timely met any requests for Financial Security pursuant to Tariff Section 12.4.1.
- (c) After the fifth time and each subsequent time during a rolling twelve (12) month period that a Market Participant is late in paying the amount set forth in an Invoice, the CAISO will assess a penalty to the market participant equal to the greater of \$1,000 or two percent (2%) of the amount set forth in the Invoice that the Market Participant has been late in paying, up to a maximum amount of \$20,000 per each late payment for which the CAISO assesses a penalty pursuant to Tariff Section 11.29.14(c). This penalty will be included in the next Invoice to the Market Participant. Penalty amounts collected by the CAISO pursuant to Tariff Section 11.29.14(c) will be treated as set forth in Tariff Section 11.29.9.6.4.
- (d) After the sixth and any subsequent times during a rolling twelve (12) month period that a Market Participant is late in paying the amount set forth in an Invoice, the CAISO may extend the time period that it imposes the measures described in Tariff Section 11.29.14(b) for the Market Participant's fifth delinquency during a rolling twelve (12) month period.
- (e) After the seventh time during a rolling twelve-month period that a Market Participant is late in paying the amount set forth in an Invoice, the CAISO may, notwithstanding any other provision of the CAISO Tariff, (i) suspend any and all rights of the Market Participant under the CAISO Tariff, effective immediately after the CAISO sends

written notice of the suspension to the Market Participant, and (ii) terminate any agreement entered into between the CAISO and the market participant that allows the Market Participant to participate in the CAISO Markets, effective upon the date the CAISO sends written notice of the termination to the Market Participant or upon the date established in accordance with FERC rules if FERC rules require the CAISO to file the notice of termination with FERC. If the CAISO sends a notice of suspension or termination to a Market Participant pursuant to Tariff Section 11.29.14(e), the Market Participant will not have the right to prevent such suspension or termination by curing its late payment of an amount set forth in an Invoice. The CAISO will, following termination of an agreement pursuant to Tariff Section 11.29.14(e) and within thirty (30) days of being satisfied that no sums remain owing by the Market Participant under the CAISO Tariff, return or release to the Market Participant, as appropriate, any money or credit support provided by such Market Participant to the CAISO under Tariff Section 12.

- (e) Any time that a Market Participant is late in paying the amount set forth in an Invoice, the CAISO will assess Interest to the Market Participant and will apply Interest payments as set forth in Tariff Section 11.29.13.1. Any time that a Market Participant is late in paying the amount set forth in an Invoice, the CAISO may also take other applicable enforcement actions in the CAISO Tariff and in the applicable Business Practice Manual, if deemed necessary by the CAISO to protect the financial integrity of the CAISO Markets.

9.8 Post-Closing Adjustments and Dispute Resolution

In the event of an invoicing error caused by the CAISO Settlements system, the CAISO will make its best effort to verify the data and make the necessary corrections. The invoicing error amount will either be adjusted and invoiced outside of the Settlements system or corrected and placed on the next available settlement statement and subsequent invoice.

For additional information regarding invoice adjustments, please see Section 11.29.10.3 of the CAISO Tariff.

9.9 Banking Changes for RMR Contracts vs Legacy RMR Contracts

The CAISO will use its established market clearing account to administer all RMR-related transactions for contract entered on or after 9/1/2018. Going forward, all payments and disbursements will be made from this account.

The CAISO shall continue to establish two segregated commercial bank accounts (RMR Owner Facility Trust Account and Responsible Utility Facility Trust Account) as per Section 11.13.2.1 Facility Trust Accounts of Appendix H to the CAISO Tariff for each legacy RMR contract that originated prior to 9/1/2018.

10. Credit Policy Enforcement Actions

In this section you will find the following information:

- Enforcement actions for under-secured Market Participants

10.1 Enforcement Actions for Under-Secured Market Participants

Following the date on which a Market Participant commences trading or participates in CRR activities, if a Market Participant's Estimated Aggregate Liability, as calculated by the CAISO, at any time exceeds its Aggregate Credit Limit, the CAISO may take any or all of the following actions:

- (a) The CAISO may withhold a pending payment distribution.
- (b) The CAISO may limit trading, which may include rejection of Bids or the unbalanced portion of ETC Self-Schedules and/or limiting other CAISO market activity, including limiting eligibility to participate in a CRR Allocation or CRR Auction. In that case, the CAISO shall notify the Market Participant of its action and the Market Participant is not entitled to submit further Bids or unbalanced ETC Self-Schedules to the CAISO or otherwise participate in the CAISO's markets until the Market Participant posts an additional Financial Security Amount that is sufficient to ensure that the Market Participant's Aggregate Credit Limit is at least equal to its Estimated Aggregate Liability.
- (c) The CAISO may restrict, suspend, or terminate the Market Participant's Service Agreement, including CRR agreements.
- (d) The CAISO may require the Market Participant to post an additional Financial Security Amount in lieu of an Unsecured Credit Limit for at least one year.
- (e) The CAISO may resell a CRR Holder's CRRs in whole or in part, including any Long Term CRRs, in a subsequent CRR Auction or bilateral transaction, as appropriate.
- (f) The CAISO will not implement the transfer of a CRR if the transferee or transferor has an Estimated Aggregate Liability in excess of their Aggregate Credit Limit.

In addition, the CAISO may restrict or suspend a Market Participant's right to Bid or require the Market Participant to increase its Financial Security Amount if at any time the Market Participant's potential additional liabilities and other CAISO charges are determined by the CAISO to be excessive by comparison with the likely cost of the amount of Energy scheduled by the Market Participant.

With respect to item (c) and (f) above, the CAISO would provide a cure period prior to the termination of a Service Agreement or CRR Agreement, or the reselling of a CRR portfolio, as per Section 12.5.1 of the CAISO Tariff.

11. Credit Information Available to Market Participants

In this section you will find the following information:

- A summary of the credit related information published by the CAISO
- An overview on the CAISO Credit Portal and credit information available to Market Participants

11.1 Credit Related Information Published by the CAISO

The CAISO may publish in its monthly financial statement information of relevance to credit analysts for creditors of the CAISO market. Such information may include the amount of collateral managed by the CAISO by collateral type; i.e., unsecured and secured forms of collateral, total Estimated Aggregate Liability and the amounts of secured and unsecured collateral by credit rating.

11.2 CAISO Credit Portal

In this section you will find the following

- A description of the CAISO Credit Portal
- Obtaining access to the CAISO Credit Portal
- Information Available on the CAISO Credit Portal

11.2.1 The CAISO Credit Portal

The CAISO Credit Portal, located in the Credit Management section of the CAISO's Market Participant Portal (MPP), provides Market Participants a snapshot of their available credit for market transactions and for virtual bidding as well as for CRR auctions. Aggregate Credit Limit and total Estimated Aggregate Liability (EAL) data is updated on the Credit Portal approximately every 15 minutes, as data becomes available from credit, settlements and other CAISO systems. In addition to the credit data available on the Credit Portal, several reports are also available for download. These reports provide the Market Participant with additional detail related to their EAL and detailed charge data to further assist Market Participants in monitoring changes in their liabilities. For additional information on the EAL, please see Section 6 of this

BPM.

11.2.2 Obtaining Access to the CAISO Credit Portal

To obtain access to the CAISO Credit Portal, an employee or consultant of a Market Participant is required to have a CAISO-issued certificate. To request a certificate, each employee or consultant must have their Point of Contact (POC) request a new certificate and Credit Management access through the CAISO's Access and Identity Management (AIM) tool. In the event an employee or consultant already has a certificate, then only Credit Management access will need to be requested. If the employee or consultant requesting access is not aware who their POC is, they will need to contact their CAISO Customer Service Representative. A Market Participant can locate their Customer Service Representative Contact⁴ information on the CAISO website.

Once the POC has submitted the request, it can take up to six (6) business days for the employee or consultant to receive their certificate and obtain access to the requested systems. In the event the employee or consultant already has a certificate and is just requesting Credit Management access, such access is typically granted within two (2) to three (3) business days.

For additional information on the CAISO's AIM tool and requesting application access, please refer to Section 5.3.4 of the BPM for SC Certification and Termination on the CAISO's website.

11.2.3 Information Available on the CAISO Credit Portal

Once access has been granted to the Credit Management section of the MPP, the Market Participant will be able to view their Aggregate Credit Limit, Total Estimate Aggregate Liability and Available Credit for market transactions and convergence bidding. In addition, Market Participants will be able to view their usable secured credit, CRR Liabilities and usable secured available credit for participation in CRR auctions. Aggregate Credit Limit and usable secured credit amounts as well as liabilities are aggregated and reported at the parent Scheduling Coordinator Identification (SCID) level.

The left side of the CAISO Credit Portal details the Market Participant's available credit for market transactions and virtual bidding. The Aggregate Credit Limit is the sum of all of forms of secured and unsecured collateral posted with the CAISO (minus any amount posted to meet the minimum participation requirement). The total Estimated Aggregate Liability is an estimate of the Market Participant's current liabilities with the CAISO based on the latest credit, settlements and other CAISO systems data available and as further described in Section 6 of this BPM.

The right side of the CAISO Credit Portal details the usable secured available credit for participation in a CRR Auction. The usable secured credit is the sum of all letters of credit and/or prepayments posted with CAISO. Such forms of collateral are required to be posted for participation in the monthly and annual CRR Auctions and must be sufficient to cover all bids in

a CRR auction, as well as any CRR settlement charges as represented on the CAISO Portal as CRR liabilities.

In addition to the data available on the front-end user screen of the CAISO Credit Portal, the Market Participant can also download seven (7) additional reports. These reports provide the Market Participant a breakdown of their liabilities on an EAL component and charge code level. The reports available include:

- Parent Company EAL Report which provides EAL for a parent and each of its associated Business Associate IDs (BAIDs) as well as the amount of posted collateral aggregated at the parent BAID level.
- Parent-Child EAL Report which provides EAL for a parent and each of its associated BAIDs at the EAL component level
- Detailed Charge Code Data which provides a further breakdown of EAL at the charge code level. In this report, charge code detail is reported by Trade Date, BAID and EAL Component.
- CRR Parent-Child EAL Report which provided CRR EAL for a parent and each of its associated BAID's at the EAL component level
- CRR Parent-Child EAL Historical Report which provides CRR EAL data for a parent and each of its associated BAIDs at the EAL component level with a seven (7) day look-back
- Parent Company EAL Historical Report which provides EAL for a parent and each of its associated BAIDs as well as the amount of posted collateral with a seven (7) day look-back
- Detailed Charge Code Historical Report Data which provides a further breakdown of the EAL with a seven (7) day look-back

Please note that the data presented on the CAISO Credit Portal is updated approximately every 15 minutes, as data becomes available from the various CAISO systems. Due to the lag in updating, Market Participants could see a difference in what's presented on the CAISO Credit Portal and the reports depending on the time the portal is accessed and when the reports are run. Use of the CAISO Credit Portal and the information contained on it is governed by the Disclaimer of Warranties / Credit Management – a link for which is available at the bottom of the Credit Management section of the MPP.

12. Dispute Procedures

In this section you will find the following information:

- The steps to use to dispute the Estimated Aggregate Liability amount determined by the CAISO

The CAISO provides Market Participants the ability to dispute the Estimated Aggregate Liability calculated by the CAISO and, as a result, the CAISO may reduce or cancel a requested Financial Security adjustment.

12.1 Estimated Aggregate Liability Calculation Dispute Process

The following steps are required for a Market Participant to dispute a Financial Security request resulting from the CAISO's calculation of Estimated Aggregate Liability:

1. Request by the Market Participant to review the CAISO's Estimated Aggregate Liability calculation.
2. Present a reasonable and compelling situation, as determined by the CAISO client representative.
3. Document the facts and circumstances that evidence that the CAISO's calculation of Estimated Aggregate Liability results in an excessive and unwarranted Financial Security posting requirement.
 - a) Examples of facts and circumstances include:
 - i) Issues related to non-recurring retroactive charges
 - ii) Demonstrable changes in expected obligations as a result of physical changes (e.g., new capacity or loss of customers).
 - b) Present a reasonable alternative calculation of the Estimated Aggregate Liability.
4. In response to the dispute request, the CAISO will determine whether the request for the adjustment to the Estimated Aggregate Liability is warranted. Review of the request to determine validity based on facts and circumstances presented shall include consideration of:
 - a) Weighing the risk of using the lower figure to the potential detriment of market creditors, if the Market Participant is under-secured and defaults, against the

- desire not to impose additional potentially unwarranted costs on that Market Participant;
- b) Equity and consistency of treatment of Market Participants in the dispute procedure;
 - c) The evidentiary value of the information provided by the Market Participant in the dispute procedure;
 - d) The CAISO may decline to adjust the initial Estimated Aggregate Liability amount if the Market Participant has had Financial Security shortfalls in the past 12 months (i.e., it has been shown that the Market Participant's Aggregate Credit Limit at times during the preceding 12 months has been insufficient to cover its Estimated Aggregate Liability).
5. Approval of the Estimated Aggregate Liability adjustment and reduction or elimination of the Financial Security request shall require the approval of the CAISO Manager and/or Director of Customer Services and Industry Affairs and the CAISO Treasurer.

12.2 Timing for Dispute Procedure

Within the two (2) business days of the request for Financial Security by the CAISO, the Market Participant must either demonstrate to the CAISO's satisfaction that the Financial Security request is all or partially unnecessary, or post the required Financial Security Amount calculated by the CAISO.

If the CAISO and Market Participant are unable to agree on the appropriate level of Financial Security during the two (2) business day review period, the Market Participant must post the additional Financial Security and continue the dispute procedure as described in Section 12.1 of this BPM. Any excess Financial Security amounts will be returned to the Market Participant if the dispute process finds in favor of the Market Participant.

Failure to abide by the provisions of this section may lead to enforcement measures as described in Section 10 of this BPM.

13. Financial Responsibility Related to RMR Contracts

In this section you will find information on the following topics:

- Financial Requirements for new Responsible Utilities for RMR costs

Financial Requirements for RMR owners

13.1 Responsibility for RMR Costs by New Responsible Utilities

The credit obligations for Reliability Must-Run Contracts are independent of the credit responsibilities for other CAISO activities. If a Responsible Utility first executed a Transmission Control Agreement after April 1, 1998 (a "New Responsible Utility") and if:

- The senior unsecured debt of the New Responsible Utility is rated or becomes rated at less than A- from S&P or A3 from Moody's, and
- Its rating does not improve to A- or better from S&P or A3 or better from Moody's within 60 calendar days
- then the following credit responsibilities must be observed by the New Responsible Utility:
 1. The New Responsible Utility must provide to the CAISO an irrevocable and unconditional letter of credit in an amount equal to three times the highest monthly payment invoiced by the CAISO to the New Responsible Utility (or the prior Responsible Utility) in connection with services under Reliability Must-Run Contracts in the last three months for which invoices have been issued.
 2. The letter of credit must be issued by a bank or other financial institution whose senior unsecured debt rating is not less than A from S&P and A2 from Moody's.
 3. The letter of credit must be in the form that the CAISO may reasonably require from time to time by notice to the New Responsible Utility and authorize the CAISO or the RMR Owner to draw on the letter of credit for deposit solely into the RMR Owner Facility Trust Account in an amount equal to any amount on the CAISO invoice due and not paid by the Responsible Utility.

The security provided by the New Responsible Utility under this section is intended to cover the New Responsible Utility's outstanding liability for payments it is liable to make to the CAISO under this section, including monthly payments, any reimbursement for capital improvement, termination fees and any other payments to which the CAISO is liable under Reliability Must-

Run Contracts. These Financial Security requirements are separate from those required for other CAISO activities.

13.2 Financial Responsibility by RMR Contract Holders

Section 12.7 of the pro-forma RMR agreement⁶ provides that RMR owners shall meet certain financial requirements throughout the term of the RMR agreement. The purpose of these requirements is to provide reasonable assurance that the RMR owner has adequate financial resources to meet its obligations throughout the RMR term. RMR Owner Financial Requirements include:

- (a) Through the term of the Agreement, Owner shall maintain an investment grade rating by Moody's or Standard and Poor's or provide documentation from a financial institution or corporate owner acceptable to the CAISO that there is an equity position described below. The CAISO shall not unreasonably withhold acceptance of the documentation.
 - (i) An equity to debt ratio of at least 30%, or
 - (ii) An equity to total asset ratio of at least 30%, or
 - (iii) Demonstrate to the CAISO's reasonable satisfaction that other factors, including, without limitations, commercial financing arrangements, and working capital positions, mitigate the risk of Owner failing to meet the performance requirements under this Agreement.
- (b) If the Owner does not possess and maintain an investment grade rating, an equity position or make other arrangements as described in Section 12.7(a), then it must provide one of the following:
 - (i) Proof of insurance to cover the financial exposure to the CAISO for one year of Capital Items, Repairs, fuel and any other operating expenses; or
 - (ii) Security to cover the financial exposure to the CAISO for one year of Capital Items, Repairs, fuel and any other operating expenses in one of the following forms:
 - (A) standby letter of credit;
 - (B) corporate guarantee;
 - (C) cash deposit; or
 - (D) security bond.